



COMMITTEE ON SCIENCE AND TECHNOLOGY FOR DEVELOPMENT

REPORT ON THE SECOND SESSION

(11-29 March 1974)

ECONOMIC AND SOCIAL COUNCIL

OFFICIAL RECORDS: FIFTY-SEVENTH SESSION

SUPPLEMENT No. 3

UNITED NATIONS



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NOTE

Symbols of United Nations documents are composed of capital letters combined with figures. Mention of such a symbol indicates a reference to a United Nations document.

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I. QUESTIONS THAT REQUIRE ACTION BY, OR ARE BROUGHT TO THE ATTENTION OF, THE ECONOMIC AND SOCIAL COUNCIL

1. The Committee on Science and Technology approved the following draft resolutions for adoption by the Economic and Social Council:

Draft resolution I

Question of convening a United Nations conference on science and technology 1/

The Economic and Social Council,

Bearing in mind General Assembly resolution 3168 (XXVIII) of 17 December 1973 and Council resolution 1826 (LV) of 10 August 1973 on the role of modern science and technology in the development of nations and the need to strengthen economic, technical and scientific co-operation among States,

Reiterating that the application of science and technology is an increasingly important factor in the economic and social development of all countries,

Bearing in mind the important activities of various agencies and organizations of the United Nations system in the applications of science and technology to development, and in particular those of the United Nations Conference on Trade and Development related to the transfer of technology to developing countries,

Recognizing that the rapid pace of developments with respect to science and technology in general, as well as those having particular relevance for the developing countries, should be monitored and constructively channelled,

Recognizing further that these developments, and particularly the new needs in the field of science and technology, make it imperative for the United Nations to expand international co-operation in the field of science and technology on the basis of principles designed to adjust the scientific and technological relationships amongst States in a manner compatible with the special requirements and interests of developing countries,

Recognizing also the need to stimulate increased interest and action in the field of science and technology for development, and convinced that this could be facilitated by an adequately prepared international conference oriented towards the elaboration of methods of action with representation at a high level,

Noting that the Committee on Science and Technology for Development and the Advisory Committee on the Application of Science and Technology to Development provide appropriate forums for the study of the scientific and technological

1/ See paragraphs 5-8 below.

aspects of development and for the co-ordination of related activities in other United Nations bodies, but that complete information on these activities would be necessary for such a study,

Taking note of the observations of the Secretary-General (E/C.8/25) and the eleventh report of the Advisory Committee on the Application of Science and Technology to Development (E/C.8/24),

1. Takes note of the section of the report of the Committee on Science and Technology for Development on its second session dealing with the question of convening a United Nations conference on science and technology in 1978 or 1979 (see E/5473, chap. II, sect. A);

2. Decides to convene in 1975 an intergovernmental working group of the Committee on Science and Technology for Development to examine the specific objectives, topics and agenda of such a conference based on the recommendations of the Advisory Committee on the Application of Science and Technology to Development, the UNCTAD Intergovernmental Group on the Transfer of Technology of the United Nations Conference on Trade and Development, the regional economic commissions and other relevant United Nations bodies;

3. Emphasizes the necessity for such a conference, which would be generally intended to survey methods of future action to be carefully structured and concerned with only a few selected, well-defined subjects and, in this respect, emphasizes the importance of thorough preparation;

4. Decides that the intergovernmental working group shall report its findings to the next session of the Committee on Science and Technology for Development which will submit its recommendations regarding the proposed conference to the Economic and Social Council;

5. Requests the Secretary-General to prepare and submit to the intergovernmental working group at its first session a report containing his views on the scope and anticipated costs of such a conference.

Draft resolution II

World programme of development research and application of science and technology to solve the special problems of the arid areas 2/

The Economic and Social Council,

Guided by General Assembly resolution 3168 (XXVIII) of 17 December 1973, in which the Assembly requests it to give priority, inter alia, to the strengthening of economic, scientific and technical co-operation among States,

2/ See paragraphs 9-11 below.

Bearing in mind its resolution 1826 (LV) of 10 August 1973, in which it notes the need for new actions to intensify international co-operation permitting all countries, and in particular the developing countries, to benefit from the achievements of modern science and technology for the acceleration of their economic and social progress,

Considering:

(a) That there should be a precise identification, in the areas covered by the World Plan of Action for the Application of Science and Technology to Development, 3/ of the obstacles to development which could be overcome by recourse to science and technology and a resulting formulation of a specific policy,

(b) That it is necessary to bring these research and action targets to the attention of the Governments and scientific teams of all countries, developed or developing, so that they may voluntarily direct their efforts to these problems as part of their over-all policy,

(c) That it is also desirable that this awareness should lead to organized co-operation between the institutions in the United Nations family, the other international or regional institutions and the national bodies concerned, and that it should help to create or strengthen an autonomous research and action potential in the developing countries, avoid duplication and promote the use of the existing potential,

(d) That these organized efforts should cover a set of problems of sufficiently limited scope for them to remain specific, but of sufficiently broad scope for them to constitute a world-wide and interdisciplinary experiment in the application of science to development, on the basis of which the Committee on Science and Technology for Development could determine and improve its subsequent practice,

(e) That a study of the arid areas might be a pilot project that could represent an initial sphere of action, which, first, offers the advantage of having been the subject of detailed preparation by a programme of the United Nations Educational, Scientific and Cultural Organization, at the research level, and by several programmes of other agencies, at the action level, and, secondly, gives rise to urgent and sometimes tragic problems for a large number of developing countries,

1. Requests the Secretary-General to take the necessary steps to convene, through the United Nations Educational, Scientific and Cultural Organization, an ad hoc interagency task force on the arid areas, comprising persons appointed by the competent organizations in the United Nations system, including the World Health Organization, the Food and Agriculture Organization of the United Nations, the United Nations Development Programme, the United Nations Environment Programme and the regional economic commissions, who would work within the limits of the existing resources of the organizations. It would identify precisely the obstacles encountered by the developing countries which have not yet been overcome by science

3/ See United Nations publication, Sales No.: E.71.II.A.18.

and technology and the obstacles preventing the application of available technology, including social, economic, institutional and other obstacles, and would also prepare an inventory of current research and development actions and programmes, with a view to preparing a world programme of development research and application of science and technology to solve the special problems of the arid areas;

2. Requests the Ad Hoc Interagency Task Force to keep the Advisory Committee on the Application of Science and Technology to Development informed of the results of its work and to report thereon to the intergovernmental working group set up by the Committee on Science and Technology for Development on the question of convening a United Nations conference on science and technology for development, at its 1975 meeting;

3. Requests the Committee on Science and Technology for Development, at its third session, to consider and further elaborate this programme and to transmit it to the Economic and Social Council for the purpose of its implementation.

Draft resolution III

Mobilization of public opinion in relation to the World Plan of Action for the Application of Science and Technology to Development and the regional plans ^{4/}

The Economic and Social Council,

Recalling paragraphs 9 and 10 of its resolution 1823 (LV) of 10 August 1973 on the World Plan of Action for the Application of Science and Technology to Development,

Recognizing the need for Member States to have a deep understanding of the role of science and technology and its impact on national development,

Aware of the urgent need for mobilizing opinion on the objectives and measures of the World Plan of Action and the regional plans in solving the specific problems of developing countries,

Convinced that a favourable public opinion at the national, regional and global levels will encourage Governments to take the necessary steps to implement the various parts of the World Plan and the regional plans,

Aware of the limited resources of the United Nations at the disposal of the Secretary-General,

Taking note of the progress report of the Secretary-General (E/C.8/19),

1. Urges Governments and the organizations concerned within the United Nations system to effect without delay a wide exposure of the World Plan of Action for the

^{4/} See paragraphs 21 and 23-25 below.

Application of Science and Technology to Development and the regional plans to the technological community of developed and developing countries by conducting intensive campaigns through the use of appropriate mass media and, inter alia, by way of meetings or seminars on a national and regional basis;

2. Requests that the views and recommendations resulting from the meetings and seminars referred to in paragraph 1 be taken into account in the process of review and appraisal reflected in part I of its resolution 1823 (LV);

3. Requests the Secretary-General to make available to Member Governments the views and recommendations resulting from such seminars and meetings;

4. Further requests the Secretary-General to report on the progress achieved and the shortfalls, if any, encountered in the process of the implementation of this resolution to the Committee on Science and Technology for Development at its next session.

Draft resolution IV

Implementation of the World Plan of Action for the Application of Science and Technology to Development 5/

The Economic and Social Council,

Recalling General Assembly resolutions 1944 (XVIII) of 11 December 1963 and 2318 (XXII) of 15 December 1967 and Council resolutions 1155 (XLI) of 5 August 1966, 1638 (LI) of 30 July 1971 and 1717 (LIII) of 28 July 1972,

Reaffirming its resolution 1823 (LV) of 10 August 1973,

Noting the progress report of the Secretary-General on the World Plan of Action for the Application of Science and Technology to Development and the regional plans (E/C.8/19),

Noting with interest and appreciation the regional plans of action for the application of science and technology to development prepared by the Economic Commission for Africa, 6/ the Economic Commission for Asia and the Far East, 7/ the Economic Commission for Latin America 8/ and the Economic Commission for Western Asia, 9/

5/ See paragraphs 21 and 26-31 below.

6/ E/CN.14/579 (United Nations publication, Sales No.: E.73.II.K.3).

7/ E/CN.11/1071.

8/ E/CN.12/966.

9/ ESOB/HR/73/4/Rev.1.

Recognizing the urgent need to build up an indigenous and autonomous science and technology capacity in the developing countries,

Considering that the World Plan of Action and the regional plans should be kept under continuous review,

Convinced that the research activities on problems of developing countries, described in the World Plan of Action for the Application of Science and Technology to Development as well as those in national and regional plans, should be actively and vigorously pursued,

1. Reiterates the value of the World Plan of Action for the Application of Science and Technology to Development as a valuable set of guidelines and broad programmes suggested to Governments subject to their own individual priorities established in their national development plans;

2. Urges the Governments and the regional economic commissions to continue giving full attention to the World Plan of Action and the regional plans as an aid to the selection and preparation by decision-makers, and the scientific and technological community, of specific projects relevant to the needs of their countries;

I. Review and appraisal

3. Invites the Advisory Committee on the Application of Science and Technology to Development, in close co-operation with the agencies and organizations of the United Nations system concerned, to keep the World Plan of Action and the regional plans under periodic review and appraisal and, in the light of new developments, to prepare new areas of topics of research and development for incorporation into the World Plan and/or the regional plans, bearing in mind the need for integrated economic and social research as important factors when setting priorities in the field of science and technology and to present its conclusions and recommendations to the Committee on Science and Technology for Development;

II. Science and technology capacity

4. Requests the Secretary-General to consult with the organizations of the United Nations system on ways and means to identify the existing gaps in the institutional scientific infrastructure at the national, regional and global levels and on the measures that would be required to strengthen this infrastructure for the implementation of the research and policy measures contained in the World Plan of Action; use should be made of surveys already undertaken by organizations of the United Nations system, and especially the United Nations Educational Scientific and Cultural Organization, on existing scientific and technological institutions;

5. Invites the international financing organizations, particularly the United Nations Development Programme, the International Bank for Reconstruction and Development and the regional development banks, as well as developed countries, in close consultation with developing countries and at their specific request, to provide ways and means in support of the efforts of those countries to implement specific infrastructural projects for research and development;

6. Requests organizations of the United Nations system concerned to continue to develop flexible programmes for assistance to the developing countries, at their request, in keeping their existing scientific and technological infrastructure operational;

7. Requests the Secretary-General, in co-operation with the United Nations Educational, Scientific and Cultural Organization and the other agencies and organizations concerned, to report to the Economic and Social Council, through the Committee on Science and Technology for Development, on the progress made in action to strengthen the scientific and technological capacities of developing countries;

III. Implementation of research

8. Requests the Secretary-General to take all necessary action, in close consultation with the international financing organizations, particularly the United Nations Development Programme, the International Bank for Reconstruction and Development and the regional development banks, the specialized agencies, the International Atomic Energy Agency and the regional economic commissions and with interested States Members, for the establishment at the regional and/or global level, as may be required, of Consultative Groups or other such mechanisms aimed at rapid progress in areas for research and for the application of existing knowledge as identified in the World Plan of Action;

9. Invites the international financing organizations and developed countries to consider contributing financially to these Consultative Groups or other mechanisms;

IV. National science policies

10. Urges on all Governments the importance of drafting and implementing national science and technology policies and of giving high priority to the establishment of at least one centre for advisory services in the field of science and technology policy in each region and requests the Secretary-General, in co-operation with other international organizations, both inside and outside the United Nations system, to promote effective assistance in this field and in particular to strengthen such activities at the regional level;

11. Requests the Secretary-General to report on the progress made in the implementation of this resolution to the Economic and Social Council at its fifty-ninth session and to the Committee on Science and Technology for Development at its third session.

Draft resolution V

Quantification of scientific and technological activities
related to development 10/

The Economic and Social Council,

Recalling its resolution 1822 (LV) of 10 August 1973, in which it requested the Secretary-General to convene an intergovernmental group of experts on the quantification of scientific and technological activities related to development and to present its report to the Committee on Science and Technology for Development at its second session,

Having considered the report of the Intergovernmental Group of Experts (E/C.8/18),

Bearing in mind General Assembly resolution 3179 (XXVIII) of 17 December 1973 in which the Council was requested to instruct the Committee on Science and Technology for Development to give priority, at its second session, to the consideration of the subject of quantitative targets in the field of science and technology, to enable the Council to consider the subject at its fifty-seventh session, and recalling that by its decision 1 (LVI) of 10 January 1974 the Council had referred the subject to the Committee on Science and Technology for Development,

1. Commends the Intergovernmental Group of Experts on the Quantification of Scientific and Technological Activities related to Development for the excellent work undertaken;

2. Recommends to Governments on the basis of the conclusions and recommendations of the Intergovernmental Group of Experts:

(a) That they continue their efforts to establish data systems for scientific and technological activities or to further refine existing systems to include the identification of research and development objectives, so as to obtain the information necessary for the development of national policies and programmes in the field of science and technology;

(b) That, in the course of that process, they devote specific efforts to the identification of other characteristics of research and development projects necessary to establish the relevance of such projects to the specific problems of developing countries and to ensure that national data are internationally compatible;

3. In recognition of the difficulties to be encountered in developing national data systems and ensuring their international compatibility and being aware of the work and interest of national organizations in the field, requests that the United Nations Educational, Scientific and Cultural Organization, as part of its ongoing programmes regarding policies and statistics in the field of science and technology, should:

10/ See paragraphs 35-39 below.

(a) Serve as a focal point for the development of concepts, criteria, standard nomenclatures and methodologies for the purposes indicated in paragraph 2 above;

(b) Assist countries, on request, in elaborating and organizing their national data systems for science and technology with emphasis on the quantification of scientific and technological activities related to specific problems of developing countries. In complying with this request, the United Nations Educational, Scientific and Cultural Organization should avail itself of and draw upon the capabilities of the United Nations and other international bodies;

(c) Make its reports available to the Committee on Science and Technology for Development for consideration at its third session;

4. Stresses the need to initiate, continue and reinforce international co-operation in science and technology on already identified specific problems of developing countries without awaiting the availability of more refined data;

5. Requests the Committee on Science and Technology for Development to keep under continuing review the progress made in the quantification of scientific and technological activities related to development and to include the subject in the agenda of its third session.

Draft resolution VI

The role of an international technological information system in the transfer and assessment of technology and in the indigenous growth of appropriate technologies in developing countries 11/

The Economic and Social Council,

Recalling General Assembly resolution 2626 (XXV) of 24 October 1970, in which the Assembly requested that particular attention be devoted to fostering technologies suitable to developing countries,

Bearing in mind its resolutions 1636 (LI) of 30 July 1971 and 1715 (LIII) of 28 July 1972, which propose practical measures for the maximization of the contribution of technology to development,

Recognizing the urgent need for establishing in developing countries an indigenous science and technology capacity for the assessment of technology and the development of appropriate technologies,

Realizing:

(a) That developing countries, in order to achieve rapid economic growth, will have to rely to a large extent on imports of technology coupled with domestic research and development efforts,

(b) That it is necessary for developing countries to have a knowledge of alternative available technologies together with analyses of economic cost benefits

11/ See paragraphs 42-51 below.

and relevant data on the requirements of capital, labour, raw materials and other factors of production,

(c) That the transfer of technological information, including its collection, retrieval and analysis is basic to technology assessment perspectives and ecological, economic and social effects,

(d) That developing countries have established or are establishing national scientific and technical information centres,

(e) That the availability of technological information from international sources could improve the capability of the developing countries to take the fullest advantage of existing knowledge, so providing new alternatives and approaches to the solution of technical problems and assisting them in the rationalization and systematization of their research and development efforts,

1. With a view to ensuring that developing countries can readily obtain information beneficial to their technological planning, evaluation and development, requests the Secretary-General to undertake, with the co-operation of the Advisory Committee on the Application of Science and Technology to Development and the competent organizations of the United Nations system, including the United Nations Conference on Trade and Development, the United Nations Industrial Development Organization, the United Nations Institute for Training and Research, the International Labour Organisation, the Food and Agriculture Organization of the United Nations, the United Nations Educational, Scientific and Cultural Organization, the International Atomic Energy Agency and the regional economic commissions, a feasibility study on the progressive establishment of an international information exchange system for the transfer and assessment of technology; such system should serve the actual needs of potential users of the information and should be compatible with existing and proposed systems within the United Nations organization and, in particular, the Universal System for Information in Science and Technology;

2. Further requests the Secretary-General to report his findings with regard to paragraph 1 above to the Committee on Science and Technology for Development at its third session;

3. Invites the international financing organizations, particularly the United Nations Development Programme, the International Bank for Reconstruction and Development and the regional development banks, as well as developed countries, in close consultation with developing countries and at their specific request, to provide ways and means for supporting the actions of those countries aimed at establishing and strengthening centres and services for scientific and technical information as well as systems for the transfer and assessment of technology;

4. Invites the developing countries, as appropriate, to establish or strengthen their scientific and technological information systems in order to make full use of the type of information sought in paragraph 1 above.

Draft resolution VII

Application of computer science and technology to development 12/

The Economic and Social Council,

Aware that, in the field of science and technology, the application of computer science and technology to development is assuming ever-increasing importance and that it may facilitate solutions to some of the problems of the developing countries,

Considering the importance of having competent and impartial advice free from commercial pressure in the area of the application of computer science and technology,

Recalling General Assembly resolution 2804 (XXVI) of 14 December 1971 and Council resolution 1571 (L) of 14 May 1971, which stress the need to encourage actively, initiate and intensify multilateral co-operation in the application of computer science and technology,

Taking into account its resolution 1824 (LV) of 10 August 1973, which recognizes the need for expert services in the application of computer science and technology to assist the Committee on Science and Technology for Development, and also the need to undertake more activities within the United Nations system on various aspects of the application of computer science and technology to development,

Having examined the report of the Secretary-General on the application of computer science and technology for development (E/C.8/20/Rev.1), prepared pursuant to its resolution 1824 (LV), and the relevant paragraphs in the eleventh report of the Advisory Committee on the Application of Science and Technology to Development (E/C.8/24),

Taking note of the views and suggestions expressed by interested organizations of the United Nations system, international governmental organizations and non-governmental professional organizations and analysed in the above-mentioned report,

1. Requests the Administrative Committee on Co-ordination to ensure, through its Sub-Committee on Science and Technology, co-ordination of the activities of United Nations organs, and their co-ordination with the activities of other international organizations, in the application of computer science and technology to development;

2. Decides that the Committee on Science and Technology for Development will act as a focal point for activities concerning the application of computer science and technology for the benefit of the development of all countries and, in view of their specific problems, particularly the developing countries, and that, to assist it in this work, it should rely principally on the expert services provided by an existing United Nations body or bodies, such as the United Nations Educational,

12/ See paragraphs 54-65 below.

Scientific and Cultural Organization or the Advisory Committee on the Application of Science and Technology to Development, or by other competent intergovernmental organizations, such as the Intergovernmental Bureau for Informatics;

3. Requests the Advisory Committee on the Application of Science and Technology to Development to consider within the framework of its work the progress made in the application of computer science and technology in the developing countries and to submit to the Committee on Science and Technology for Development proposals on practical measures to be taken regarding such application;

4. Requests the Secretary-General, in consultation with the organizations referred to in paragraphs 2 and 3 above and with the Administrative Committee on Co-ordination, to submit to the Committee on Science and Technology for Development, at its third session, a report on the activities undertaken and proposals for the activities and studies to be undertaken within the United Nations system concerning the application of computer science and technology for the benefit of the developing countries, in particular concerning the list and order of priority of such studies and activities, and the ways and means of carrying them out with the assistance of the organizations referred to above;

5. Invites Governments to appoint a national body to serve as liaison between the users of computer science and technology and the bodies referred to in paragraph 2 above.

Draft resolution VIII

Outflow of trained personnel from developing to developed countries 13/

The Economic and Social Council,

Recalling General Assembly resolution 3017 (XXVII) of 18 December 1972 on the outflow of trained personnel from developing to developed countries and the resolutions of the General Assembly and the Council which constitute the background to that resolution and which are referred to in its first preambular paragraph,

Aware of the decisive importance for the developing countries of having their own technically and scientifically trained personnel in order to be able to derive maximum benefits from the transfer, choice and adaptation of imported technology and for the gradual development of national technology,

Considering that the product of the efforts and resources which the developing countries devote to the training of such trained personnel is adversely affected by the loss of their scientific and technological assets as a result of the brain drain, which now concerns some market-economy countries, thus weakening the developing countries' capacity to meet the challenge of their own unified development,

Recognizing that the most fundamental cause of this outflow of trained personnel is the difference in levels of development and that, consequently, one of the most effective ways of combating it lies within the broader framework of

13/ See paragraphs 70-76 below.

economic, scientific, technological and educational co-operation in the service of development, including social transformation,

Recognizing the importance of advanced training of personnel from developing countries in developed countries as well as the importance of international exchanges of scientists and technologists,

Recognizing also the necessity of elaborating proper technical manpower planning in order to ensure matching between training and requirements,

Recognizing further the need to improve the socio-economic conditions in general and in particular to strengthen educational opportunities and technological infrastructure in the developing countries,

Aware, however, that it is essential, for the purpose of choosing the correct forms of action in the light of the needs and priorities of each country or group of countries, to have available beforehand a more specific empirical data base regarding the phenomenon of this outflow, in quantitative and qualitative terms which demonstrate the magnitude of the problem,

1. Takes note of the report of the Secretary-General (E/C.8/21) and, in particular, of the guidelines it contains for a programme of action, which should be taken into account by the Committee on Science and Technology for Development in the adoption of future decisions on this subject:
2. Urges developing countries to make a thorough evaluation at the national level of the special characteristics of the problem of the outflow of trained personnel to the developed countries and to adopt the most appropriate measures to combat it, within the framework of a coherent scientific policy and respecting the Universal Declaration of Human Rights and other international conventions;
3. Recommends that countries which benefit from the brain drain, particularly those which gain most from the brain drain from developing countries, consider the adoption of measures which will help, directly or indirectly, to diminish the problem;
4. Further recommends that Member States, in conformity with their national legislation, consider the application of a voluntary system of data collection on this phenomenon, such as information in connexion with migratory movements - persons entering and leaving the country, by profession, purpose of travel, duration of stay, etc. - with a view to exchanging such information among themselves and transmitting it, as appropriate, to the United Nations, in order to estimate the net outflow of trained personnel from developing countries;
5. Requests the Secretary-General to examine, in co-operation with United Nations bodies, particularly the United Nations Institute for Training and Research and the specialized agencies, namely the International Labour Organisation, the United Nations Educational, Scientific and Cultural Organization and the World Health Organization, the most suitable means of improving statistics on the migration of highly qualified persons and to submit appropriate recommendations to the Committee on Science and Technology for Development at its third session;

6. Urges the United Nations system and any other international organizations concerned and the developed countries to help to reverse the phenomenon of the brain drain affecting the developing countries, by promoting in the developing countries activities conducive to the establishment of career possibilities, the enhancement of fellowships and other forms of encouragement for training personnel in areas directly relevant to developing countries, and other measures, such as the establishment of the career of scientific research worker in those countries;

7. Requests the Committee on Science and Technology for Development to consider the problem of the outflow of trained personnel from developing to developed countries again at its third session.

II. SCIENCE AND TECHNOLOGY IN THE SECOND UNITED NATIONS DEVELOPMENT DECADE

A. Role of modern science and technology in the development of nations

2. The Committee considered agenda item 3 (a) at its 31st, 35th, 38th, 39th, 41st and 42nd meetings, held between 11 and 21 March 1974.
3. The Committee had before it a note by the Secretary-General on the question of convening a United Nations conference on science and technology (E/C.8/25), the eleventh report of the Advisory Committee on the Application of Science and Technology to Development (E/C.8/24), paragraph 25 of which referred to that question, and a report of the Secretary-General on the role of modern science and technology in the development of nations and the need to strengthen economic, technical and scientific co-operation among States (E/5238 and Add.1 and Corr.1, prepared in response to General Assembly resolution 2658 (XXV) and referred to the Committee for further examination at its second session by the Council in its resolution 1826 (LV).
4. The Committee decided at its 31st meeting, on 11 March, to establish a working group under the chairmanship of Mr. Guy B. Gresford (Australia) to consider the subject. The working group held three meetings and, in its deliberations, had before it a number of proposals in the form of conference room papers.
5. At the 39th meeting, on 20 March 1974, the working group submitted to the Committee a draft resolution (E/C.8/L.40) recommending, inter alia, that the Economic and Social Council decide to convene in 1975 an intergovernmental working group of the Committee on Science and Technology for Development, open to all Member States, to examine the specific objectives, topics and agenda of a possible United Nations conference on science and technology, based on the recommendations of the Advisory Committee on the Application of Science and Technology to Development, the United Nations Conference on Trade and Development (UNCTAD), the regional economic commissions and other relevant United Nations bodies, and to report its findings to the Committee at its next session.
6. During the general debate, one delegation expressed the view that the preparatory work for the conference could be undertaken by the Committee itself at its next session with the recommendations of the Advisory Committee, the UNCTAD Intergovernmental Group on the Transfer of Technology, the regional economic commissions and other appropriate United Nations bodies. The Committee was informed that if the proposed intergovernmental working group met for one week at United Nations Headquarters, the cost of such a meeting, including interpretation and documentation, would be in the order of \$7,500. Another delegation also opposed the creation of a new body and instead proposed that questionnaires be forwarded to Governments to ascertain their views concerning the orientation of the proposed conference. One delegation pointed out that the intergovernmental working group should be composed of States members of the Committee. The reference to "open to all Member States of the United Nations" was therefore deleted from the operative part of the draft.

7. The Committee, at the same meeting, adopted without a vote the draft resolution (E/C.8/L.40) as orally revised. (For the text, see chapter I, draft resolution I.)

8. In explanation of vote, the representative of the Union of Soviet Socialist Republics indicated that, had a vote been taken on the draft resolution, his delegation would have abstained on the question of convening an intergovernmental working group. The representative of the Netherlands expressed the opinion that the working group should be open to all Member States of the United Nations. The representative of the Federal Republic of Germany stated that the success of the conference would not depend solely on the convening of a working group, but also on the preparatory work linked to the capabilities of the United Nations Secretariat and urged the Committee to address itself to that aspect of the matter. The representative of the United States of America expressed the hope that the Committee could establish a set of guidelines for the working group before it meets in 1975. The representative of Argentina expressed regret at the fact that the Committee had not taken a decision on the principle of convening the conference.

9. At the 38th meeting, on 19 March, the representative of Belgium introduced a draft resolution on the role of modern science and technology in the development of nations (E/C.8/L.41), recommending, inter alia, that the Economic and Social Council include in its programme world-wide, co-operative action to solve the problems of the arid areas through the application of science and technology.

10. During the discussion of the draft resolution, several amendments were proposed by delegations and incorporated in the revised texts (E/C.8/L.41/Rev.1 and 2).

11. At the 42nd meeting, on 21 March, the Committee adopted without a vote, the revised draft resolution submitted by Belgium, Egypt, Pakistan and Tunisia (E/C.8/L.41/Rev.3). (For the text, see chapter I, draft resolution II.)

B. World Plan of Action for the Application of Science and Technology to Development

12. The Committee considered agenda item 3 (b) at its 33rd to 36th, 39th to 42nd and 44th meetings, held between 18 and 25 March. It had before it the World Plan of Action for the Application of Science and Technology to Development 14/ and a progress report of the Secretary-General (E/C.8/19).

13. The Acting Director of the Office for Science and Technology, in introducing the subject at the 33rd meeting, on 13 March, said that the initiative for the World Plan of Action came from the Advisory Committee on the Application of Science and Technology to Development, which from the outset had concerned itself with two major questions: (a) the type of science and technology infrastructure which could be built up in the developing countries and (b) the determination of a few critical priority areas in which, if a concerted attack was mounted, rapid progress could be made. Various regional plans had also been produced to encourage countries

14/ United Nations publication, Sales No.: E.71.II.A.18.

to identify their needs. He further stated that, although the Council in its resolution 1823 (LV) had given a broad mandate, neither the Secretariat, the Advisory Committee on the Application of Science and Technology to Development nor, for that matter, the regional economic commissions had been provided with resources to proceed further. He said that in order to implement the resolution and determine priorities the services would be required of a group of high-level experts, which could decide how best to approach developing countries. He noted that sending a questionnaire by mail would not be sufficient and that the best way would be for at least one adviser, accompanied by an official from the respective regional economic commissions, to visit the countries concerned. Only in that way would it be possible to determine the national priorities of developing countries.

14. In the general debate on the subject, a few representatives indicated that the World Plan should be considered as a set of guidelines to assist the developing countries in producing their own plans and requests for multilateral or bilateral assistance. Another representative said that the Plan was intended to serve more as a catalyst and was to assist each developing country in identifying its own priority areas. It was also pointed out that the Plan was too vast in scope for the Committee to implement it on all fronts and thus the Committee should try to encourage individual organizations to take the lead in executing the components of the Plan.

15. In general, delegations felt that there was some ground for cautious optimism regarding the implementation of the Plan. Several delegations drew attention to some activities consistent with the World Plan that were being undertaken in their own countries. Some delegations said that they were ready to co-operate with other countries and international organizations in formulating goals and in initiating concrete action. It was also noted that organizations such as the United Nations, Educational, Scientific and Cultural Organization (UNESCO), the Organisation for Economic Co-operation and Development and the International Centre for Advanced Technical and Vocational Training at Turin, which had been making useful contributions, had the capacity and skill to assist countries in formulating their science policies.

16. Representatives of the regional economic commissions stated their plans for regional meetings, and the representatives of UNESCO, the Food and Agriculture Organization of the United Nations (FAO), the World Health Organization (WHO) and the International Bank for Reconstruction and Development (IBRD) briefly surveyed their activities in the context of the Plan.

17. With regard to the World Plan itself, one delegation felt that, in view of the progress made in the field of science and technology and the fact that the Plan did not take full account of the problems and priorities of each region, it should be supplemented with additional items. Another delegation felt that the Plan should remain flexible, while others, referring to Council resolution 1823 (LV), noted that in that resolution the Council had requested the Committee to suggest a list of possible items for review or incorporation in the World Plan of Action. In that context, it was felt that there should be a continuous revision of the Plan if it was to provide guidelines to Governments. However, at the current stage, it was important to encourage the formulation of specific proposals within the framework which had already been worked out.

18. Some delegations, although admitting the dynamic nature of the Plan and the fact that it could be usefully enlarged, felt that it was too early to review and revise it, and that it was more important to implement the priority objectives already included in it. Some other delegations felt that the Plan had yet to generate an enthusiastic response from Member States and that public opinion should be mobilized, particularly in developing countries where the political will and the mobilization of financial resources were crucial to the successful implementation of the Plan.

19. In connexion with the problems associated with the implementation of the Plan, one representative said that additional efforts were needed to progress from analysis and general targets to concrete projects. Another representative noted that a draft resolution was needed to mobilize public opinion for the implementation of the Plan. One representative said that the question of review and appraisal, which had already been considered the previous year, was important, but that the time had come to insist on implementation. In considering the modalities for implementation of the Plan, he indicated that the effort must be seen from three aspects - from the standpoint of the United Nations bodies, from the point of view of the involvement of the regional organizations in an effort to promote and implement the Plan and finally from the standpoint of the countries themselves. He also supported the idea of giving more visibility to the Plan, and felt that one of its main purposes would be achieved when every minister for planning or development had his own copy of the Plan.

20. One representative, in referring to "infrastructure technology" said that it had reached a high level in Northern America and Europe, but wondered about the situation in developing countries, which lacked the technology essential to their own organization. In that connexion, he suggested that a group of delegations from developing countries, in co-operation with representatives of countries with outstanding research and technology institutes, should prepare a draft report for the Advisory Committee on the Application of Science and Technology to Development, which might then recommend specific action needed for the transfer of the infrastructure techniques for the benefit of regional and national bodies.

21. At its 34th meeting, on 14 March, the Committee decided to set up a working group under the chairmanship of Mr. Leszek Kasprzyk (Poland) to consider the conference room papers and draft resolutions submitted under the subitem. The working group considered the following three proposals:

(a) A proposal by Belgium requesting that the Advisory Committee develop an expanded list of priority areas for research. The proposal eventually became a draft resolution (E/C.8/L.39/Rev.1) sponsored by Belgium, Brazil, India, Iran and the Philippines;

(b) A draft resolution submitted by the Philippines (E/C.8/L.38/Rev.1) entitled "Mobilization of public opinion in relation to the World Plan of Action for the Application of Science and Technology to Development and the regional plans";

(c) A draft resolution submitted by the Netherlands (E/C.8/L.42/Rev.1) on the implementation of the World Plan of Action for the Application of Science and Technology to Development.

22. At its 36th meeting, on 18 March, in considering the revised draft resolution referred to in paragraph 21 (a) above (E/C.8/L.39/Rev.1), the Committee decided, after an extensive discussion, to address it directly to the Advisory Committee on the Application of Science and Technology to Development. The revised draft resolution, as modified, was adopted without a vote. (For the text, see chapter X, resolution A.)

23. At its 39th and 40th meetings, on 20 March, the Committee considered the draft resolution proposed by the Philippines (E/C.8/L.38/Rev.1) the Director of the Centre for Economic and Social Information of the United Nations Secretariat informed the Committee of the financial implications of the draft (E/C.8/L.38/Rev.1/Add.1). A number of delegations expressed their opposition to the proposed financial implications and stressed the necessity for the fullest possible utilization of the available resources of the United Nations in the implementation of the provisions of the draft resolution. During the consideration of the revised draft resolution, the Committee decided to include a preambular paragraph reading as follows:

"Aware of the limited resources of the United Nations at the disposal of the Secretary-General".

24. At the 40th meeting, the Committee adopted, without a vote, the revised draft resolution (E/C.8/L.38/Rev.1), as further orally revised. (For the text, see chapter I, draft resolution III.)

25. One representative, in explanation of vote, stated that, while it was very commendable for sufficient funds to be made available for the dissemination of information, a higher priority should be given to adequate financing of the operations of the Advisory Committee and the Office for Science and Technology.

26. The Committee considered the draft resolution proposed by the Netherlands (E/C.8/L.42 and Rev.1) at its 40th, 42nd and 44th meetings, on 20, 22 and 25 March respectively. In general, delegations supported the draft resolution. Several delegations, however, expressed reservations on the value of undertaking a survey of progress made in undertaking action to strengthen the science and technology capacity. One representative said that his delegation was particularly pleased with the general emphasis laid on the role of regional economic commissions. Another welcomed the fact that the draft resolution was in line with the scientific and technological objectives of the Committee. Some delegations felt that there was a need to consider economic and social research in the review and appraisal of the World Plan in the context of operative paragraph 4 of the draft resolution.

27. One delegation felt that, although it was clearly not the intent of the Netherlands delegation, some countries might misinterpret the survey activities as being an evaluation of their activities without their consent. Another delegation questioned whether UNESCO had not already surveyed the existing scientific and technological institutions. It was also suggested that, in view of the experience to date in similar surveys, and since the whole exercise referred to in operative paragraphs 5 to 9 of the draft resolution would rely on information submitted to the Secretary-General, the Secretary-General should be invited in the draft resolution to take every necessary measure to collect the information.

28. Several delegations expressed concern at the financial and other resources needed to meet the requirements of the draft resolution. One representative said that the Committee must be assured that effective resources would be available. Another representative, in the context of the activities in the regional economic commissions, suggested that the requests for work in those commissions should be accompanied by sufficient budgetary appropriations and, in view of the current world financial situation, questioned whether the use of extrabudgetary resources such as voluntary contributions from the developed countries might not achieve satisfactory results.

29. The sponsor of the draft resolution (E/C.8/L.42) said that his delegation expected the Secretary-General to stimulate and co-ordinate action rather than actually carry it out. He also expressed the readiness of his Government to assist the Secretary-General to mobilize funds from outside the United Nations system to implement operative paragraph 6.

30. At its 44th meeting, on 25 March, the Committee adopted the revised draft resolution (E/C.8/L.42/Rev.1), which incorporated most of the suggestions made in the preceding discussion, without a vote. (For the text, see chapter I, draft resolution IV.)

31. One representative, in explanation of vote, stated that the revised draft resolution should have been reworded along the lines of the decision on the World Plan of Action adopted by the General Assembly at its 2203rd plenary meeting, on 17 December 1973. He also said that his delegation would have preferred to see the revised draft resolution speak of concrete advisory services in specific areas.

C. Quantification of scientific and technological activities related to development

32. The Committee considered agenda item 3 (c) at its 32nd and 34th meetings, on 12 and 14 March, (E/C.8/SR.32 and 34) and had before it the report of the Intergovernmental Group of Experts (E/C.8/18) convened by the Secretary-General from 3 to 7 December 1973 in accordance with Economic and Social Council resolution 1822 (LV). Pursuant to General Assembly resolution 3179 (XXVIII), the Committee at its second session gave priority to the consideration of the subject of quantitative targets in the field of science and technology.

33. The Committee, at its first session, had already recommended a revision of paragraphs 60, 61 and 63 of the International Development Strategy for the Second United Nations Development Decade (General Assembly resolution 2626 (XXV)). 15/ In paragraph 63 of the Strategy, the General Assembly had recommended that consideration be given to the setting of quantitative targets for direct support by developed countries to the efforts of developing countries in the field of science and technology in terms of a percentage of both the gross national product of the developed countries and their own research and development programmes.

34. At the 32nd meeting, the Committee established a working group of the whole under the chairmanship of C. N. R. Rao (India) to prepare proposals in the form of recommendations of the Committee, taking into account the conclusions reached by the Intergovernmental Group of Experts.

15/ Official Records of the Economic and Social Council, Fifty-fifth Session, Supplement No. 4, chap. III and para. 120.

35. The working group commended the report of the Intergovernmental Group of Experts which it considered informative and objective. It submitted to the Committee a draft resolution (E/C.8/L.37) which was adopted at the 34th meeting without a vote. (For the text, see chapter I, draft resolution V.)

36. In their explanations of vote, representatives from the developing countries reiterated the necessity to quantify targets on science and technology contained in the International Development Strategy and felt that the resolution the Committee adopted would facilitate such quantification along the lines of the decision taken at the first session of the Committee on Science and Technology for Development that reflected the common position of the Group of Seventy-seven. One delegation pointed out, however, that the resolution was adopted on the understanding that other decisions would be taken on the identification of problems of specific interest to developing countries, under agenda item 3 (b). It was hoped that the Economic and Social Council and the General Assembly would be able to reach satisfactory decisions on the quantification of targets in the light of the resolution approved by the Committee.

37. Developed countries welcomed the unanimous adoption of the resolution by the Committee and indicated that progress should be made towards establishing or refining data systems, particularly as regards scientific and technical services, and defining more clearly terms such as "direct support" or "specific problems of developing countries". One delegation indicated that efforts had begun on the development of machinery for the collection of data on its own research and development. Another delegation stated its disapproval of quantitative measures and indicators in the field of science and technology but was not opposed to the adoption of the draft resolution. A few delegations, while supporting the draft resolution, felt that the efficiency of research and the determination of priorities was of greater importance than quantification, which should be regarded as a starting-point.

38. The adoption of the draft resolution represented an important gesture of goodwill on the part of countries which had been sceptical vis-à-vis the difficulties of quantifying targets.

39. Other delegations had learned by experience that quantified targets were required for scientific and technological planning. They would, in the future, willingly share their experience with developing countries. However, they reiterated their principal position concerning the concept of obligatory quantitative indicators in the field of science and technology. In that respect, they referred the Committee to document A/3074 16/ of 21 September 1970 and to document A/9389 of 6 December 1973, which set forth their position and stated that they would have abstained had a vote on the draft resolution been taken.

16/ See Official Records of the General Assembly, Twenty-fifth Session, Annexes, agenda item 42.

III. APPLICATION OF TECHNOLOGY TO DEVELOPMENT

A. Technology assessment and perspectives; appropriate technology; research and information for developing countries

40. The Committee considered jointly agenda items 4 (a), (c) and (d), on 25 March. Under those subitems, it had before it three notes by the Secretary-General (E/C.8/4, E/C.8/5 and Corr.1 and E/C.8/7).

41. In an introductory statement at the 44th meeting, the Acting Director of the Office for Science and Technology referred to recent work in technology assessment and said that the field should not be viewed in a narrow perspective of just new technologies, but rather in the context of all existing and new technologies. He added that consideration should be given to the larger consequences associated with the introduction of technologies in developing countries such as social change and its impact on the ecology and economic development. He said that developing countries could not ignore the mistakes made in developed countries and stated that the United Nations Secretariat was already studying the subject and would like to intensify its activities in the area. On the subject of appropriate technology, he said that the basic principles were simple. For developed countries, appropriate technology had tended to be directed towards savings on imported materials and unskilled labour. For developing countries, the situation was generally reversed - savings on unskilled labour and primary products were not the main considerations for utilizing technologies. He said that the Advisory Committee on the Application of Science and Technology to Development had given a great deal of attention to appropriate technology, particularly in public works programmes, an area of application that could produce benefits for the developing countries. He added that a considerable amount of work had been undertaken, including conferences, seminars and the production of documents, but very little was being done in research and engineering institutes. He felt that the time was ripe to move away from general studies to more specific studies and the initiation of practical research programmes in engineering institutes and design centres. He said that much had been accomplished in the area of research information for developing countries, but all indications still pointed to a poor distribution of research capacity. He said that it was essential to build up infrastructures in developing countries. However, if they were to be effective, they would need information reflecting the nature of research activity. In closing, he noted that there might be justification for the establishment of advisory research services.

42. Also at the 44th meeting, the delegation of Pakistan, in introducing a draft resolution entitled "The role of an international technological information system in the transfer and assessment of technology and in the indigenous growth of appropriate technologies in developing countries" (E/C.8/L.44) sponsored by Chile, India, Iran, Jamaica, Jordan, Mexico and Venezuela and later also by Kenya, indicated that in looking at the over-all assessment of technology, consideration must be given to the social costs and effects on income, employment and the environment. He said, in analogy, that the fabric of development, the warps of research, technology assessment and appropriate technology should be closely woven with the weft of information. Information on existing knowledge of research and development efforts would prove highly beneficial and could lower costs. He said that it would

be a burden if national Governments had to set up counterpart national technological information centres to each of the international information centres when what was really needed was a unified information system that would provide ready access to relevant information. The Chairman noted that the draft resolution represented no financial implications.

43. Most delegations supported the draft resolution. One representative, however, said that it was hoped that the system envisaged would avoid information pollution and would have the capacity to extract selectively the information that was useful.

44. Two delegations expressed concern over the effect of new technologies on the environment and one delegation suggested an addition to subparagraph (c) of the fourth preambular paragraph to the effect that the transfer of technological information was also basic to ecological, economic and social effects.

45. One representative, referring to operative paragraph 1, said that he would like to see the study undertaken on very practical lines, since, on the basis of the experience of his country, he felt that the design of information systems must be based upon the needs of actual users. The delegation therefore suggested that the wording in operative paragraph 1 should also make reference to the need to explore the needs of scientists, engineers and planners at the working level and of policy-making offices in developing countries.

46. One representative felt that the size of the system envisaged in operative paragraph 1 was quite large and suggested consideration of the progressive establishment of the international information exchange during the feasibility study. He made this suggestion not as a delaying tactic, but rather so that the system, if deemed feasible, might be progressively implemented. He also said that the study should tap the experience in existing information systems such as the Universal System for Information in Science and Technology.

47. Concerning co-ordination with competent organizations in undertaking a feasibility study on the possibility of establishing an international information exchange system for the transfer and assessment of technology, agreement was reached to add the Advisory Committee on the Application of Science and Technology to Development, the International Labour Organisation (ILO), the International Atomic Energy Agency (IAEA), the United Nations Institute for Training and Research (UNITAR) and the World Intellectual Property Organization (WIPO) to the organizations already mentioned in operative paragraph 1.

48. A number of delegations spoke on the problems of and need for an international information exchange system that would be compatible with existing and proposed systems within the United Nations Organization.

49. One representative said that at the nineteenth session of the Advisory Committee on the Application of Science and Technology to Development, the Committee had been asked by the Advisory Committee to pay attention to the over-all question of appropriate technology (see E/C.8/24, para. 53), and his delegation was convinced that that would contribute to a rising standard of living. His delegation also felt that developing countries should have the latest technology if they were to progress in world markets and be competitive. With that in mind, his delegation felt that the use of the latest technology would be a key to development and that Governments should play a key role in the development of national and industrial capacity.

50. At the request of a number of delegations, statements were made by the representatives of the ILO, FAO, UNESCO and the United Nations Industrial Development Organization (UNIDO).

51. At the 45th meeting, the Committee adopted the revised draft resolution (E/C.8/L.44/Rev.1) without a vote. (For the text, see chapter I, draft resolution VI.)

B. Computer science and technology*

52. The Committee considered agenda item 4 (b) at its 42nd and 43rd meetings, on 21 and 22 March, and had before it a report of the Secretary-General (E/C.8/20/Rev.1) prepared in response to Economic and Social Council resolution 1824 (LV).

53. The Acting Director of the Office of Science and Technology in his introductory statement at the 42nd meeting, summarized developments in the field since the Committee's first session and noted the major issues for consideration by the Committee. They were basically fourfold: (a) the recommendations concerning national policy and education in the developing countries and further views expressed by Governments, specialized agencies, and other international bodies; (b) the appropriate organization within the United Nations system suggested by the Administrative Committee on Co-ordination to ensure better co-ordination in computer science and technology for development; (c) the selection of the preferred modality for providing expert services to the Committee and (d) the question of the establishment of a focal point within the United Nations system for the application of computer science and technology for development.

54. At the same meeting, the representative of Algeria, also on behalf of the delegations of Argentina, Egypt, India, Iran, Jamaica, Madagascar, Mexico, Romania, Tunisia and Yugoslavia, introduced a draft resolution (E/C.8/L.43).

55. The representative of Algeria, after noting that problems were often encountered in situations where computer science and technology had been applied and utilized in the absence of appropriate prior studies, suggested that priority consideration should be given to the conduct of studies in the area of computer science and technology education, the standardization of procurement procedures, the establishment of national information requirements, the interrelationship of computers and communications systems, the management of data processing centres and systems optimization, and the use of computers in public administration.

56. In commenting on the draft resolution, delegations focused primarily on the question of expert services, the role of the Committee as a future focal point, the need to take more concrete action and the need to set up a liaison mechanism between the Committee and national governments. The majority of delegations strongly supported the proposal and felt that the draft had been well prepared and was practical.

57. On the question of sources of advice, one delegation sought clarification on the precise meaning which the sponsors wished to convey and it was therefore agreed to delete the word "sources" from the second preambular paragraph.

* At the 43rd meeting, the Committee decided to change the translation of the French term "informatique" from "computer technology" to "computer science and technology".

58. One delegation was concerned about the suggestion in operative paragraph 2 that the Committee should rely principally on expert services provided by an existing United Nations body or bodies or by other intergovernmental organizations, since computer science and technology had broad infrastructural and technological fields as a base. The same delegation proposed that, if the Committee was to serve as a focal point in the application of science and technology, a standing expert group, composed of experts drawn from the developed and developing countries, professional associations and from the specialized agencies should be established to service the Committee. It was suggested that such an expert group could submit draft guidelines for the application of computer science and technology to the Committee.

59. Most delegations, however, were opposed to the proposal to establish a standing expert group to provide expert services to the Committee and felt that the Committee should refrain from creating new bodies and should draw upon the expertise already available in the existing United Nations bodies and intergovernmental organizations. One delegation also expressed the view that the nature of the expert services which the Committee would require would depend on the nature of the particular problems faced.

60. Most delegations agreed that the Committee on Science and Technology for Development should be a focal point in the field of computer science and technology for development. In referring to operative paragraph 2 of the draft resolution, one delegation stated that the application of computer science and technology should be for the benefit of all countries. Further discussion among delegations showed that there was no substantive disagreement on that point and the Committee then decided to amend operative paragraph 2 so that "the application of computer science and technology" would be "for the benefit of development of all countries and, in view of their specific problems, particularly the developing countries".

61. One representative expressed concern about the emphasis laid in the draft resolution on the need for more studies. He referred to initiatives already undertaken within the United Nations task force on computer technology and information management for development. The same representative endorsed the need for a more operational component in the work of the Committee.

62. One delegation expressed the view that the general principles of informatics, as stressed by the Intergovernmental Bureau for Informatics - International Computation Centre (IBI-ICC), should contribute to the progress of developing countries. Another delegation noted the importance of education as opposed to training in the information and computer fields and suggested that UNESCO and IBI-ICC were most appropriately qualified to provide technical services to the Committee and to serve as focal points for activities in that field within the United Nations system. The same delegation also suggested that a census be taken of the expertise available within the United Nations system to facilitate the selection of expert advice when it was required. It also stressed that developing countries should be consulted in the first instance to ensure that the programme adopted by the Committee was responsive to their needs and consistent with their development plans.

63. One delegation introduced a new operative paragraph which, inter alia, invited Governments to set up liaison mechanisms within their own countries between the

users of computer science technology and the bodies mentioned in operative paragraph 2. After further discussion, the Committee decided to incorporate in the draft a new operative paragraph which read:

Invites Governments to appoint a national body to serve as liaison between the users of computer science and technology and the bodies referred to in paragraph 2 above."

64. At the 43rd meeting, the Committee adopted the draft resolution (E/C.8/L.43) as orally amended, without a vote. (For the text, see chapter I, draft resolution VII.)

65. One representative, in explanation of vote, stated that his delegation had accepted the draft resolution because of its support for the strengthening of the application of computer science and technology to development in the developing countries. He repeated that his delegation continued to have doubts about the recommendation in operative paragraph 2 concerning the question of expert services, since it feared that the Committee might not be able to fulfil its task if it were not continuously assisted by a standing group of impartial experts drawn from Governments, the specialized agencies and other bodies. He noted that while the adopted text represented an improvement over earlier versions, his delegation still did not see how the expert services furnished to the Committee would be co-ordinated objectively.

IV. OUTFLOW OF TRAINED PERSONNEL FROM DEVELOPING TO DEVELOPED COUNTRIES

66. The Committee considered agenda item 5 at its 45th and 46th meetings, on 25 and 26 March, and had before it a report of the Secretary-General (E/C.8/21).

67. One delegation questioned whether the Committee was competent to discuss the topic, and suggested that it should be referred to other bodies dealing with social problems, such as the ILO or the World Population Conference, 1974.

68. In analysing the causes of the outflow, one representative stressed that, in addition to the higher salaries offered by the developed countries, scientists were also drawn by a need for appropriate conditions of work. Another representative felt that the problem was complex and that his Government would not bar students from going abroad for better training and research opportunities. One representative stated that some market-economy developed countries followed a policy of encouraging the outflow from developing countries to alleviate their own shortages of qualified manpower and stated that such a situation delayed the development of the developing countries and speeded the development of the advanced nations.

69. In a discussion of proposed solutions to the problem, one representative stated that his delegation did not favour restrictive provisions which might infringe on human rights. It stressed the need for proper planning in the use of technical manpower in the developing countries. Another delegation felt that the creation of a scientific infrastructure in developing countries was essential to counterbalance the outflow, while yet another suggested that training fellowships should be offered to promote the return of skilled personnel to developing countries. One delegation felt that the real solution lay in the restructuring of social life in developing countries.

70. At the 45th meeting, the representative of Argentina, also on behalf of the Netherlands, introduced a draft resolution on the question (E/C.8/L.46) as a procedural text intended to allow the consideration of other measures by the Committee at its next session.

71. One representative noted that his country was not listed in the report of the Secretary-General (E/C.8/21, para. 16) among the countries suffering from the outflow of trained personnel. The same representative also stated that the Committee should concern itself with the outflow of trained personnel in general rather than restrict its consideration solely to scientific personnel.

72. Several delegations suggested amendments to some of the preambular paragraphs and to operative paragraphs 2 and 7 in order to take into account the protection of human rights.

73. At the 46th meeting, the representative of Argentina introduced, also on behalf of the Netherlands, a revised draft resolution (E/C.8/L.46/Rev.1) incorporating the suggestions made by delegations at the 45th meeting.

74. Several delegations proposed further amendments to the draft resolution, which were subsequently incorporated by the sponsors in the revised draft resolution.

75. Some representatives stated that operative paragraph 3 should refer explicitly to market-economy developed countries, while others felt that it should refer to developed countries in general. After some discussion, the Committee adopted a compromise text proposed by the Chairman, in which (a) the phrase "particularly to" in the third preambular paragraph was replaced by "which now concerns" and (b) the phrase "market-economy developed countries" in operative paragraph 3 was replaced by "countries which benefit most from the brain drain".

76. At the same meeting, the Committee adopted the revised draft resolution (E/C.8/L.46/Rev.1), as orally revised, without a vote. (For the text, see chapter I, draft resolution VIII.)

V. ADVISORY COMMITTEE ON THE APPLICATION OF
SCIENCE AND TECHNOLOGY TO DEVELOPMENT

77. The Committee considered agenda item 6 from its 35th to its 38th meetings, held on 18 and 19 March, and had before it the eleventh report of the Advisory Committee on the Application of Science and Technology to Development (E/C.8/24) and the report of the Secretary-General on the question of strengthening the Advisory Committee (E/C.8/22).

78. At the 35th meeting, the Chairman of the Advisory Committee on the Application of Science and Technology to Development, in introducing the eleventh report of the Advisory Committee, expressed the view that the Advisory Committee, an advisory body composed of experts serving in their individual capacities, had a key role to play and was prepared to give the Committee on Science and Technology for Development all the assistance which it might request. He considered the World Plan of Action for the Application of Science and Technology to Development to be one of the major achievements of the Advisory Committee but said that at that point it needed to be given concrete form. He felt that the World Plan was not widely known and that the document should be on the desk of every minister of development. He stressed that the Advisory Committee had kept in contact with various specialized agencies but that co-ordination should be strengthened. He also felt that the Advisory Committee should be entrusted with specific tasks, such as computer technology, the special protein fund, and problems of the environment.

79. The Chairman of the Advisory Committee reviewed its work and its relation to the activities undertaken by the Committee on Science and Technology for Development. He added that the Advisory Committee supported the proposal to convene a second United Nations conference on science and technology.

80. Delegations commended the work of the Advisory Committee and stressed the importance of Committee access to a competent group of experts such as the Advisory Committee. Several delegations particularly commended the work of the Advisory Committee on the World Plan of Action, the protein fund and in the fields of new technologies, technology assessment and computer science and technology.

81. One delegation, however, questioned to some extent the way in which the Advisory Committee performed its advisory functions. It felt that the members of the Advisory Committee, instead of contributing expert advice and preparing their own papers, relied increasingly on the Office for Science and Technology and on consultants for the drafting of their reports.

82. Some other delegations stressed the fact that, in accordance with their respective terms of reference, the Committee on Science and Technology for Development was the focal point for the elaboration, evaluation and assessment of an integrated United Nations policy in the field of science and technology, while the Advisory Committee was an independent body with strictly technical responsibilities and should therefore work out opinions on scientific and technological problems on which its advice was sought instead of being concerned with policy or with work in the field of research and experimental development.

83. One representative expressed the view that recommendations such as those for the establishment of a United Nations science and technology programme and the convening of a conference on science and technology were not within the Advisory Committee's realm of responsibility but, being political in nature, should come within the province of the Committee on Science and Technology for Development. It was felt that the principle should be clearly established that the Committee on Science and Technology for Development was concerned mainly with policy guidance, while the Advisory Committee was to supply expertise in specific areas.

84. One delegation felt that at the next election consideration could, if necessary, be given to the possibility of slightly modifying the orientation of the Advisory Committee's membership by including one or two experts in the social sciences or the humanities.

85. On the question of strengthening the Advisory Committee, one delegation believed that the establishment of regional groups and working groups to examine specific subjects requiring urgent consideration on an expert and intergovernmental level was a valuable solution. The same delegation also suggested that the Committee on Science and Technology could establish an intergovernmental working group to examine the reports of those subgroups of the Advisory Committee. Another delegation felt that the number of consultants associated with it could be increased. One delegation also felt that co-operation with the regional economic commissions should be increased and working relations with other bodies should be established. A few delegations suggested that the Office for Science and Technology should be strengthened to help the Advisory Committee.

86. Some delegations, however, felt that the working methods of the Advisory Committee were satisfactory and required no change.

87. Some delegations expressed their belief that the Advisory Committee, in view of the nature of its work, should hold annual meetings instead of biennial sessions.

88. Concerning the composition and size of the Advisory Committee, all delegations except one seemed to agree that the membership of the Advisory Committee should not be increased. One representative said that any changes in the Advisory Committee should be made with a view to preserving its independence, maintaining continuity and achieving a balance in geographic participation. On the latter point, some representatives from within the region of the Economic Commission for Western Asia (ECWA) stated that the region covered by ECWA should be represented in the future membership of the Advisory Committee.

89. At its 38th meeting, the Committee adopted the following statement, proposed by its bureau as a summary of its discussion on the Advisory Committee.

"The Committee on Science and Technology for Development:

"(a) Takes note of the report of the Advisory Committee on the Application of Science and Technology to Development (E/C.8/24) and the views expressed by delegations at its second session;

"(b) Commends the Advisory Committee for its work;

"(c) Considers it undesirable to make any change in the consultative or technical nature of the membership of the Advisory Committee, its general methods of work or the number of its members;

"(d) Does not consider, in view of the nature and volume of the Advisory Committee's work, that the biennial rule for meetings is desirable, and recommends that the Economic and Social Council examine the possibility that the Advisory Committee meet more frequently, in principle every year;

"(e) Hopes that the work of the Advisory Committee will contribute to the emergence of a policy in the field of science and technology for the United Nations family, as a matter for future consideration by the Committee on Science and Technology for Development;

"(f) Recommends to the Secretary-General that in making nominations to the Economic and Social Council for the membership of the Advisory Committee consideration should be given to the selection of individuals from the region of the Economic Commission for Western Asia;

"(g) Requests the Economic and Social Council to decide, in the light of its resolution 1715 (LIII) of 28 July 1972, which provided that the report of the Advisory Committee on the Application of Science and Technology to Development be referred to the Committee, whether it wishes to receive in future the report of the Advisory Committee."

90. One representative expressed regret that representation for Africa, and particularly the area south of the Sahara, had been neglected in establishing the membership of the Advisory Committee and in drafting the Committee's statement.

VI. QUESTION OF THE ESTABLISHMENT OF A SPECIAL PROTEIN FUND

91. The Committee considered agenda item 7 at its 47th meeting, on 26 March, and had before it a report of the Secretary-General on the subject (E/C.8/23).
92. The Acting Director of the Office for Science and Technology introduced the item by drawing the attention of the Committee to the fact that the great protein-calorie malnutrition problem had first been brought up seven years earlier by the Economic and Social Council and the General Assembly and that it was a subject that had been given considerable attention by the Advisory Committee on the Application of Science and Technology to Development. He went on to say that the report of the Secretary-General unfortunately was not conclusive. Progress to date, however, was not entirely negative, since the Governments of two developing countries, as well as IBRD, FAO and UNDP, were considering the matter. In addition, the forthcoming World Food Conference was expected to include the subject on its agenda. He also stated that on the basis of the Secretary-General's report the Committee could, *inter alia*, decide to take note of the Secretary-General's report, or could consider a number of side issues, such as: (a) ways and means of increasing the resources of the special Protein Advisory Group; (b) ways of channelling additional resources in the existing programmes; and (c) the possibility of focusing the attention of the World Food Conference on the subject.
93. Statements were made by the representative of IBRD, who wished to correct a possible misinterpretation in paragraph 13 of the Secretary-General's report, and by the representative of UNDP, who stressed the need to utilize fully existing mechanisms.
94. In the general debate on the subject, several delegations recognized the importance and urgency of the protein-calorie problem. One representative said that the problem affected not only developing countries but also developed countries. Attention was also drawn to the fact that the problem was one not only of food production, but also of the quality of food and customer preferences. Another representative said that the problem was also one of finding sources for unconventional protein carriers. Another representative felt that research was needed on the problem of improving the quality of food, legumes and pulses. The same representative also said that the Consultative Group on International Agricultural Research and the Protein Advisory Group should continue to give increasing attention to those issues. However, in view of the imminence of the World Food Conference, most delegations felt that perhaps the Committee should leave the question of protein-calorie malnutrition open until after it had been considered by the World Food Conference.
95. One representative pointed out that the subject had been one that had been stressed by the Committee at its first session, when it had agreed to take note of the note by the Secretary-General on the subject (E/C.8/6). The same representative questioned the validity of the Committee taking similar action again. He felt that the Committee needed to make a definitive statement on what it proposed to do and suggested that the subject be passed on to a more competent body or bodies. Another delegation felt that the subject should be dealt with by the Advisory

Committee on the Application of Science and Technology to Development and that the Committee should be asked to take further action only if the Advisory Committee deemed it necessary.

96. On the subject of the protein fund itself, a number of delegations doubted whether a fund was really necessary and felt the problem might be one of making more effective and practical use of existing machinery or of defining priorities. One delegation cited the statement made by the representative of IBRD at the 34th meeting of the Committee's current session to the effect that the problem was not so much one of funding as one of properly defining or identifying projects. Several delegations doubted whether the operational measures that might be taken would be very effective.

97. One delegation, however, strongly supported the concept of a consultative group to mobilize funds for studies on the problem.

98. In attempting to summarize the various sentiments expressed by the members, the Committee decided, on the proposal of the Chairman, that:

(a) It would take note of the report of the Secretary-General (E/C.8/23);

(b) In view of the forthcoming World Food Conference, it would defer consideration of the question until after the Conference;

(c) Without prejudging the outcome of the Conference, it would encourage Governments and international agencies concerned to continue their ongoing programmes related to the problem.

VII. FUTURE WORK OF THE COMMITTEE ON SCIENCE AND TECHNOLOGY FOR DEVELOPMENT

99. The Committee considered agenda item 8 at its 43rd, 44th and 46th to 50th meetings, held between 22 and 28 March.

100. The Committee at its 43rd meeting, on 22 March, agreed to establish an informal working group under the chairmanship of Mr. Guy B. Gresford (Australia) to consider the matter and report its findings to the Committee.

101. At the 44th meeting, on 25 March, the Chairman of the working group made a brief progress report to the Committee on the results of its deliberations. While noting that a significant segment of the future work programme of the Committee had already been committed with the passage of a number of resolutions he elaborated some of the main themes that had emerged during the working group's discussion of the subject. Those considerations, as summarized, focused on (a) the co-ordinating role of the Committee, (b) the work of the Committee as it related to policy matters and specific substantive items, (c) Committee liaison activities and (d) the question of resources.

102. During the debate, there was general agreement that the Committee should serve as the co-ordinating body for science and technology for development within the United Nations system and that there was a need for the preparation of a detailed summary of the various activities being undertaken by the respective organizations of the United Nations system. Most delegations shared the view expressed by one delegation that the Committee, in its co-ordinating role, should also attempt to rationalize the work undertaken in the fields of science and technology within the United Nations system and to transform piecemeal efforts into a unified policy and programme in the field of science and technology for the United Nations system. One delegation emphasized that the Committee should seek to accomplish its tasks on the basis of goodwill and co-operation.

103. In considering the nature of the work to be undertaken by the Committee, most delegations agreed that the Committee should focus on a limited number of questions, both of a policy and substantive nature.

104. Several delegations suggested that the future work of the Committee should be undertaken with a planning orientation, emphasizing the need to ensure that scientific research should not be pursued independently of the socio-economic sciences, and a need in that regard to recognize the limitation of the sectoral approach to problem-solving. One delegation cited the need for the Committee to consider and establish the conceptual foundation of the role of science and technology in the developing countries and to initiate innovative approaches to the problem. Some delegations emphasized the role of the Committee in periodically reviewing the World Plan of Action and the regional plans and furthering their pragmatic development. Others stressed the need for the Committee to identify priority areas for scientific research.

105. A number of delegations suggested that more substantive items, such as the application of systems analysis techniques and cybernetics theory to development, research in non-convention sources of energy, the development of waste recycling

technologies, mineral exploration, utilization of renewable resources, the application of science and technology to the problems of arid areas, and the development of case studies or pilot projects in such fields, inter alia, as technology assessment should be included in the Committee's future programme of work.

106. One delegation suggested that the Committee should play a continuing role in advising the Economic and Social Council on the definition of targets and the quantification of activities in the fields of science and technology. Several delegations felt that the Committee should review and assess new technologies and that adequate preparations should be undertaken in that regard by the Secretariat, including the development of methodologies for implementing such activities.

107. Some delegations felt that the work of the Committee could be enhanced through the establishment of intersessional working groups, while others pointed out the difficulties faced both by the delegations and the United Nations Secretariat in providing the services demanded.

108. The majority of delegations endorsed the need for the Committee to establish liaison with the world scientific community so as to involve scientists of the developed countries in the problems of the developing countries. That should be done through such bodies as the International Council of Scientific Unions (ICSU), the international non-governmental technological unions, the United Nations University and national science organizations.

109. Many delegations expressed opposition to the merger of the Committee on Science and Technology for Development with the Committee on Natural Resources, which was to be discussed by the Economic and Social Council at its fifty-sixth session. In the view of some delegations, it would be premature to make any judgement on the matter until both Committees, and particularly the Committee on Science and Technology for Development, had had time to develop fully their respective activities. Other delegations expressed the view that it seemed inappropriate to attempt to merge a Committee with broad policy responsibilities in such an important area as science and technology with a Committee also of great importance but of a far more technical and sectoral nature. Still others felt that, since the views of the Committee had not been requested, the matter should be left to the Economic and Social Council.

110. At the 48th meeting of the Committee, on 27 March, the Chairman of the working group introduced a draft resolution of the working group (E/C.8/CRP.11). After some discussion, the Committee agreed to have a separate draft resolution, which would address itself to the substance of operative paragraph 2 of the working group's draft and to include the substance of paragraphs 3 to 8 of that draft in the final report.

111. At its 49th meeting, on 27 March, the Committee agreed on the following text:

"The Committee, recalling its terms of reference as defined by the Economic and Social Council in resolution 1715 (LIII), and the Council decision that it should meet biennially, and bearing in mind the resolutions it had already adopted at its present session and the need for it to concentrate its work on a limited number of priority programmes,

requests the Secretary-General, in addition to the reports called for by other resolutions adopted at the present session, with maximum assistance from appropriate United Nations bodies, to arrange for the preparation of reports on the following subjects for future consideration by the Committee:

"(a) Technology assessment and appropriate technology, including intermediate technology;

"(b) The application of systems analysis to problems of development;

"(c) Research in integrated rural development;

"(d) Research in non-polluting and non-conventional energy sources.

"The Committee also requests the Secretary-General to enter into discussions with the International Council of Scientific Unions, the United Nations University and the national academies and councils of science and technology, on ways in which collaboration between the Committee and the scientific and technological communities of developed and developing countries can be strengthened."

112. In connexion with the provisional agenda for the next session, the Committee noted that there would be a number of items arising from the resolutions adopted and requests made at the current session. It agreed that the officers of the Committee should be consulted in drawing up the provisional agenda for the Committee at its third session.

113. At its 49th meeting, the Committee considered a draft resolution introduced orally by France and also sponsored by India, Japan, Spain and the United Kingdom. In introducing the draft resolution, the French delegation said that it was similar to the one that had been tabled at the first session of the Committee, 17/ but on which no action had been taken. He said that the three preambular paragraphs of the draft resolution were the same as those of the original draft resolution of the first session. The operative paragraph was similar to operative paragraph 2 of the draft resolution contained in document E/C.8/CRP.11.

114. At the same meeting, the draft resolution was adopted without a vote. (For the text, see chapter X, resolution B.)

115. Regarding the long-term work programme of the Committee, a working paper was submitted by the delegation of the Union of Soviet Socialist Republics (E/C.8/CRP.10/Rev.1). A number of delegations felt that it was a very valuable exposition of the principles that should guide the Committee in its work. Other delegations, while agreeing with the general ideas embodied in the paper, believed that the specific programmes suggested for consideration did not reflect the priorities of developing countries and that selection of such programmes required much more consideration than was possible at the current session.

116. The Committee agreed to annex the working paper submitted by the Union of Soviet Socialist Republics (see annex III below) and to include in its report the following views on its future programme of work.

17/ See Official Records of the Economic and Social Council, Fifty-fifth Session, Supplement No. 4, annex III B.

117. The Committee on Science and Technology for Development should become the focal point for the formulation of a unified science and technology policy, which might have the following medium-term objectives:

(a) To single out the most significant problems and trends, both present and future, in the field of the application of science and technology to development. That involved defining the problems and trends which were of interest in connexion with development, in the interest of all mankind, and particularly of the developing countries, and which could constitute a programme of long-term international co-operation, on a genuinely equal and mutually advantageous basis, in the field of science and technology within the United Nations.

(b) To encourage at the national level the formulation and implementation of priority tasks in the field of the application of science and technology to development which were of world significance, taking into account the resources and possibilities of each country and, in particular, the need for the speedy development of the scientific and technological potential of the developing countries. It was important to emphasize that point, since the development of the scientific and technological potential of all countries, especially the developing countries, was a sine qua non of the successful application of science and technology to development. Only if that potential was created - and it consisted of trained scientific, engineering and technical personnel, a scientific infrastructure and an industrial and technical base combined in the same system - could there be any expectation of success for the joint efforts.

(c) To define carefully and review problems relating to science and technology with which the specialized agencies and organs of the United Nations were concerned. In view of the fact that scientific and technological activities in the United Nations system were complex and should be of a highly planned nature and that many instances of duplication and overlapping could be observed in those activities, one of the most important functions of the Committee in all its work must be to study the programmes in the field of science and technology being implemented within the United Nations and to formulate recommendations concerning the co-ordination of those programmes with a view to enhancing considerably their effectiveness.

118. The three points set out above, three components of the science and technology policy in the United Nations, were not, of course, the sole components but they could form the core, the basis of that policy. At the same time, the purpose of United Nations policy in the field of science and technology, as outlined above, was to combine international and national efforts in the solution of problems which concerned all mankind.

119. The indispensable conditions for the effectiveness of the science and technology policy in the United Nations must be:

- The concentration of efforts on the main trends;
- The co-ordination of the scientific and technological activities of all United Nations organs and organizations concerned;
- Finding the optimum correlation between efforts at the international, regional and national levels;
- Taking account of the legitimate interests of all States in the world.

120. Such an understanding of the essence of the science and technology policy of the United Nations, as a universal Organization, and of the conditions for the effective implementation of that policy took into account the results of the discussions held previously in various organs of the United Nations, in particular at the previous and current sessions of the Committee, and the observations contained in the statement by the Under-Secretary-General for Economic and Social Affairs of 13 March 1974. 18/ Therefore, the proposal already put forward at the previous session concerning the preparation of a document listing all organs of the United Nations and institutions in the United Nations system, indicating the distribution of tasks among them and the programmes carried out by them in the field of science and technology, 17/ would appear to be a very useful one.

121. The implementation of that proposal would immediately reveal the unresolved problems of co-ordination and make it possible to identify the minor and unimportant projects in the programmes of the specialized agencies. Then it would be possible to deal specifically with the elimination of the short-comings revealed so that in the course of time not only would closer co-ordination in the activities of the specialized agencies be achieved and duplication of effort be reduced to a minimum, but also with time their unco-ordinated programmes, or rather parts of programmes, relating to science and technology would be transformed into components of a unified United Nations science and technology programme.

122. In order to progress towards that goal, it would seem to be appropriate for the Committee to consider the question of delegating responsibility for the solution of the most important scientific and technical problems of a global character. That might be achieved by individual specialized agencies such as UNESCO and WHO, and by UNIDO, UNITAR and the regional economic commissions, and by close co-operation with the Committee for Development Planning. Under such a system, other intergovernmental organizations would co-operate on a given problem within their spheres of competence and would not duplicate each other's work. The implementation of the proposal would be a serious step forward in the solution of a number of urgent problems of co-ordination, the elimination of overlapping and duplication and the eventual formulation of a unified science and technology policy.

123. At the same meeting, there was some discussion on the nature and extent of the resources that would be needed by the Office for Science and Technology and the regional economic commissions to implement the work programme requested by the Committee. In answer to a question from one of the delegations of a developed country, the Acting Director of the Office for Science and Technology made a brief statement on the current resources of the Office. Some discussion took place, in which some delegations expressed their sympathy with the problem faced by the Acting Director of the Office for Science and Technology and acknowledge the need for additional resources both for the office and for the regional economic commissions.

18/ OPI/CESI/NOTE/243.

VIII. ORGANIZATION OF THE SESSION

Duration of the session

124. The Committee on Science and Technology for Development held its second session at United Nations Headquarters from 11 to 29 March 1974. The Committee held 22 plenary meetings (E/C.8/SR.30-51).

Membership and attendance

125. The following States members of the Committee were represented at the session: Algeria, Argentina, Australia, Belgium, Brazil, the Byelorussian Soviet Socialist Republic, Canada, Chile, Colombia, Czechoslovakia, Democratic Yemen, Egypt, France, the Federal Republic of Germany, Guatemala, India, Indonesia, Iran, Italy, Jamaica, Japan, Jordan, Kenya, Madagascar, Mexico, Mongolia, the Netherlands, New Zealand, Pakistan, Peru, the Philippines, Poland, Romania, Sierra Leone, Spain, Sri Lanka, Sweden, the Syrian Arab Republic, Tunisia, the Union of Soviet Socialist Republics, the United Kingdom of Great Britain and Northern Ireland, the United Republic of Tanzania, the United States of America, Uruguay, Venezuela, Yugoslavia and Zaire.

126. The following States Members of the United Nations participated in the session as observers: Austria, Cuba, Finland, Hungary, Israel, Norway and the Sudan.

127. Representatives attended from the Economic Commission for Africa, the Economic Commission for Asia and the Far East, the Economic Commission for Europe, the Economic Commission for Latin America, the Economic Commission for Western Asia, the United Nations Conference on Trade and Development, the United Nations Industrial Development Organization, the United Nations Environment Programme and the United Nations Development Programme.

128. Specialized agencies represented were: the International Labour Organisation, the Food and Agriculture Organization of the United Nations, the United Nations Educational, Scientific and Cultural Organization, the World Health Organization and the International Bank for Reconstruction and Development.

129. The following intergovernmental organizations were also represented: the League of Arab States, the World Intellectual Property Organization, the Bureau for Informatics - International Computation Centre and the Organization of American States. The following non-governmental organizations in category I were also represented: the International Chamber of Commerce and the International Confederation of Free Trade Unions.

Election of officers

130. At its 30th meeting, on 11 March 1974, the Committee elected the following officers by acclamation:

Chairman: Mr. João Frank da Costa (Brazil)

Vice-Chairmen: Mr. C. N. R. Rao (India)
Mr. Leszek Kasprzyk (Poland)
Mr. Guy Gresford (Australia)

Rapporteur: Mr. Ernesto C. Garrido (Philippines)

Agenda and documentation

131. The agenda (E/C.8/26), as adopted by the Committee at its 31st meeting on 11 March, is reproduced in annex I.

132. The documents before the Committee at its second session are listed in annex II.

Opening meeting

133. The Under-Secretary-General for Economic and Social Affairs addressed the Committee at the opening meeting of the session on 11 March (E/C.8/SR.30).

IX. ADOPTION OF THE COMMITTEE'S REPORT

134. At its 50th and 51st meetings, on 28 and 29 March 1974, the Committee on Science and Technology for Development adopted by consensus the draft report on its second session.

X. RESOLUTIONS ADOPTED BY THE COMMITTEE ON SCIENCE AND TECHNOLOGY FOR DEVELOPMENT THAT DO NOT REQUIRE ACTION BY THE ECONOMIC AND SOCIAL COUNCIL

Resolution A

World Plan of Action for the Application of Science and Technology to Development 19/

The Committee on Science and Technology for Development,

Bearing in mind Economic and Social Council resolution 1823 (LV) of 10 August 1973,

Recalling the report of the Intergovernmental Group of Experts on the Quantification of Scientific and Technological Activities Related to Development (E/C.8/18) and Council resolution ... 20/ on the quantification of scientific and technological activities related to development,

Considering that it is essential for the purposes of national policies as well as international co-operation to identify all problems which are impeding development and are susceptible to solution through the application of science and technology, and that the identification should receive the full support and active co-operation of Member States, particularly the developing countries,

1. Recommends to the Advisory Committee on the Application of Science and Technology to draw up two lists on the basis of the distinction made in paragraphs 43, 46, 60 and 68 of the report as follows:

(a) A list of areas or objectives of research and development or of application of science and technology which, by their nature, relate specifically to the developing countries (list A);

(b) A list of areas and objectives of research and development and of application of science and technology which are more general or universal in nature, but which relate specifically to development if the object of the research and development or of the application is located in a developing country (list B);

2. Stresses that the items on the list must be formulated in precise rather than in general terms, taking into account the following considerations:

(a) The items must be defined, as far as possible, in terms of obstacles which are encountered in application and which cannot be overcome by traditional techniques;

(b) Relevant social and economic items must be listed as comprehensively as possible;

19/ See paragraphs 21 and 22 above.

20/ See chapter I, draft resolution V.

3. Considers that, in complying with operative paragraphs 1 and 2 above, the Advisory Committee should, within its existing machinery, fully utilize available international as well as national sources deemed necessary, and for this task it would seek the assistance of the United Nations Educational, Scientific and Cultural Organization, the regional economic commissions and the specialized agencies;

4. Requests the Advisory Committee on the Application of Science and Technology to Development to report on this subject to the Committee on Science and Technology for Development at its next session.

Resolution B

Co-ordination of activities in the field of science and technology within the United Nations system 21/

The Committee on Science and Technology for Development,

Recalling Economic and Social Council resolution 1715 (LIII) of 28 July 1972, which defines the terms of reference of the Committee on Science and Technology for Development and, in particular, paragraph 2 (n) of that resolution, relating to the assistance which the Committee should give to the Economic and Social Council in co-ordinating the activities within the United Nations system in the field of science and technology for development, with a view to ensuring the utmost efficiency and co-operation and avoiding duplication,

Deeming it essential that a comprehensive study should be made of the interactions between continual scientific and technological achievements, on the one hand, and the objectives, policies and structures of international life, on the other,

Believing, in particular, that the Committee on Science and Technology for Development should enable the United Nations system to have a coherent policy in that field, but recognizing that this is a long and exacting task,

Requests the Secretary-General, through the Administrative Committee on Co-ordination, to prepare for the Committee at its third session a comprehensive report listing the various organs or units of the United Nations system dealing with science and technology, indicating the interrelationship between them and the distribution of broad responsibilities, major current programmes, presently available and projected resources among them.

21/ See paragraphs 113 and 114 above.

ANNEXES

Annex I

AGENDA

1. Election of officers.
2. Adoption of the agenda.
3. Science and technology in the Second United Nations Development Decade:
 - (a) Role of modern science and technology in the development of nations;
 - (b) World Plan of Action for the Application of Science and Technology to Development;
 - (c) Quantification of scientific and technological activities related to development.
4. Application of technology to development:
 - (a) Technology assessment and perspectives;
 - (b) Computer science and technology;
 - (c) Appropriate technology;
 - (d) Research and information for developing countries.
5. Outflow of trained personnel from developing to developed countries.
6. Advisory Committee on the Application of Science and Technology to Development.
7. Question of the establishment of a special protein fund.
8. Future work of the Committee on Science and Technology for Development.
9. Adoption of the report of the Committee.

Annex II

LIST OF DOCUMENTS BEFORE THE COMMITTEE AT ITS SECOND SESSION

<u>Document No.</u>	<u>Agenda item No.</u>	<u>Title</u>
E/4962/Rev.1	3 (<u>b</u>)	World Plan of Action for the Application of Science and Technology to Development (United Nations publication, Sales No.: E.71.II.A.18)
E/5238 and Add.1 and Add.1/ Corr.1	3 (<u>a</u>)	Report of the Secretary-General
E/C.8/2 and Corr.1	6	Statement for the Committee adopted by the Advisory Committee on the Application of Science and Technology to Development at its seventeenth session
E/C.8/4	4 (<u>c</u>)	Note by the Secretary-General
E/C.8/5 and Corr.1	4 (<u>d</u>)	Note by the Secretary-General
E/C.8/7	4 (<u>a</u>)	International co-operation in new technologies - technology assessment and perspectives: note by the Secretary-General
E/C.8/17	2	Provisional agenda with annotations
E/C.8/18	3 (<u>c</u>)	Report of the International Group of Experts on the Quantification of Scientific and Technological Activities related to Development
E/C.8/19	3 (<u>b</u>)	Progress report of the Secretary-General
E/C.8/20/Rev.1	4 (<u>b</u>)	Report of the Secretary-General
E/C.8/21	5	Report of the Secretary-General
E/C.8/22	6	Question of strengthening the Advisory Committee on the Application of Science and Technology to Development: report of the Secretary-General
E/C.8/23	7	Report of the Secretary-General
E/C.8/24	6	Eleventh report of the Advisory Committee on the Application of Science and Technology to Development
E/C.8/25	3 (<u>a</u>)	Question of convening a United Nations conference on science and technology: note by the Secretary-General
E/C.8/26	2	Agenda for the second session of the Committee

<u>Document No.</u>	<u>Agenda item No.</u>	<u>Title</u>
E/C.8/INF.3		List of documents before the Committee
E/C.8/INF.4		List of participants at the second session of the Committee
E/C.8/L.36	2	Organization of work of the Committee: note by the Secretariat
E/C.8/L.37	3 (c)	Draft resolution proposed by the working group on the quantification of scientific and technological activities related to development
E/C.8/L.38	3 (b)	Philippines: draft resolution
E/C.8/L.38/ Rev.1	3 (b)	Philippines: revised draft resolution
E/C.8/L.38/ Rev.1/Add.1	3 (b)	Financial implications of the draft resolution contained in document E/C.8/L.38/Rev.1: note by the Secretary-General
E/C.8/L.39	3 (b)	Belgium, Brazil, Iran and Philippines: draft resolution
E/C.8/L.39/ Rev.1	3 (b)	<u>/Same sponsors/</u> and India: revised draft resolution
E/C.8/L.40	3 (a)	Question of convening a United Nations conference on science and technology: draft resolution proposed by the working group
E/C.8/L.41	3 (a)	Belgium: draft resolution
E/C.8/L.41/ Rev.1 and 2	3 (a)	Belgium: revised draft resolution
E/C.8/L.41/Rev.3	3 (a)	Belgium, Egypt, Pakistan and Tunisia: revised draft resolution
E/C.8/L.42	3 (b)	Netherlands: draft resolution
E/C.8/L.42/Rev.1	3 (b)	Netherlands: revised draft resolution
E/C.8/L.43	4 (b)	Algeria, Argentina, Egypt, India, Iran, Jamaica, Madagascar, Mexico, Romania, Tunisia and Yugoslavia: draft resolution
E/C.8/L.44	4 (d)	The role of an international technological information system in the transfer and assessment of technology and in the indigenous growth of appropriate technologies in developing countries - Chile, India, Iran, Jamaica, Jordan, Mexico, Pakistan and Venezuela: draft resolution
E/C.8/L.44/ Rev.1	4 (d)	<u>/Same sponsors/</u> and Kenya: revised draft resolution

<u>Document No.</u>	<u>Agenda item No.</u>	<u>Title</u>
E/C.8/L.45 and Add.1-9	9	Draft report of the Committee
E/C.8/L.46	5	Argentina and Netherlands: draft resolution
E/C.8/L.46/ Rev.1	5	<u>/Same sponsors/</u> : revised draft resolution

Annex III

WORKING PAPER SUBMITTED BY THE DELEGATION OF THE UNION OF SOVIET SOCIALIST REPUBLICS

In considering the question of the future work of the Committee on Science and Technology for Development, it is important to take as a starting-point the fact that, according to its terms of reference (Economic and Social Council resolution 1715 (LIII)), the Committee on Science and Technology for Development is the main body to assist the Economic and Social Council in the definition of guidelines in the field of science and technology for development in the interest of all mankind, and particularly of the peoples of the developing countries.

The Committee must promote international co-operation in the field of science and technology within the United Nations, encourage the exchange of experience on questions relating to the application of science and technology to development, formulate recommendations to Governments and suggest measures to eliminate policies and practices which impede such co-operation.

The Committee on Science and Technology must become the focal point for the formulation of a unified science and technology policy, the aim of which should be to ensure the utilization of science and technology, as indicated above, in the interests of all countries, including the developing countries.

United Nations policy in the field of science and technology should include such measures as the following:

1. Singling out the most significant long-term problems and trends in the development of science and technology, not only at the present time but also in the future, for all States Members of the United Nations.

This involves explaining the problems and trends which interest all countries in the world and which could constitute a programme of international long-term co-operation, on a genuinely equal and mutually advantageous basis, in the field of science and technology within the United Nations. The Advisory Committee on the Application of Science and Technology to Development, as an expert body, has already done considerable work in this field. But this work must be continued so that out of the mass of important, urgent and useful undertakings, the ones chosen will really be of first priority for all countries in the world, for individual regions and for each State Member of the United Nations.

2. Carefully defining and reviewing problems relating to science and technology with which the specialized agencies and organs of the United Nations are concerned.

In view of the fact that scientific and technological activities in the United Nations system are of a complex and highly planned nature and that many instances of duplication and overlapping can be observed in these activities, one of the most important functions of the Committee in all its work must be to study the programmes in the field of science and technology being implemented

within the United Nations and to formulate recommendations concerning the co-ordination of these programmes with a view to enhancing considerably their effectiveness.

3. Encouraging at the national level the formulation and implementation of priority tasks in the field of science and technology which are of world significance, taking into account the resources and possibilities of each country and, in particular, the need for the speedy development of the scientific and technological potential of the developing countries. It is important to emphasize this point since the development of the scientific and technological potential of all countries, especially the developing countries, is a sine qua non of the successful application of science and technology to development. Only if that potential is created - and it consists of trained scientific, engineering and technical personnel, a scientific infrastructure and an industrial and technical base combined in the same system - can there be any expectation of success for our joint efforts.

The three points set out above, three components of the science and technology policy in the United Nations, are not, of course, the sole components but they can form the core, the basis of that policy. At the same time, the purpose of the science and technology policy of the United Nations, as outlined above, is to combine international and national efforts in the solution of problems which concern all mankind.

The indispensable conditions for the effectiveness of the science and technology policy in the United Nations must be:

The concentration of efforts on the main trends;

The co-ordination of the scientific and technological activities of all United Nations organs and organizations concerned;

Finding the optimum correlation between efforts at the international, regional and national levels;

Taking account of the legitimate interests of all States in the world.

Such an understanding of the essence of the science and technology policy of the United Nations, as a universal Organization, and of the conditions for the effective implementation of that policy takes into account the results of the discussions held previously in various organs of the United Nations, in particular at the previous and current sessions of the Committee, and the observations contained in the statement of 13 March 1974 by the Under-Secretary-General for Economic and Social Affairs. a/ Therefore, the proposal put forward already at the previous session concerning the preparation of a document listing all organs of the United Nations and institutions in the United Nations system indicating the distribution of tasks among them and the programmes carried out by them in the field of science and technology, b/ would appear to be a very useful one.

a/ OPI/CESI/NOTE/243.

b/ Official Records of the Economic and Social Council, Fifty-fifth Session, Supplement No. 4, annex III B.

The implementation of that proposal would immediately reveal the unresolved problems of co-ordination and make it possible to identify the minor and unimportant projects in the programmes of the specialized agencies. Then it would be possible to deal specifically with the elimination of the short-comings revealed, so that in the course of time not only would closer co-ordination in the activities of the specialized agencies be achieved and duplication of effort be reduced to a minimum, but also with time their unco-ordinated programmes, or rather parts of programmes, relating to science and technology would be transformed into components of a unified United Nations science and technology programme.

In order to bring this goal nearer, it would seem to be appropriate for the Committee to consider the question of the delegation of responsibility for the solution of the most important scientific and technological problems of a global character by individual specialized agencies in the United Nations system, for instance, UNESCO, WHO, UNIDO and also UNITAR and the regional economic commissions, etc., and the formulation of appropriate recommendations to the Economic and Social Council. Under such a system, other intergovernmental organizations would co-operate on a given problem within their spheres of competence and would not duplicate each other's work. The implementation of this proposal would be a serious step forward in the solution of a number of urgent problems of co-ordination, the elimination of overlapping and duplication and the eventual formulation of a unified science and technology policy.

In order to define this last proposal more precisely, the Soviet delegation suggests the following problems for priority joint solution by the specialized agencies:

Fundamental principles for the elaboration of non-polluting and non-conventional technology;

New sources of non-polluting energy;

The cultivation of renewable natural resources, including the resources of the world's oceans and the utilization of recycled resources;

The rational distribution of productive forces on a regional scale;

The over-all limits of economic growth.

The measures listed above would enable the Committee on Science and Technology for Development to carry out its mandate without the creation of any new organizations or units of the United Nations.

If the question is formulated in this way, the appropriate department of the Secretariat and the Committee should become the focal point for the preparation of the future United Nations conference on science and technology.

In the process of carrying out the above-mentioned most general tasks, the Committee will also be discharging the other functions entrusted to it under Economic and Social Council resolution 1715 (LIII). But if the Committee concerns itself with individual, even though important, problems and is diverted from the performance of its main tasks, it will not be fulfilling its fundamental purpose, which is to be the main body to assist the Economic and Social Council in the definition of guidelines for work in the field of science and technology for development.

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