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REPORT OF THE UNITED NATIONS CONFERENCE ON SCIENCE AND TECHNOLOGY FOR DEVELOPMENT

Vienna (20-31 August 1979)

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CHAPTER I

ORIGINS OF THE UNITED NATIONS CONFERENCE ON SCIENCE AND TECHNOLOGY FOR DEVELOPMENT

1. The General Assembly at its seventh special session decided in resolution 3362 (S-VII) of 16 September 1975 that a United Nations Conference on Science and Technology for Development should be held in 1978 or 1979 with the main objectives of strengthening the technological capacity of developing countries to enable them to apply science and technology to their own development; adopting effective means for the utilization of scientific and technological potentials in the solution of development problems of regional and global significance, especially for the benefit of developing countries; and providing instruments of co-operation to developing countries in the utilization of science and technology for solving socio-economic problems that could not be solved by individual action, in accordance with national priorities.

2. The question of convening such a conference was the subject of resolution 1897 (LVII) adopted by the Economic and Social Council on 1 August 1974. The idea had been discussed earlier by the Advisory Committee on the Application of Science and Technology to Development 1/ and by the Committee on Science and Technology for Development at its second session 2/ as well as in previous reports of the Secretary-General of the United Nations (E/5238, para. 22; E/C.8/25). By the same resolution, the Council decided, inter alia, 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". This working group was to report to the Committee at its third session and the Committee's recommendations regarding the proposed conference were to be submitted to the Council. The Secretary-General was requested to submit a report to the Working Group stating his views on the scope and estimated cost of such a conference.

3. Shortly before the adoption of this resolution by the Council, the General Assembly had held its sixth special session at which it adopted, on 1 May 1974, the Declaration and Programme of Action on the Establishment of a New International Economic Order (resolutions 3201 (S-VI) and 3202 (S-VI)) which gave prominence to the role of science and technology in promoting the development of developing countries. Later in the same year, on 12 December 1974, the Assembly adopted resolution 3281 (XXIX), containing the Charter of Economic Rights and Duties of States, article 9 of which provides that "All States have the responsibility to co-operate in the ... scientific and technological fields for the promotion of economic and social progress", while article 13 provides that "Every State has the right to benefit from the advances ... in science and technology" (para. 1) and that "All States should promote international scientific and technological co-operation" (para. 2).

1/ See the eleventh report of the Committee (E/C.8/24).

2/ See Official Records of the Economic and Social Council, Fifty-seventh Session, Supplement No. 3 (E/5473), paras. 2-11.

4. At its sixty-first session, in the summer of 1976, the Economic and Social Council, after considering the report of the Intergovernmental Working Group of the Committee on Science and Technology for Development (E/C.8/28) (see para. 2 above) and the General Assembly resolutions mentioned above, adopted resolution 2028 (LXI) of 4 August 1976 recommending that the Assembly should decide, at its thirty-first session to be held in 1976, that the Conference be convened during 1979. It also made a number of recommendations about the objectives, agenda and preparations for the Conference. In the same resolution, the Council requested that a Secretary-General of the Conference be appointed at the earliest possible time; recommended the composition of the Conference secretariat; established the Preparatory Committee for the Conference based on the Committee on Science and Technology for Development, open to the participation of all States; and made a number of other recommendations concerning the preparatory process of the Conference at the international, regional and national levels. Also on 4 August 1976 the Council adopted resolution 2035 (LXI) concerning preparations for the Conference, particularly the preparation of national and regional papers.

5. On 21 December 1976, the General Assembly adopted resolution 31/184, in which it took account of the Council's recommendations. It decided, *inter alia*, to convene the Conference in 1979, at a site to be determined at the Assembly's thirty-second session; approved the provisional agenda for the Conference proposed by the Council; requested the Secretary-General of the United Nations to appoint a Secretary-General of the Conference at the earliest possible time; established the Preparatory Committee for the Conference and invited Governments and organizations of the United Nations system to co-operate fully in the preparations for the Conference.

6. The Preparatory Committee for the Conference held its first session in New York from 31 January to 14 February 1977, under the chairmanship of Mr. A. Ramachandran (India). Shortly before the session, Mr. João Frank da Costa of Brazil was appointed Secretary-General of the Conference.

7. At its sixty-third session, in the summer of 1977, the Economic and Social Council received the report of the Preparatory Committee for the Conference on its first session. 3/ On 4 August 1977, the Council adopted resolution 2123 (LXIII) dealing with the preparatory period for the Conference. It recommended, *inter alia*, that the Secretary-General of the United Nations and the organizations in the United Nations system should ensure that adequate resources be made available for the preparatory process of the Conference.

8. At its thirty-second session, in 1977, the General Assembly adopted two resolutions relating to the Conference. By resolution 32/115 of 15 December 1977, after taking note of the Preparatory Committee's report on its first session 3/ and after endorsing Council resolution 2123 (LXIII), it decided, *inter alia*, to hold the Conference "at an appropriate time in 1979"; affirmed the objectives of the Conference; decided that the Preparatory Committee for the Conference should be open to all States as full members; urged all States to make a positive contribution to the preparatory work for the Conference; requested the Secretary-General and the

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3/ *Official Records of the General Assembly, Thirty-second Session, Supplement No. 43* (A/32/43 and Corr. 3).

executive heads of bodies in the United Nations system to give high priority to the preparations for the Conference; and asked to be informed at its thirty-third session about the preparations for the Conference.

9. The General Assembly, by its resolution 32/184 of 19 December 1977, accepted the invitation of the Government of Austria to act as host to the Conference; decided that the Conference would be held at Vienna for two weeks in 1979; specified the States, organizations, bodies and movements to be invited by the Secretary-General to participate in or to be represented at the Conference; and requested the Secretary-General to make the necessary arrangements with the Government of Austria and to provide services, facilities and staff for the Conference.

10. After consideration of the report of the Preparatory Committee on its second session, held at Geneva from 23 January to 3 February 1978, the Economic and Social Council adopted, on 4 August 1978, its resolution 1978/70 in which it took note of the report of the Secretary-General of the Conference on the state of preparations for the Conference (E/1978/82); urged all specialized agencies and other bodies concerned in the United Nations system, and also organizations outside the system, to ensure that material to be submitted to the Preparatory Committee and to the Conference should contain clear and specific recommendations and to co-ordinate their efforts towards achieving the goals of the Conference; requested the Preparatory Committee to give careful consideration at its third session to the substantive issues and to a draft programme of action to be dealt with by the Conference; and addressed a number of requests to the Secretary-General of the Conference in anticipation of the Preparatory Committee's third session and the Assembly's thirty-third session.

11. At its thirty-third session, the Assembly adopted on 29 January 1979 its resolution 33/192 by which it took note of the report of the Preparatory Committee on its second session 4/ and the report of the Secretary-General of the Conference on the preparations for the Conference (A/33/298) and decided that the Conference would be held at Vienna from 20 to 31 August 1979. In addition, the resolution dealt with documents to be prepared for the third session of the Preparatory Committee and in particular an outline of a programme of action.

12. The Preparatory Committee held its third session in New York from 22 January to 5 February 1979, under the chairmanship of Mr. M. G. K. Menon (India). At that session it considered the requested outline of the programme of action and decided that it should be rearranged in three target areas:

(a) Strengthening the scientific and technological capacities of developing countries (target area A);

(b) Restructuring the existing pattern of international scientific and technological relations (target area B);

(c) Strengthening the role of the United Nations in the field of science and technology and the provision of increased financial resources (target area C).

4/ *Ibid.*

13. The fourth session of the Preparatory Committee was held in New York from 23 April to 4 May 1979, at which the documentation and general preparations were reviewed. Preliminary discussion about the draft programme of action was also commenced.

14. The fifth and final session of the Preparatory Committee, held in New York from 25 June to 7 July 1979, was devoted largely to the preparation of the final draft of the programme of action to be presented to the Conference.

15. Apart from the meetings of the Preparatory Committee, a large number of international, regional, subregional and national meetings were held in preparing for the Conference. In particular, mention should be made of those convened by the regional commissions:

Economic Commission for Africa	Arusha, United Republic of Tanzania	3-8 October 1977
	Cairo, Egypt	22-23 August 1978
	Cairo, Egypt	24-29 August 1978
Economic Commission for Latin America	Mexico City, Mexico	31 October-2 November 1977
	Panama City, Panama	16-21 August 1978
	Montevideo, Uruguay	29 November-1 December 1978
Economic Commission for Europe	Geneva, Switzerland	6-8 December 1977
	Bucharest, Romania	26-30 June 1978
Economic and Social Commission for Asia and the Pacific	Bangkok, Thailand	8-12 December 1977
	Bangkok, Thailand	17-21 July 1978
Economic Commission for Western Asia	Beirut, Lebanon	19-21 December 1977
	Amman, Jordan	12-14 September 1978

CHAPTER II

ATTENDANCE AND ORGANIZATION OF WORK

A. Date and place of the Conference

16. The United Nations Conference on Science and Technology for Development was held at Vienna from 20 to 31 August 1979, in conformity with General Assembly resolution 33/192 of 29 January 1979. During that period the Conference held 16 plenary meetings.

B. Pre-Conference consultations

17. Pre-Conference consultations open to the participation of all States invited to the Conference were held at Vienna on 18 August 1979 to consider a number of procedural and organizational matters. The consultations were conducted under the chairmanship of Mr. M. G. K. Menon (India), Chairman of the Preparatory Committee for the Conference. The report on the consultations (A/CONF.81/L.2) was submitted to the Conference and was accepted as a basis for the organization of its work.

C. Attendance

18. The following 142 States were represented at the Conference:

Afghanistan
Albania
Algeria
Angola
Argentina
Australia
Austria
Bahrain
Bangladesh
Barbados
Belgium
Benin
Bhutan
Bolivia
Brazil
Bulgaria
Burma
Burundi
Byelorussian Soviet Socialist Republic
Canada
Cape Verde
Central African Empire
Chad
Chile
China
Colombia
Comoros
Congo
Costa Rica
Cuba
Cyprus
Czechoslovakia
Democratic Kampuchea
Democratic People's Republic of Korea
Democratic Yemen
Denmark
Djibouti
Dominican Republic
Ecuador
Egypt
El Salvador
Ethiopia
Finland
France
Gabon
Gambia
German Democratic Republic
Germany, Federal Republic of
Ghana
Greece
Grenada
Guatemala
Guinea
Guinea-Bissau
Haiti
Holy See
Honduras
Hungary
India
Indonesia
Iran
Iraq
Ireland
Israel
Italy
Ivory Coast
Jamaica
Japan
Jordan
Kenya
Kuwait
Lebanon
Lesotho
Liberia
Libyan Arab Jamahiriya
Luxembourg

Madagascar
Malawi
Malaysia
Mali
Malta
Mauritania
Mauritius
Mexico
Mongolia
Morocco
Mozambique
Nepal
Netherlands
New Zealand
Nicaragua
Niger
Nigeria
Norway
Oman
Pakistan
Panama
Papua New Guinea
Paraguay
Peru
Philippines
Poland
Portugal
Qatar
Republic of Korea
Romania
Rwanda
Samoa
Saudi Arabia
Senegal
Seychelles
Sierra Leone
Singapore
Somalia
Spain
Sri Lanka
Sudan
Suriname
Swaziland
Sweden
Switzerland
Syrian Arab Republic
Thailand
Togo
Trinidad and Tobago
Tunisia
Turkey
Ukrainian Soviet Socialist Republic
Union of Soviet Socialist Republics
United Arab Emirates
United Kingdom of Great Britain and Northern Ireland
United Republic of Cameroon
United Republic of Tanzania
United States of America
Upper Volta
Uruguay
Venezuela
Viet Nam
Yemen
Yugoslavia
Zaire
Zambia

19. The Palestine Liberation Organization attended the Conference in the capacity of observer.

20. The following national liberation movements were represented by observers: African National Congress (South Africa); Patriotic Front (Zimbabwe).

21. The Director-General for Development and International Economic Co-operation was present throughout the Conference. Members of the secretariat of the following United Nations offices were present throughout or during part of the Conference:

Office of the Director-General for Development and International Economic Co-operation

Department of International Economic and Social Affairs

Department of Technical Co-operation for Development

Department of Political and Security Council Affairs, including the United Nations Centre for Disarmament.

22. The secretariats of the following regional commissions were represented at the Conference:

Economic Commission for Europe

Economic Commission for Latin America

Economic and Social Commission for Asia and the Pacific

Economic Commission for Africa

Economic Commission for Western Asia.

23. The following United Nations bodies and programmes were also represented:

Inter-Organization Board for Information Systems
United Nations Centre for Human Settlements (Habitat)
United Nations Centre on Transnational Corporations
United Nations Children's Fund
United Nations Conference on Trade and Development
United Nations Development Programme
United Nations Environment Programme
United Nations Fund for Population Activities
United Nations Industrial Development Organization
United Nations Institute for Training and Research
United Nations Sudano-Sahelian Office
United Nations University
World Food Council.

24. Representatives of the following specialized agencies and related organizations participated in the work of the Conference:

International Labour Organisation
Food and Agriculture Organization of the United Nations
United Nations Educational, Scientific and Cultural Organization
World Health Organization
World Bank
International Civil Aviation Organization
Universal Postal Union
International Telecommunication Union
World Meteorological Organization
Inter-Governmental Maritime Consultative Organization
World Intellectual Property Organization
International Atomic Energy Agency
General Agreement on Tariffs and Trade.

25. The following intergovernmental organizations were represented by observers:

African Development Bank
Agency for Cultural and Technical Co-operation
Asian Development Bank
Asian Productivity Organization

Association of South-East Asian Nations

Central American Research Institute for Industry

Commonwealth Secretariat

Council for Mutual Economic Assistance

Council of Europe

European Economic Community

European Patent Office

European Space Agency

Federation of Arab Scientific Research Councils

Gulf Organization for Industrial Consulting

Instituto Interamericano de Ciencias Agrícolas

Inter-American Development Bank

Intergovernmental Bureau for Informatics

Intergovernmental Committee for European Migration

International Institute of Refrigeration

Islamic Conference

Junta del Acuerdo de Cartagena

League of Arab States

Organization of African Unity

Organisation for Economic Co-operation and Development

Organization of American States

Organization of the Petroleum Exporting Countries

Secretaría Ejecutiva Convenio Andrés Bello

Secretaría Permanente del Tratado General de Integración Económica Centroamericana

Sistema Económico Latino Americano.

26. A large number of non-governmental organizations in consultative status with the Economic and Social Council attended the Conference.

D. Opening of the Conference and election of its President (agenda items 1 and 2)

27. The Conference was opened by the Secretary-General of the United Nations. In his opening statement, he stated that the Conference was the latest in a series sponsored by the United Nations to help find answers to the growing problems of the modern era. In one way or another, the entire spectrum of global ills related to the creative uses of science and technology in development. Much of human ingenuity and innovative ability had been misdirected, for example, into the refinement of military technologies and into the support of wasteful consumerism in a world where famine and malnutrition were tragically present. It was a major

task of the Conference to help ensure that scientific and technological potential should be directed to constructive ends. There was an enormous imbalance in the research and development activities being undertaken throughout the world, in that 97 per cent of such activities took place in the industrialized countries. The developing countries, as a whole, were excessively dependent on imported technologies which tended to hamper the growth of indigenous skills. The developing countries needed help in order to gather and share scientific knowledge, so as to enhance their technological capabilities and accelerate their development. This required a global programme of action, which the Conference was designed to evolve.

28. Three elements were crucial to the success of such a programme: the conscious political will to seek and apply remedies within the international framework, since the problems cut across international boundaries; an increased funding for science and technology at the national and international levels; and the institution of efficient mechanisms for implementing the programme.

29. The co-ordination, within the United Nations system, of activities related to development was particularly complex in the area of science and technology because no precise demarcation lines could be drawn. Effective co-operative arrangements had to be established, not only within the United Nations system, but also with intergovernmental bodies, scientific and technological communities and national or regional institutions. The final result of the Conference should be to institute a programme of action to which all would be sincerely committed. It was for the Conference to demonstrate how the move from rhetoric to reality and from politics to statesmanship could be accomplished.

30. It was inconceivable that science and technology should fail to cope with the mounting problems of the world. Social and economic uncertainties in one part of the world could be profoundly disturbing for other parts. All efforts should therefore be made to widen and multiply the areas of common interest identified at the Conference. This would make manifest that the real divisions were not between North and South or between East and West, but between those who favoured a passive continuation of the status quo, that was prejudicial to all, and those who favoured dynamism, changes and innovation.

31. In an inaugural address, Dr. Rudolf Kirchschlaeger, Federal President of the Republic of Austria, the host country, welcomed the participants and expressed the hope, on behalf of the Government and people of Austria, that they would find an environment that made possible a good Conference leading to positive results.

32. The Charter of the United Nations was to be taken very seriously when, in its Preamble, it expressed the determination of the Member States "to promote social progress and better standards of life in larger freedom, and for these ends ... to employ international machinery". Science and technology were two decisive contributing factors in this regard, but at the same time they were instrumental in producing a seemingly endless accumulation of armaments. The Conference would hardly be able to bring a solution to this problem any closer, but he felt it would be a dereliction of duty to fail to draw attention to the fear and anxiety caused by the armaments race and the nuclear threat. In seeking ways of making science and technology serve development, however, the Conference participants would also be serving the cause of peace. Justice was a prerequisite of peace: to co-operate

for a more just international order was, therefore, a valuable way of working for peace. He was convinced that the Conference must strive for one great human society, which should not remain divided into races and classes nor into the permanently rich and the permanently poor. He appealed to the participants to be indefatigable in making science and technology truly the instruments for overcoming ignorance, poverty and oppression.

33. The Conference elected by acclamation Dr. Hertha Firnberg, Federal Minister for Science and Research and head of the delegation of Austria, as President of the Conference.

34. In thanking the Conference on behalf of the Government and people of Austria for her election, the President said she was fully conscious of the responsibilities attaching to her office. Science and technology were essential components of the development process at the national level, but the achievement of their potential depended more and more on international collaboration and international action. The Conference was the last of a series of meetings held in the decade that had dealt with such diverse topics as the environment, trade and development, population, food, the role of women, human settlements and technical co-operation among developing countries. The Conference offered an opportunity for integrating the achievements of those other meetings, at a time when plans were being made for the next development decade. It had been preceded by numerous national, regional and interregional meetings at which the issues involved in the application of science and technology had been considered. After the completion of the preparatory process, it would be the task of the Governments represented at the Conference to show the political will and readiness to compromise necessary for translating ideas into actions, to harness the forces of science and technology in the service of the cause of the balanced development of all nations.

E. Messages from Heads of State or Government

35. At its opening meeting, the Conference heard messages wishing it success addressed to it by the Heads of State or Government of the Union of Soviet Socialist Republics, the United States of America, the People's Republic of China, Tunisia, Romania and Poland. In accordance with a decision taken at that meeting, messages from the Heads of State or Government of Bulgaria, the German Democratic Republic and Hungary, which were received subsequently, were made available to the plenary. The Crown Prince of Jordan, as honorary head of his country's delegation, addressed the Conference in the course of the general debate.

F. Adoption of the rules of procedure (agenda item 3 (a))

36. At its 1st plenary meeting, on 20 August 1979, the Conference adopted the provisional rules of procedure recommended by the Preparatory Committee (A/CONF.81/2), with the following amendments:

(a) In rule 6, the words "18 Vice-Presidents" were replaced by "23 Vice-Presidents";

(b) Rule 42 was amended to read:

"There shall be two main committees; working groups may be established, if necessary, by the Conference and by the Main Committees."

G. Adoption of the agenda (agenda item 3 (b))

37. At the same meeting, the Conference adopted as its agenda the provisional agenda approved by the Preparatory Committee (A/CONF.81/1), viz.:

1. Opening of the Conference.

2. Election of the President of the Conference.

3. Organizational matters:

   (a) Adoption of the rules of procedure;

   (b) Adoption of the agenda;

   (c) Organization of work;

   (d) Election of officers other than the President;

   (e) Credentials of representatives to the Conference:

      (i) Appointment of the members of the Credentials Committee;

      (ii) Report of the Credentials Committee.

4. Science and technology for development:

   (a) Choice and transfer of technology for development;

   (b) Elimination of obstacles to the better utilization of knowledge and capabilities in science and technology for the development of all countries, particularly for their use in developing countries;

   (c) Methods of integrating science and technology in economic and social development;

   (d) New science and technology for overcoming obstacles to development.

5. Institutional arrangements and new forms of international co-operation in the application of science and technology:

   (a) Building up and expansion of institutional systems in developing countries for science and technology;

   (b) Research and development in the industrialized countries in regard to problems of importance to developing countries;

   (c) Mechanisms for the exchange of scientific and technological information and experience significant to development·

   (d) Strengthening of international co-operation among all countries and design of concrete new forms of international co-operation in the fields of science and technology for development;

   (e) Promotion of co-operation among developing countries and role of developed countries in such co-operation.

6. Utilization of the existing United Nations system and other international organizations.

7. Science and technology and the future.

8. Adoption of the report and final documents of the Conference.

H. Organization of work (agenda item 3 (c))

38. Also at the same meeting, the Conference decided:

(a) That items 1, 2, 3 and 8 of the agenda would be considered in plenary meetings; items 4 to 7 would form the subject of a general debate in the plenary and the substantive aspects of item 4 (d) as well as item 7 would be considered by a working group which would report to the plenary;

(b) That item 4 (a), (b) and (c) and item 5 would be considered by the First Committee, which would also deal with any declaration of a general nature;

(c) That the institutional aspects of item 4 (d) as well as item 6 would be considered by the Second Committee.

I. Election of officers other than the President of the Conference (agenda item 3 (d))

39. At its 1st, 2nd and 3rd plenary meetings, on 20 and 21 August, the Conference elected the following 23 States as Vice-Presidents:

Angola	Germany, Federal Republic of	Spain
Argentina	Japan	Sudan
Bangladesh	Jordan	Trinidad and Tobago
Bulgaria	Malaysia	Union of Soviet Socialist Republics
China	Mexico	United Republic of Tanzania
Costa Rica	Norway	United States of America
Czechoslovakia	Poland	Upper Volta
Gabon	Sierra Leone	

40. Mr. Miguel Rodríguez Mendoza (Venezuela) was elected Rapporteur-General by acclamation.

41. The Conference elected by acclamation Mr. Jacques Diouf (Senegal) Chairman of the First Committee and Mr. M. G. K. Menon (India) Chairman of the Second Committee.

42. At its 1st plenary meeting, the Conference, under rule 42 of the rules of procedure, established the Working Group on Science and Technology and the Future, open to all States participating in the Conference, to consider item 4 (d) and item 7. At its 4th plenary meeting on 21 August, the Conference elected Mr. Mircea Malitza (Romania) as Chairman of the Working Group.

43. The Main Committees and the Working Group elected their Vice-Chairmen and Rapporteurs:

First Committee:

Vice-Chairmen: Mr. Ludovico Carducci Artemisio (Italy)

Mr. Jorge Chávez Queloplana (Peru)

Mr. Peter Stier (German Democratic Republic)

Rapporteur: Mr. M. Wijeratne (Sri Lanka)

Second Committee:

Vice-Chairmen:	Mr. Lars Anell (Sweden)
	Mr. Diómedes Concepción (Panama)
	Mr. Janos Szita (Hungary)
Rapporteur:	Mr. Peter Gacii (Kenya)

Working Group on Science and Technology and the Future:

Vice-Chairmen:	Mr. Abdulla Al Manays (Kuwait)
	Mr. Mohamed Bahaeldin Fayez (Egypt)
	Mr. José Israel Vargas (Brazil)
Rapporteur:	Mr. J. D. de Haan (Netherlands)

J. Appointment of the members of the Credentials Committee (agenda item 3 (e) (i))

44. In conformity with rule 4 of its rules of procedure, the Conference, at its 1st plenary meeting, established a Credentials Committee composed of the following States: China, Denmark, India, Sierra Leone, Suriname, Thailand, Union of Soviet Socialist Republics, United States of America and Zaire.

K. Implications of Conference decisions for the programme budget of the United Nations

45. At the 16th (closing) plenary meeting of the Conference, on 31 August 1979, the Secretary of the Conference made a statement to the effect that any provisions of the Programme of Action that had implications for the programme budget of the United Nations would be brought to the attention of the General Assembly by the Secretariat at the time when the Assembly considered the report of the Conference.

CHAPTER III

SUMMARY OF THE GENERAL DEBATE

46. By decision of the Conference, the general debate covered the topics of agenda items 4 to 7; the more specific discussion of certain subitems took place in the Main Committees, in the Working Group on Science and Technology and the Future established by the Conference, and in the working groups set up by the Main Committees. The general debate took place in the course of 15 meetings, held from 20 to 29 August 1979. The passages which follow give a brief account of the points that were stressed by speakers in the debate.

47. The representatives of States and the observers who addressed the Conference, as well as the representatives of specialized agencies, regional commissions and other United Nations bodies, programmes and offices who made statements, commented on the central issues before the Conference. Statements were also made by a number of non-governmental organizations.

48. Opening the general debate at the 1st plenary meeting, on 20 August 1979, the Secretary-General of the Conference stated that the preparatory process and the Conference constituted two interrelated phases. The Conference had already in the preparatory phase achieved one of its objectives, since the importance and the specificity of science and technology, as instruments of development, had been broadly recognized at the national level. Such a recognition should now be manifested at the international level. The Conference should be regarded not merely as a means of arousing public awareness, but as a global gathering which should culminate in positive recommendations for action at national and international levels.

49. The success of the Conference would depend partly on its ability to formulate a coherent programme of action, which would not be a treaty, but a set of recommendations addressed to Member States and to the different bodies and organizations of the United Nations system for implementation and for the formulation of detailed programmes.

50. The three critical issues before the Conference were the transfer of technology, the institutional mechanisms, and the financial problems. The issue of technology transfer was a complex one with emotional overtones, which had been under consideration for so long that it would be unrealistic to expect it to be definitively settled at this Conference.

51. The discussions during the preparatory process had shown that technology had two aspects: it could be regarded either as a merchandise or as the result of a particular economic, social, political and cultural system. In the consideration of technological dependence one should distinguish the problems relating to the forms of the acquisition of technology - royalties, monopolistic markets, restrictive practices, etc. - from the problems of a more subtle dependence inherent in the technology transferred. This second type of dependence implied the imposition on the recipients of alien standards, structures and cultural values, the stifling of the scientific and technological creativity of developing countries and the reinforcement of the economic and social dualism of those countries.

52. He said that the question of the institutional machinery to be devised for giving effect to the decisions of the Conference would clearly figure prominently in the discussions. In his opinion, it would be necessary to establish appropriate institutional machinery in the United Nations system, for the over-all co-ordination of the scientific and technological policies. He emphasized that what would need to be co-ordinated would be policies, not specific projects or programmes, for these should continue to be co-ordinated on an ad hoc basis. The new concept of development required a harmonization of the sectoral activities to a higher degree than in the past, in order that the entire United Nations system should move in the same direction. Consequently, it was necessary to formulate a harmonized policy in the field of science and technology for the system.

53. An institutional structure of co-ordination for science and technology would consist of four essential elements: an intergovernmental body, a body corresponding to the organization of the United Nations system, a body representing the scientific and technological community, and a secretariat. These four elements already existed in the United Nations system, but they were not fully integrated nor adequate to meet the growing needs which had become manifest in recent years. He emphasized, however, that to be effective the intergovernmental body and the secretariat should be at as high a level as possible in the United Nations hierarchy and should not be bound to any particular sector.

54. He considered that any recommendations that the Conference might adopt would be vain in the absence of a considerable increase in the financial resources necessary for strengthening the endogenous scientific and technical capacities of developing countries. While these resources should be provided mainly by the developing countries, external resources would be required to supplement the internal efforts of each developing country in keeping with its needs; the least developed and otherwise handicapped developing countries would, however, deserve special attention and support from the international community. Internal financial resources would be required essentially for three purposes: research and development, scientific and technical services, and education and training. In his view, the target of 1 per cent of GNP to be devoted to science and technology by developing countries would seem to be a reasonable one to aim for by the end of the decade.

55. So far as the contribution of the developed countries was concerned, he said that these countries had made certain commitments at the time of the adoption of the International Development Strategy for the Second United Nations Development Decade and during the negotiations concerning the establishment of the New International Economic Order. They had agreed to strengthen the scientific and technological capacity of the developing countries, to utilize their potential for solving specific problems of the developing countries and to create an international climate conducive to the achievement of these objectives. It had not been possible to quantify or specify those targets in the International Development Strategy for the Second United Nations Development Decade. The Conference in a sense provided a renewed opportunity for the international community to agree upon those targets. However, support for isolated projects selected in an unco-ordinated manner by developed countries would be of little benefit to developing countries. What was required was a financing system which would provide assured, predictable and continuous resources for strengthening the endogenous capacities of developing countries.

56. The Conference was taking place at a turning point in history and in a sense marked the end of one era and the beginning of another. The international community should try to identify in the course of the Conference the interests common to

developed and developing countries, to Governments and private industry and to producers and users of technology. The results of the Conference would show that the real division of the world was not between developed and developing countries but between those who wanted to preserve the status quo and those in favour of the individual and collective development of all countries, in an atmosphere of innovation and change.

57. If the Conference failed to identify areas of common interest and to overcome the obstacles to harmonious and constructive co-operation between Member States, the international community might well have to review and rethink the direction and content of the New International Economic Order and the new international development strategy. Such a fundamental reappraisal might lead to polarization, bottle-necks and other undesirable results which would benefit no one and might nullify the progress made so far. He expressed the hope that the participants would seize the chance that the Conference was offering of avoiding such untoward possibilities.

58. In the ensuing debate the speakers were unanimous in considering that the results of the Conference could make a substantial impact on the planning of the international development strategy for the third United Nations development decade. In the opinion of many of them, the conclusions and recommendations of the Conference should be based on the principles and provisions of the decisions of the sixth and seventh special sessions of the General Assembly and on the Charter of Economic Rights and Duties of States and might make a significant contribution to the establishment of the New International Economic Order, which was aimed at rectifying imbalances inherited from the past.

59. In the opinion of the developing countries, the Conference was taking place at a time when the world situation was characterized by acute inequalities. These inequalities were especially reflected in the scientific and technological dependence of developing countries. With the object of redressing this imbalance, they advocated global and fundamental structural changes in the existing distribution of scientific and technological capacities in the world in order to ensure an increased participation by the developing countries in the benefits of new scientific and technological knowledge.

60. Referring to the Bucharest Declaration on Science and Technology for Development (A/CONF.81/8) adopted by the Ministerial Meeting of the Group of 77, many delegations stressed the decision of the developing countries to work in unity and solidarity and on a constructive basis for the adoption of the Programme of Action and for the successful outcome of the Conference.

61. All participants agreed that it was the object of the Conference to focus attention on the need to strengthen the scientific and technological capacity of the developing countries through the mobilization of national and international resources and the better utilization of the United Nations system. It was generally recognized that scientific and technological advances, if placed at the service of the improvement of conditions of life everywhere, could make an immense contribution to the solution of the problems confronting all countries.

62. Many of the participants drew attention to the opportunities and potential offered to developing countries through co-operation with each other in the economic, scientific and technological fields. Reference was made inter alia to existing

frameworks for such co-operation at the regional or subregional level, and to plans for intensifying co-operation in a wider context. They mentioned in this connexion the impetus given to forms of technical co-operation among developing countries by the United Nations Conference which had been held on that subject at Buenos Aires in 1978. Such co-operation, it was stressed by these speakers, would serve the dual purpose of strengthening the collective self-reliance of developing countries, and so lessening their dependence on industrialized countries, and of making optimum use of complementary human and material resources. They also pointed out that, in comparison with their counterparts from industrialized countries, experts from developing countries had in many cases a better understanding and appreciation of the needs and conditions in other developing countries and hence their advice might well prove to be more beneficial.

63. Some developing countries pointed out that their own experience in science and technology co-operation with other developing countries indicated that such co-operation resulted in faster and better definition of problems and consequently in finding appropriate solutions. One developing country stated explicitly that co-operation among developing countries would also result in a more efficient use of the resources available to developing countries through the United Nations system.

64. Some representatives of developing countries, referring to the subject of co-operation among these countries, said that the objectives of the Programme of Action would be realized more effectively through the identification by those countries themselves of sectoral priorities at national, subregional, regional and interregional levels and the implementation of related programmes.

65. Most speakers agreed that regional and subregional co-operation in science and technology should be encouraged for the purpose of dealing with problems common to the group of countries concerned. In addition, a few representatives mentioned specific reasons calling for such co-operation, for example the size of populations and markets and also the shortage of scientific and technological manpower in certain countries.

66. Many representatives referred to the form and content of scientific and technological co-operation between developing and developed countries. Developing as well as some developed countries expressed the view that the concentration of scientific expertise and technology in a few industrialized countries was one of the basic factors underlying the imbalance in economic and cultural relations in the world. In their view, the existing international relationship in the field of science and technology was biased in favour of the developed countries, and therefore there was a need to change the nature of the relationship through new forms of co-operation. Several representatives of developed countries stated that the experience acquired by their countries in their own development could prove effective in providing solutions to problems of developing countries and strengthening their capability to choose and assess technologies and in developing their human resources.

67. Representatives of a number of developed market economy countries referred to mechanisms for scientific and technological co-operation created or to be created in their countries for the purpose of increasing and improving bilateral co-operation with developing countries in this field. Some other developed as well as developing countries urged other developed countries to establish like institutions for the promotion of forms of science and technology co-operation beneficial to developing countries.

68. One developed country announced during the debate on this issue that it intended to allocate 1 per cent of its official development assistance to the support of the application of its domestic research and development capacities to the solution of problems of developing countries. Some developed countries mentioned in this connexion the creation of national industrial development funds that would promote the transfer of technology to developing countries in keeping with the latter's wishes. The representative of one developed country thought it imperative that a compromise should be reached on the financial issues if the Conference was to be a success, and stated his country's preparedness to carry its fair and proportionate share of the financing of science and technology.

69. The representatives of the centrally planned economy countries 5/ stressed that, proceeding from socialist principles, their countries were deepening their economic relations with developing countries and broadening their scope. Their countries were providing broad assistance to the developing countries in creating their own scientific and technological infrastructures and in training their own national cadres. More than 700,000 skilled workers had received training in the developing countries by highly qualified instructors coming from countries members of the Council for Mutual Economic Assistance. They also emphasized that co-operation between their countries and developing countries was carried out on a planned, large-scale and long-term basis and was characterized by a broad application of intergovernmental and interinstitutional agreements and long-term programmes with clearly defined aims and goals.

70. It was observed that the maldistribution of expenditure on research and development was aggravated by the concentration of over 90 per cent of the whole world's research and development effort in the advanced countries, and that only a small fraction of total resources was being devoted to this purpose in the developing countries. In addition, some delegations of developing countries pointed out that the needs of the developing countries received little attention in the research carried out in developed countries.

71. A large number of representatives said that a vast amount of human and material resources was being devoted to military purposes and that an excessive proportion of the expenditure devoted to scientific and technological research in the industrialized countries was being applied to the production and refinement of armaments. In their opinion, such resources would be better utilized in the development of scientific and technological research that would contribute to the solving of the urgent problems facing the world. It would be desirable, in the opinion of some speakers, that part of the resources that might be released by a process of disarmament should be channelled into the promotion of science and technology for peaceful purposes.

72. The representatives of the centrally planned economy countries also stressed that the primary objective of broad international co-operation should be the application of scientific and technological accomplishments for the benefit of all mankind, having full regard for the sovereignty of countries, based on the principles of equality, non-discrimination and mutual benefit. International

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5/ For the purposes of this report the expression "centrally planned economy countries" refers to Bulgaria, the Byelorussian Soviet Socialist Republic, Czechoslovakia, the German Democratic Republic, Hungary, Mongolia, Poland, the Ukrainian Soviet Socialist Republic and the Union of Soviet Socialist Republics.

co-operation in science and technology should contribute to the further implementation of the principles of peaceful coexistence between States of different socio-economic systems. To this end, human abilities and knowledge should be used for the strengthening of peace and security, the deepening of détente and the curbing of the arms race. Effective disarmament measures were the major premise for the further development and utilization of science and technology for socio-economic progress. Progress in the field of disarmament should constitute an important contribution to the development process. Part of the resources released as a result of disarmament might be utilized for development goals, including science and technology. They also referred to the Final Act of Helsinki and the recently concluded SALT II agreement as important contributions in this regard.

73. All speakers made reference to one or more of the elements comprising target area A of the draft Programme of Action, namely strengthening the scientific and technological capacities of developing countries. Some representatives mentioned the need for those capacities to be built up in harmony with the social and cultural traditions, the political structures and the specific circumstances of individual developing countries. Several representatives pointed out that the creation of endogenous scientific and technological capacities must take priority over measures for the transfer of technology, because foreign technologies could not otherwise be absorbed, in the sense that their assessment, selection, adaptation and use could not be effectively carried out and the technological dependence of developing countries would simply be increased. While some of these representatives discussed the question in terms of the infrastructure generally, others laid particular stress on the development of human resources through education and training.

74. The representatives of several developing countries expressed the view that technological dependence had to be overcome primarily through self-help. The representative of one developed market economy country endorsed this view on the basis of its experience as a developing country in the not very distant past.

75. While it was generally agreed that the application of scientific knowledge and technological expertise for the purposes of economic development was a prerequisite for the amelioration of conditions of life in the developing countries, several speakers pointed out the risks incurred through the unplanned or ill-planned use of such knowledge. Exclusive reliance on imported technology might, they said, give rise to a situation of dependency on the part of the recipient vis-à-vis the supplier and to an undesirable kind of paternalistic relationship, tending to discourage the spirit of self-reliance which should motivate the developing countries.

76. The representatives of the developing countries said that new forms of international scientific and technological co-operation should avoid the undue introduction of an alien technological culture, but should lead to a process of technology transfer which would differ in content and impact from the mere introduction and dissemination of foreign productive techniques and processes.

77. Many delegations felt that scientific and technological development should pay due attention to the need to solve global problems of mankind. The successful solution of these problems, in particular those concerning food and nutrition for all people, eradication of illiteracy, the control of dangerous diseases, the rational utilization of natural resources, energy and the protection of the natural environment, should constitute major factors determining socio-economic progress, having in mind that the principal aim of development was the well-being of humanity.

78. Many speakers from developed countries alluded to the intimate relationship between science and technology on the one hand and the relation between these two areas of human activity and the development process on the other. Some of these representatives pointed out that the degree of a country's economic development did not necessarily correspond to its level of scientific and technological development and that this fact should be taken into account in the implementation of the Programme of Action. Others referred to their countries' national reports for a more detailed description of their national experience and achievements in the field of science and technology, which might be instructive for developing countries.

79. A number of representatives of developing countries pointed out that the experience of their countries suggested that many of the problems they faced were specific to their situation and that any solution of these problems would be determined largely by their capacity to use their human and natural resources and also to select and adapt the technology appropriate to local conditions. They further stressed that the choice and application of appropriate technology could be properly made only if the country itself had the capacity to absorb and adapt imported technology and if a sufficient level of indigenous research and development activities existed. Apart from the need to develop the capacity to discriminate among different technologies, institutions of teaching and research in basic science had to be strengthened.

80. It was widely recognized that the type of technology transferred to developing countries would profoundly affect their development. It was the responsibility in the first place of the country acquiring the technology to ensure that the invention, process or know-how in question was appropriate to domestic conditions. For the purpose of using technology the acquiring country needed to build up or expand its capacity to generate, master, absorb, adapt and apply scientific and technological knowledge and to create or enlarge institutions capable of advising the Government or the industry concerned as to the quality or appropriateness of the technology and the terms and conditions governing its acquisition. These institutions, in turn, had to be staffed by qualified personnel, of which there was an acute shortage in many, if not most, developing countries; hence, one of the first tasks confronting those countries, and the international community, was to devise schemes for the training of such personnel. Many delegations described the operation of institutes established in their countries for the training of nationals and foreign students in the field of science and technology. A number of representatives referred to the financial and other support given by their Government to such training schemes, on a bilateral or multilateral basis.

81. Several speakers mentioned some of the risks associated with the heavy reliance of developing countries on imports of goods produced by means of modern technology. Through the indiscriminate use of such products and also under the influence of advertisements, the public in those countries was becoming habituated to use these products, to prefer them to home-produced goods and in general to acquire a taste for imitative consumption. The consequence of the massive purchase of imported goods was an excessive outflow of foreign exchange from those countries and in many instances the atrophy of local manufacturing enterprises; in addition, the influx of large volumes of foreign goods could impair the cultural values of the importing countries, many of which were able to produce artisan or handicraft goods that were more attractive than the machine-made mass-produced articles brought from abroad.

82. A large number of speakers referred to the power vested in transnational corporations by reason of their monopolistic control of patents, methods of manufacture, channels of distribution and industrial processes. In the opinion of these representatives the operations of these corporations had led to the excessive exploitation of the advantageous position of these corporations in world trade, and in particular in the transfer of technology. The representatives of some developing countries said that most of the research and development activities of transnational corporations took place in the home countries and that the objective of such an investment had little to do with the particular interests of developing countries in which these corporations operated. It was recognized by the representatives of some developed market economy countries that there was a need for greater transparency of the operations of transnational corporations. One developed market economy country called for stricter regulation of the operations of these corporations.

83. Most developing countries referred to the present international technology market and stated that the existing system suffered from distortions and imbalances, prejudicial to the interests of developing countries. The international technology system was dominated by the transnational corporations which were able, through their own network of subsidiaries and affiliates, to determine the development and direction of technologies. Most of the transnational corporations, they pointed out, did not undertake any worth-while research and development activity in their subsidiaries in developing countries and transferred technologies developed in their home countries to their own subsidiaries as if they were independent technology transactions. In the process, developing countries were obliged to pay exorbitant prices for technologies imported by them and also suffered from the consequences of being unable to build up their research and development infrastructures.

84. Most developing countries also pointed out that an essential element in the efforts of the international community to eliminate their technological dependence was the formulation of an international code of conduct on the transfer of technology and also a code of conduct for transnational corporations. They stated that the code of conduct on the transfer of technology should be universal and mandatory and should cover all categories of international transactions, including those within transnational corporations, and that any agreement on the transfer of technology must be governed by the legislation of the receiving country. It was also indispensable to revise the Paris Convention on Industrial Property Rights so that it would effectively reflect the interests of developing countries, for instance through provision for non-reciprocal, preferential treatment in favour of developing countries.

85. It was pointed out on behalf of a number of developed market economy countries that contracts relating to the transfer of technology and licensing agreements for the use of know-how were for the most part the subject of negotiation between private persons or firms. The Governments of these countries did not normally interfere in such negotiations and did not control the operations of the firms concerned abroad. Consequently, any proposed scheme for international co-operation in the matter of the transfer of technology should, in the opinion of these countries, take account of the role of the private sector. In this connexion, the representatives of some developed market economy countries stated that mutually satisfactory mechanisms for the transfer of technology to developing countries should be developed at both national and international levels. They stressed that

consultations and negotiations concerning a future code for the transfer of technology and a code of conduct for transnational corporations were being conducted in certain United Nations bodies and that nothing that the Conference might decide should involve a duplication of these negotiations.

86. A point that was repeatedly stressed was that the production of material goods through the use of modern science and technology should not be an end in itself. The prime consideration in all material advancement should be respect for the human person, whose first necessities were decent living conditions, adequate nutrition, protection of health, personal safety, freedom from oppression and discrimination, and gainful employment. In a world suffering from inflation, unemployment and underemployment, and widespread illiteracy, the results of the uses of science and technology could be measured by the extent to which they tended to eradicate those evils. It was suggested by several delegations of developed market economy countries that, for the purpose of dealing with the causes of some of these situations, an international scientific programme should be undertaken that would concentrate on a number of priority topics, specifically the development of rural technology, the production of food in developing countries, the treatment of tropical diseases and the utilization of local natural resources (including solar energy).

87. It was observed that careful attention had to be given to the right apportionment of support as between the rural and the industrialized sectors. Too often it had been assumed that rapid industrialization would provide the answer to all problems and would best promote the economic growth of the developing countries; in reality, it was becoming more and more evident that the first need of most of these countries was to become self-sufficient or more nearly self-sufficient in the production of food and consequently it would be short-sighted to neglect the demands of agriculture. Besides, one of the principal resources of many developing countries was their abundant supply of manpower and it might therefore be counterproductive in some cases to make heavy investments in capital-intensive industries, using scarce foreign exchange and expensive technology, rather than in rural development.

88. Reference was made in many statements to the international migration of labour. Many representatives took the view that the emigration of skilled persons represented a net economic loss for the home countries and an accretion of human resources for the host countries, particularly in cases where the migrants had been trained in scientific and technical disciplines. Various suggestions were made for dealing with situations of this kind. For example, some representatives of developing countries considered that the host countries might make a monetary contribution to a fund in the home countries which would finance the training of personnel in the latter with the object of making good the loss of human resources. In the opinion of some speakers, the free movement of manpower across frontiers was desirable and ultimately beneficial to both the countries of origin and the host countries, for the migrants in many cases acquired skills that could be usefully applied when they returned. The representative of a developed market economy country suggested that the host countries might offer special training schemes for migrants in order that these should acquire skills which they could use upon their eventual return home. Another representative said that his country had adopted a new policy of utilizing the services of scientists among its nationals who were working abroad, either by encouraging their return home or by securing their services from their present place of residence.

89. Many representatives of both developed and developing countries recognized the importance of the role that could be played by women in planning and implementing the application of science and technology to development. It was noted by the representative of one developed country that, while new technologies implied economic advantages, they also changed social and cultural factors. In this connexion this representative added that, in the transfer of technology, every effort should be made to respect the social and cultural values of the recipient country. Care had to be taken to ensure that the traditional role of women in agriculture should not be curtailed by the introduction of modern machinery and that home industries, which were often women's occupations, should not be adversely affected. It was suggested that guidelines should be drawn up for the participation of women in decision-making and development. Proposals to that end would be a valuable input to the World Conference on the United Nations Decade for Women to be held at Copenhagen in 1980.

90. The representatives of two developed market economy countries drew attention to the adverse social effects which could result from the introduction and application of technologies. The role of women was, for example, often radically altered by the utilization of modern agricultural technologies. They stressed, therefore, the need for integrating the use of science and technology in a strategy for social and economic development, giving all groups of society - women and men alike - equal influence on decisions relating to the introduction of new technologies and the use of new scientific methods.

91. Many speakers stressed that it was a pre-condition of the utilization of scientific and technological knowledge that there should be unimpeded access to such knowledge. The representatives of developing countries considered that the existing international flow of information was inadequate for these countries and that the unrestricted exchange of scientific and technological knowledge and experience was an essential element of any strategy for integrated development. They suggested that a centre for the dissemination of information about science and technology should be established under the auspices of the United Nations, supplemented by national and regional networks. Many speakers stressed the important question of information. In this context one representative mentioned the idea of establishing an international catalogue describing concrete cases of successful transfers of technology to one or more developing countries. Another representative said it was regrettable that the accomplishments of science and technology were still controlled by a very small number of countries, especially the super-Powers, and that this dominance was being used in an attempt to establish world hegemony.

92. There was consensus on the need to improve and rationalize the co-ordination of the activities of bodies forming part of the United Nations system and of the specialized agencies in the field of science and technology. There were different views, however, on how to harmonize the various programmes. Representatives of the developing countries considered that appropriate institutional arrangements should be made to ensure intersectoral programming and co-ordination of the scientific and technological activities of the United Nations and that this would require over-all harmonized science and technology policies in line with the development strategies needed for the establishment of the New International Economic Order. In the opinion of these countries and of some developed market economy countries, this task should be performed by an intergovernmental body or committee, open to the participation of all States and responsible directly to the

General Assembly. In addition, the representatives of developing countries considered that the proposed intergovernmental body should be provided with a high-level secretariat and that over-all co-ordination should be assured by the Director-General for Development and International Economic Co-operation.

93. Most of the representatives of the developed market economy countries considered that the existing machinery of the United Nations system, suitably strengthened and restructured, should be employed for the purpose, under the guidance of the Economic and Social Council.

94. The representatives of the centrally planned economy countries held the view that, if existing structures and resources were used more effectively, the United Nations system would be capable, without the addition of a new intergovernmental body, of ensuring the co-ordination of the activities of the agencies and organs concerned in the field of science and technology. They expressed the view that the restructuring of the economic and social sectors of the United Nations system should proceed in strict conformity with the provisions of the Charter of the United Nations, that it should be directed towards achieving the most effective use of the resources of the United Nations devoted to economic and social activities, including those in the field of science and technology, and that duplication and overlapping should be avoided as far as possible.

95. One of the recurring themes in the statements of many delegations concerned the contribution made in the past, and the prospects of a much greater contribution in the future, by the academic community, scholars and learned institutions to the advancement of scientific knowledge and to the application of technological know-how in the service of development. Nor should the efforts and potentialities of non-governmental organizations be underestimated in the common endeavour to promote the development of the developing countries. Several speakers stressed that, while the bulk of development-oriented activities in developing countries was commonly government-sponsored, there was scope for individuals and private initiative in those countries in so far as the entrepreneurs were prepared to use methods and processes appropriate to local conditions and tending to further the economic and social development of the country concerned.

96. The representatives of the developing countries stated that any programme of action aimed at strengthening the endogenous scientific and technological capacities of these countries would require additional financial resources which should largely come from within each country but would need to be complemented and supported by a transfer multilaterally of financial resources over and above existing multilateral and bilateral transfers. In their opinion, the flow of these resources should be predictable and continuous. For the most part, however, speakers concentrated on the financing of scientific and technological activities for development within the United Nations system.

97. Some representatives of developed market economy countries accepted in principle that expenditure by the United Nations system would need to be increased and expressed their readiness to discuss detailed proposals in a constructive spirit. The representatives of a few developed market economy countries expressed the view that the question should first be tackled by improving interagency co-ordination in order to achieve results with less financial outlay; subsequently, and if necessary, measures to expand such activities should be the subject of wide-ranging study.

98. With regard to the financial effort to be undertaken by the international community in order to redress existing disparities and to strengthen the endogenous scientific and technological capacity of developing countries, most of the speakers on behalf of these countries stated their Governments' preference for a scheme of automatic assessed contributions by the industrialized countries, on the basis of a percentage of the average quinquennial surpluses of the latter's trade in manufactured goods, such contributions to be supplemented by voluntary contributions, including contributions from international financial institutions; these financial resources would be pooled in a central United Nations fund, which should reach a certain target figure by 1985 and a higher figure by 1990.

99. The representatives of some developed market economy countries opposed the idea of automatic increases, according to some formula, in financial contributions for those activities and doubted the usefulness of setting targets for financial resources except possibly as an integral part of an international development strategy for the third development decade.

100. The representatives of most of the developed market economy countries said that the question of the financing of enlarged activities in the field of science and technology called for further study. Pending the outcome of such studies, they were not in a position to commit their Governments to a scheme of assessed, automatic and mandatory contributions to a fund of the kind suggested. They added, however, that their countries would continue or expand their financial and other assistance through bilateral and multilateral channels with a view to strengthening the capacity of the developing countries to use scientific and technological knowledge and to giving them greater access to such knowledge through training and other means.

101. The representatives of the centrally planned economy countries stated that in their opinion any augmentation of the financial resources to be devoted to the international support for science and technology in the service of development should be provided mainly by the countries responsible for the existing circumstances of under-development resulting from the colonial period. They also stressed that, while acknowledging the concern of the developing countries with regard to finding just solutions to the problems of science and technology, they were convinced that a settlement of the problem should be sought in a more effective and better co-ordinated use of existing financial resources available in the United Nations framework, under strict observance of the voluntary character of contributions to United Nations development assistance programmes and bearing in mind the intergovernmental character of the United Nations and its pertinent budgetary and funding regulations.

102. The representative of Costa Rica, on behalf of the Central American countries, invited the Conference to endorse his Government's proposal for the establishment of a University for Peace in Costa Rica - a proposal to be submitted to the General Assembly for consideration at its thirty-fourth session - and to recommend that the proposed University should make special provision for the study of scientific and technological subjects.

103. The Administrator of the United Nations Development Programme stated that the experience of UNDP demonstrated the vital role of science and technology in virtually every sector of development; as explicit priorities for international and even national action, however, they had often been neglected. He stressed

the need to increase substantially financial resources for science and technology and declared that UNDP was ready to give prompt effect to the decisions of the Conference and of the General Assembly if it should be called upon to do so. He suggested that the Conference might agree on firm financial commitments to make an immediate, practical start and on financial targets for the substantial resource flows needed at a later stage. It might establish, within a definite time frame, the arrangements necessary to convert such targets into actual internationally supported resource commitments.

104. The Secretary-General of the United Nations Conference on Trade and Development referred to the efforts undertaken by UNCTAD in the fields of technology transfer, the strengthening of the technological capacities and the international migration of labour (brain drain), and to work envisaged in the future in these fields. He expressed the hope that one of the results of the Vienna Conference would be to provide effective arrangements for assisting the developing countries to increase the quantity and quality of the resources devoted to research and development, technological innovation and adaptation. He further expressed the hope that the Conference would recommend specific action for progressively decommercializing the technologies transferred to developing countries.

105. The Executive Director of the United Nations Environment Programme said that the current pattern of the utilization of science and technology had resulted in gross misuse and wastage of natural resources, serious health hazards and harmful effects on the life-sustaining global ecological system. He stressed the need to develop environmentally sound social dimensions besides the economic parameters. He added that the emphasis on appropriate technology did not mean a total rejection of modern technologies, nor was it a plea for a total return to traditional technologies of ancient societies.

106. The Executive Director of the United Nations Industrial Development Organization stated that, according to current growth rates, it would seem that the Lima target of 25 per cent of world industrial production as the share of developing countries by the year 2000 was hardly likely to be attained: according to current rates of industrial growth it would hardly reach 13 per cent by the year 2000. He warned that the international community should take note of this trend and adopt suitable measures to achieve the target agreed upon at the Second General Conference of UNIDO held in Lima in 1975.

107. The Deputy Director-General of the International Labour Organisation stated that the question of the application of science and technology was reflected in the various programmes of the ILO: employment promotion, management and vocational training, improvement of working conditions and so forth. He added that while science and technology had helped to solve certain important problems, they had also created new ones: the possibility of global destruction, pollution of the environment, and social tension. As regards the choice of technology, he said it was important that the people who were to use it - managers, foremen, supervisors, workmen, farmers and artisans - should be properly trained. It was for that reason that the ILO paid special attention to training and education as key instruments for overcoming obstacles to the choice, development and application of appropriate technologies.

108. The Director-General of the Food and Agriculture Organization of the United Nations stated that the application of science and technology to agricultural growth, supplemented by the required internal policy measures, was indispensable if the developing countries were to meet their food requirements in the next 20 years. Areas of research in which breakthroughs could have a significant impact on agriculture related to the development of suitable food crop varieties for tropical climates, biological fixation of nitrogen and the general field of genetic engineering in agriculture. He stressed that, without a strengthening of their scientific and technological capacity in the agricultural sector, most developing countries could hardly expect to improve on the unsatisfactory trends of recent years. That must take place within the framework of clearly defined agricultural policies and objectives.

109. The Director-General of the United Nations Educational, Scientific and Cultural Organization stated that development presupposed the mastery of pure and applied sciences and the technologies arising therefrom. It also meant, to an increasing extent, having recourse to the social sciences in order to understand, for example, the changes that societies were undergoing because of the accelerated process of industrialization, urban concentration and widespread use of computerized information systems, as well as to bring to light measures aimed at ensuring a greater coherence between social and human values and the achievements of technology or the harmonization of the aspirations of the individual with the collective needs of the society to which he belonged. Referring to the question of the institutional mechanisms that might be set up to implement effectively within the United Nations system the recommendations of the Conference, he stated that by virtue of the Charter of the United Nations the system was polycentric. Yet general action on a sectoral basis by the specialized agencies was an indispensable part of the global mobilization by the international community of science and technology to serve the development of the nations, particularly the least favoured among them.

110. The Deputy Director-General of the World Health Organization stated that for the two thirds of the world's inhabitants for whom health care was tragically deficient, health and social and economic development were inseparable. Even with the limited means available to the poorest countries, extraordinary progress could be made in a relatively short period of time, provided that there was appropriate planning and efficient use of science and technology. The ultimate goal of WHO - health for all by the year 2000 - was really achievable.

111. The representative of the World Bank stated that, although the Bank was known to many as an international co-operative institution that assisted the development of its member countries, few might be aware of the extent to which the Bank was, through its financial and non-financial operations, an agent of technological development in the developing countries members of the Bank. The Bank had four technological objectives: (a) to ensure that the most suitable technologies, whatever their level of sophistication, were used in the projects it financed; (b) to promote the development of technological capacity within the developing countries; (c) to promote the generation and use of innovative technologies; and (d) to encourage adoption of national policies that would foster the use of suitable technology and the development of local technological capacity. Two initiatives recently approved by the Executive Directors offered new scope for the Bank's efforts to mobilize science and technology. Its programme for petroleum development would be extended to financing for

exploration and would provide technical assistance in various fields. The Bank was planning a programme of lending for "free-standing" health projects, in contrast to health components, for which it had been lending funds for several years.

112. The Director-General of the World Intellectual Property Organization, having emphasized the close relationship between the aims of the Conference and those of that organization, stated that in his view the interdisciplinary science and technology activities of the United Nations should be based on a clear understanding of the competence of each part of the system and a common coherent policy in order to give direction to planning and programming. By means of such a policy the actual work should be carried out in a decentralized manner. In his view, the strength of such a decentralized system outweighed its possible weaknesses.

113. The representative of the International Atomic Energy Agency stated that only about a dozen developing countries were engaged in nuclear power programmes and that the setting up and operation of nuclear reactors required a strong scientific and technological infrastructure. However, nuclear power could be of help to developing countries in their efforts to promote a balanced energy programme. He cautioned them, however, not to enter into the nuclear arms race. The agency's contribution to the strengthening of the scientific and technological capacities of developing countries was considerable. It had provided facilities for the training of about 11,000 scientists and technicians from developing countries.

114. The Secretary-General of the World Meteorological Organization briefly described the World Climate Programme launched by the organization. He stated that climate had an all-pervading influence on virtually all of man's activities. In developing the programme due attention was being given to all modern science and technology which might assist in its implementation. The continued development of satellite systems for atmospheric observations and telecommunication purposes was envisaged. Thanks to WMO's programme virtually all countries of the world had already installed equipment for the direct reception of data from meteorological satellites, and had the trained staff capable of using the data and of maintaining the equipment. The Economic and Social Council had also requested WMO to give particular attention to those aspects of the Programme which would give prompt and effective assistance to national planners and decision makers in formulating economic and social programmes and activities. WMO played an important role in applying science and technology for development and would give due attention to any proposals and recommendations of the Conference which might be referred to it by the United Nations.

115. The Secretary-General of the Inter-Governmental Maritime Consultative Organization stated that, in a field as technical and international as modern shipping, international co-operation was essential to help developing countries build up or improve their national merchant marines. It was necessary for this purpose to create the technical infrastructure that would enable developing countries to implement the international standards applicable to the various aspects of shipping. In developing a national fleet, countries must be able to rely on a steady flow of skilled and trained personnel. Thus, the establishment of maritime training institutions, national, subregional or regional, had become the corner-stone of IMCO's technical co-operation programme. In addition, IMCO was able to provide assistance to developing countries by making available, at no

cost to them, the services of regional and interregional advisers in all the technical and specialized aspects of shipping and related matters. Furthermore, member States could gain valuable knowledge and experience in shipping through participation in the work of IMCO's organs and bodies. IMCO was fully conscious of the needs of developing countries to enhance their scientific and technical capabilities as a means of accelerating their development and was therefore determined to continue to provide all the assistance it could to developing countries both through its substantive work programme and through its technical co-operation programme. IMCO pledged full support for the efforts of all countries to ensure the universal application of adequate standards of maritime safety and the prevention of pollution from ships. In the pursuit of these objectives, IMCO would support, within its field of competence, the fundamental purposes and goals of the Conference.

116. The representative of the United Nations Centre for Human Settlements (Habitat) stated that human settlements programmes offered one of the most effective and responsive techniques for applying science and technology to achieve both socio-economic improvement and equity. The development of technologies should be geared to the actual needs of people, especially the poor. A large number of human settlements programmes could be undertaken with existing knowledge; design and construction must be flexible and capable of being adapted to changing resource conditions and evolving needs; innovation in techniques and approaches and in the use of materials was essential. This would have to be achieved within a larger framework of an understanding of the research capability in order to utilize locally available materials and human resources. Accordingly, it was of crucial importance to establish facilities for training and research in the planning and management of human settlements. It was no less important to establish appropriate information systems.

117. The Rector of the United Nations University stated that the University had been created to help advance science and technology for development. Its work reflected two of the major themes of the Conference: first, the central importance of strengthening the capabilities of individuals and institutions in developing countries, and second, relating the uses of science and technology sensitively to the preservation and enhancement of the physical, biological and social environment and of the cultural values and traditions that gave each society its identity and strength. As a world-wide system of research and advanced training the University served as a non-political, objective and scientific forum for generating, integrating, evaluating and disseminating knowledge and experience. Given adequate means, the University would be able to make an effective contribution to the fulfilment of the purposes of the Conference.

CHAPTER IV

REPORTS OF SUBSIDIARY BODIES AND ACTION ON THESE REPORTS BY THE CONFERENCE

A. Report of the First Committee

118. At its 1st plenary meeting, on 20 August 1979, the Conference allocated the following items to the First Committee:

(a) Science and technology for development [4]:

(a) Choice and transfer of technology for development;

(b) Elimination of obstacles to the better utilization of knowledge and capabilities in science and technology for the development of all countries, particularly for their use in developing countries;

(c) Methods of integrating science and technology in economic and social development;

(b) Institutional arrangements and new forms of international co-operation in the application of science and technology [5]:

(a) Building up and expansion of institutional systems in developing countries for science and technology;

(b) Research and development in the industrialized countries in regard to problems of importance to developing countries;

(c) Mechanisms for the exchange of scientific and technological information and experience significant to development;

(d) Strengthening of international co-operation among all countries and design of concrete new forms of international co-operation in the fields of science and technology for development;

(e) Promotion of co-operation among developing countries and role of developed countries in such co-operation.

119. As regards the draft Programme of Action (A/CONF.81/L.1), the Committee was entrusted with the completion of the preamble to the draft programme, the introductions to target areas A and B, as well as target areas A and B themselves.

120. The Committee had before it the following documents:

(a) Utilization of the United Nations system in the application of science and technology to development: note by the Administrative Committee on Co-ordination (A/CONF.81/4/Add.1 and Corr.1);

(b) Summaries of national papers (A/CONF.81/6, vols. I to V);

(c) Draft Programme of Action (A/CONF.81/L.1).

121. The Committee met from 20 to 30 August, under the chairmanship of Mr. Jacques Diouf (Senegal) who was elected by acclamation at the first plenary meeting of the Conference on 20 August.

122. At its 1st meeting, on 20 August, the Committee elected the following officers by acclamation:

Vice-Chairmen:	Mr. Ludovico Carducci Artenisio (Italy) Mr. Jorge Chávez Queloplana (Peru) Mr. Peter Stier (German Democratic Republic)
Rapporteur:	Mr. Mervyn Wijeratne (Sri Lanka)

Also at its 1st meeting, the Committee decided to concentrate its work on the completion of the sections of the draft Programme of Action allotted to it (see para. 118).

123. At its 6th meeting, on 23 August, the Committee decided to establish three working groups to deal respectively with:

(a) The preamble to the draft Programme of Action and the introduction to target areas A and B (Working Group A);

(b) Transfer of technology, together with the paragraphs on that topic on which the Committee had not been able to reach agreement (Working Group B);

(c) Exchange of scientific and technological information together with the paragraphs on the subject not yet agreed in plenary (Working Group C).

124. At the request of the Chairman, the Vice-Chairmen presided over the working groups. Mr. Carducci Artenisio (Italy) chaired Working Group A and Mr. Stier (German Democratic Republic) chaired Working Group C. Since Mr. Chávez Queloplana (Peru), also a Vice-Chairman, had been obliged to leave Vienna, Working Group B, at its first meeting on 25 August, elected Mr. Jorge Heraud Pérez (Peru) as its Chairman.

125. The First Committee recommended to the Conference the adoption of the parts of the draft Programme of Action reproduced in the annex to the Committee's report (see para. 126).

Action in plenary

126. At its 16th plenary meeting, on 31 August, the Conference considered the report of the First Committee (A/CONF.81/12 and Add.1-4), which was introduced by Mr. M. Wijeratne (Sri Lanka), Rapporteur of the Committee.

127. At the same meeting, the Chairman of the First Committee announced that, while it had not been possible for the Committee to reach agreement on all paragraphs included in the draft Programme of Action, it had been possible, in informal consultations with a number of delegations, to work out texts of certain passages which, he thought, might meet with general acceptance. He read out the texts of the passages in question. Various representatives stated that at such a late stage of the Conference it was not possible to express an opinion on texts that had not been circulated in writing within the time-limit prescribed by the rules of procedure.

128. The Chairman of the First Committee also stated that the proposals contained in documents A/CONF.81/C.1/L.8 and A/CONF.81/C.1/L.9, which had been submitted by Ireland, on behalf of the States members of the European Economic Community, as additions to the Programme of Action, and which had not been discussed in detail by the Conference, should be referred to the proposed Intergovernmental Committee on Science and Technology for Development for consideration.

129. In addition, the Chairman of the First Committee informed the Conference that, in relation to the question of confidentiality, some delegations maintained that a number of the provisions in the Programme of Action dealt with the exchange and dissemination of scientific, technological and business-related information. These delegations believed that the exchange and dissemination of such information should be subject to applicable legal and contractual obligations governing confidentiality and should be in accordance with the other rights of the parties involved. These delegations maintained that this should be reflected in the Programme of Action. Other delegations considered that, at the national level, questions relating to confidentiality should be governed by the national legislation of each developing country and that, at the international level, account should be taken of agreements and treaties to which they were parties.

130. It was agreed that texts of the draft Programme of Action on which agreement had not been reached and the texts arising from the informal consultations and submitted by the Chairman of the First Committee should be reproduced in annexes to the report of the Conference in order that they receive further consideration, if it was felt desirable, in the context of future consultations (see annexes I and II).

131. The Conference then took note of the report of the First Committee and adopted the passages recommended by that Committee for inclusion in the Programme of Action (see chap. VII).

B. Report of the Second Committee

132. At its 1st plenary meeting, on 20 August 1979, the Conference allocated the following items to the Second Committee:

(a) Utilization of the existing United Nations system and other international organizations /_6_/;

(b) Science and technology for development /_4_/:

(d) New science and technology for overcoming obstacles to development /institutional aspects/.

133. As regards the draft Programme of Action (A/CONF.81/L.1), the Committee was entrusted with the completion of the introduction to target area C, as well as target area C itself.

134. The Committee had before it the following documents:

(a) Utilization of the United Nations system in the application of science and technology to development: note by the Administrative Committee on Co-ordination (A/CONF.81/4/Add.1 and Corr.1);

(b) Summaries of national papers (A/CONF.81/6, vols. I to V);

(c) Draft Programme of Action (A/CONF.81/L.1).

135. The Committee met from 20 to 31 August under the chairmanship of Mr. M.G.K. Menon (India), who was elected by acclamation at the 1st plenary meeting of the Conference on 20 August.

136. At its 1st meeting, on 20 August, the Committee elected the following officers by acclamation:

<u>Vice-Chairmen</u>: Mr. Lars Anell (Sweden)
Mr. Diómedes Concepción (Panama)
Mr. Janos Szita (Hungary)

<u>Rapporteur</u>: Mr. Peter Gacii (Kenya)

Also at its 1st meeting, the Committee decided to concentrate its work on the completion of the sections of the draft Programme of Action allotted to it (see para. 132).

137. At its 2nd meeting, on 21 August, the Committee decided to consider in detail target area C of the draft Programme of Action in a negotiating group. The Negotiating Group was chaired by the Chairman of the Second Committee.

138. During the meeting, a number of amendments were proposed to certain of the texts. These are contained in the following documents:

A/CONF.81/C.2/L.1	Finland, Norway and Sweden: addition to the text proposed by the Group of 77 to the introduction to target area C
A/CONF.81/C.2/L.2	Ireland (on behalf of States members of EEC): amendment to the text proposed by the Group of 77 to target area C
A/CONF.81/C.2/L.3	Poland (on behalf of Bulgaria, the Byelorussian Soviet Socialist Republic, Czechoslovakia, the German Democratic Republic, Hungary, Mongolia, Poland, the Ukrainian Soviet Socialist Republic and the Union of Soviet Socialist Republics): amendment to the text proposed by the Group of 77 to target area C
A/CONF.81/C.2/L.4	Ireland (on behalf of States members of EEC): amendment to the text proposed by the Group of 77 to target area C
A/CONF.81/C.2/L.5	Tunisia (on behalf of States members of the Group of 77): counterproposals of the Group of 77 to the texts proposed by Ireland for paragraphs C.12 and C.13 of target area C

A/CONF.81/C.2/L.6 Ireland (on behalf of States members of EEC): amendment to the text proposed by the Group of 77 to target area C

A/CONF.81/C.2/L.7 Ireland (on behalf of States members of EEC): amendment to the text proposed by the Group of 77 to target area C.

139. At its 8th meeting, the Negotiating Group set up a Drafting Group, open to all member States, to prepare recommendations on target area C for submission to the Second Committee.

140. The Second Committee recommended to the Conference the adoption of the parts in the draft Programme of Action reproduced in the annex to the Committee's report (see para. 141).

Action in plenary

141. At its 16th plenary meeting, on 31 August, the Conference considered the report of the Second Committee (A/CONF.81/14 and Corr.1 and Add.1), which was introduced by its Rapporteur, Mr. P. Gacii (Kenya).

142. At the same meeting, the Conference took note of the report of the Second Committee and adopted the passages recommended by that Committee for inclusion in the Programme of Action (see chap. VII), including the insertion of an agreed figure of $250 million in paragraph C.28 (e) (now para. 117 (c)) and certain agreed changes in the text of that paragraph.

* * *

143. At the 16th plenary meeting, after having considered and taken note of the reports of the First and Second Committees and adopted the passages recommended by these Committees for inclusion in the Programme of Action, the Conference considered a draft resolution relating to the adoption of the Programme of Action.

144. The draft resolution was adopted unanimously. As a consequence of the adoption of the resolution, the Programme of Action was referred to the General Assembly for consideration, with a view to the initiation of the necessary steps to implement the recommendations contained therein. 6/

145. At the same meeting, the Conference decided to refer issues of the draft Programme of Action submitted to it by the Preparatory Committee on which agreement had not been reached to the General Assembly at its thirty-fourth session and invited the Assembly to consider those issues or to refer them to the Intergovernmental Committee on Science and Technology for Development, to be established at that session of the Assembly, or to other bodies of the United Nations system, as appropriate, in order that further progress may be made towards agreement on those issues. 7/

6/ For the text of the resolution, see chap. VI, resolution 1; for the text of the Programme of Action, see chap. VII.

7/ For the text of the decision, see chap. VI, decision 1; for the list of issues, see annex I.

146. After the conclusion of the deliberations on the reports of the First and Second Committee and the adoption of the resolution and decision referred to above, statements were made by the representatives of Poland (on behalf of Eastern European countries), Ireland (on behalf of the States members of the European Economic Community), the United States of America, Japan, Switzerland, China and Tunisia (on behalf of the States members of the Group of 77). The Conference decided that those statements would be included in an annex to the report. 8/

C. Report of the Working Group on Science and Technology and the Future

147. At its 1st plenary meeting, on 20 August 1979, the Conference established a Working Group on Science and Technology and the Future and at its 4th plenary meeting, on 21 August, elected Mr. Mircea Malitza (Romania) as its Chairman. At its 1st meeting, on 23 August, the Working Group elected by acclamation Mr. Abdulla Al Manays (Kuwait), Mr. Mohamed Bahaeldin Fayez (Egypt) and Mr. José Israel Vargas (Brazil) as its Vice-Chairmen and Mr. J. D. de Haan (Netherlands) as its Rapporteur.

148. The terms of reference of the Working Group, which was open to all States participating in the Conference, were to consider more specifically agenda item 4 (d) (New science and technology for overcoming obstacles to development) and particular aspects of item 7 (Science and technology and the future) and to report the results of its deliberations to the plenary. For its consideration of these agenda items, the Working Group had before it, in addition to the relevant documents prepared for the Conference, documents A/CONF.81/5 and Add.1-3, the report of the Colloquium held under the auspices of the Advisory Committee on the Application of Science and Technology to Development (A/CONF.81/9), as well as several background documents which included, *inter alia*, the reports of the international symposia held at Tallinn (USSR) on "Trends and perspectives in the development of science and technology and their impact on the solution of contemporary global problems", and at Ocho Rios (Jamaica) on "Mobilizing technology for world development". The Working Group also took into account much of the relevant material contained in the national and regional reports prepared for the Conference (documents in the series A/CONF.81/NP and RP), the background papers prepared by organizations and specialized agencies of the United Nations system (documents in the series A/CONF.81/BP), several of the documents and reports on meetings of intergovernmental and non-governmental organizations (documents in the series A/CONF.81/BP/IGO and NGO) as well as those of several symposia organized by non-governmental organizations.

149. As a consequence of the limited time available, it was impossible for the Working Group to condense the relevant ideas and suggestions contained in all of these documents. Thus, the report reflects the discussions which took place during the meetings of the Working Group and proposals submitted by delegations. The Working Group adopted a text for submission to the plenary with the recommendation that it be adopted for inclusion in the report of the Conference (see para. 150).

8/ For the text of these statements, see annex III.

Action in plenary

150. At its 16th plenary meeting, on 31 August, the Conference, having taken note of the report of the Working Group (A/CONF.81/15) adopted the text recommended by the Working Group and decided to include it in the report of the Conference. 9/

D. Report of the Credentials Committee

151. At its 1st plenary meeting, on 20 August 1979, the Conference, in accordance with rule 4 of its rules of procedure, appointed a Credentials Committee composed of the following States: China, Denmark, India, Sierra Leone, Suriname, Thailand, Union of Soviet Socialist Republics, United States of America and Zaire.

152. The Credentials Committee held one meeting on 29 August. Mr. H. S. Admin (Suriname) was unanimously elected Chairman.

153. The Committee noted from a memorandum submitted to it by the Secretary-General of the Conference, as orally amended by the Secretary of the Committee, that as at 29 August:

(a) 141 States were participating in the Conference;

(b) Credentials issued by the Head of State or Government or the Minister for Foreign Affairs had been submitted, as provided for in rule 3 of the rules of procedure of the Conference, by representatives of 112 participating States;

(c) The credentials of the representatives of five States had been communicated to the Secretary-General of the Conference in the form of cables from their respective Ministers for Foreign Affairs;

(d) The representatives of 13 States had been designated in letters or notes verbales from their respective Permanent Representatives or permanent missions in New York, or from their Ambassadors or embassies in Vienna;

(e) The names of the representatives of nine States had been communicated to the Secretary-General of the Conference by other authorities different from those specified in rule 3 of the rules of procedure of the Conference;

(f) In respect of two States participating in the Conference, no communication regarding the designation of their representatives had been received, but the Secretary-General of the Conference had been informed that proper credentials for these representatives had been dispatched.

154. The representative of the Union of Soviet Socialist Republics stated that in the view of his delegation as well as of a number of other delegations of States participating in the Conference, the credentials of the representatives of so-called "Democratic Kampuchea" were invalid. He further said that, as had been

9/ For the text adopted on the recommendation of the Working Group, see annex IV.

frequently emphasized in official statements issued by the authorities of the People's Republic of Kampuchea, and in particular in a letter dated 18 May 1979 from the Minister of Foreign Affairs to the Secretary-General of the United Nations (A/33/566 on 21 May 1979), no one other than persons appointed by the People's Revolutionary Council of Kampuchea had the right to represent Kampuchea or to act on its behalf in United Nations fora or in any other international organization. The delegation of the Soviet Union considered that, since, as was well known, the Kampuchean people, under the leadership of the United Front for the National Salvation of Kampuchea, had done away with the Pol Pot-Ieng Sary régime more than six months ago, the presence of the self-styled so-called representatives of Democratic Kampuchea in United Nations fora was completely unacceptable and illegal and was damaging to the authority and dignity of this international organization. The delegation of the Soviet Union therefore strongly objected to the acceptance of the credentials of the so-called delegation of "Democratic Kampuchea".

155. The representative of China stated that the General Assembly of the United Nations had repeatedly reaffirmed that the Government of Democratic Kampuchea, an independent sovereign State and Member of the United Nations, was the sole legal representative of the Kampuchean people. The United Nations Conference on Science and Technology for Development should take into account the decisions of the General Assembly, which had convened this Conference. She stated that the credentials of the representatives of Democratic Kampuchea were valid and fully in accordance with rule 3 of the rules of procedure of the Conference and that the Credentials Committee should report accordingly. In the view of her delegation, the accusations against the Government of Democratic Kampuchea made in the Committee by representatives of the Union of Soviet Socialist Republics were unfounded and the so-called "Kampuchea People's Revolutionary Council" was nothing but a puppet régime, propped up by the agressor troops, and had no right at all to represent the people of Kampuchea.

156. The representative of Thailand stated that in the view of his delegation Democratic Kampuchea, as a full Member of the United Nations, was entitled to all rights and privileges pertaining to such membership. This had been recognized by the General Assembly which, at its thirty-third session, had accepted the credentials for Democratic Kampuchea. More recently, the credentials of the representatives of Democratic Kampuchea had been accepted at the fifth session of the United Nations Conference on Trade and Development in Manila. The representative of Thailand accordingly concluded that, in the light of rule 3 of the rules of procedure of the Conference, the credentials for Democratic Kampuchea were in order and should be accepted.

157. On the proposal of the Chairman, the Committee agreed to accept the credentials of the representatives of the 112 States referred to in subparagraph (b) of paragraph 3 above. The Committee further agreed that, in the light of past practice and in view of the short duration of the Conference, the communications referred to in subparagraphs (c), (d) and (e) of paragraph 3 above should be accepted provisionally, pending the receipt of the formal credentials of the representatives concerned. The Committee noted that in the latter instances assurances had been given that proper credentials would be transmitted as soon as possible. Furthermore, with respect to the representatives referred to in subparagraph (f) of paragraph 3 above, the Committee agreed that they should be entitled to participate provisionally in the Conference, in accordance with rule 5

of the rules of procedure, it being understood that their credentials had already been issued and were being transmitted to the Secretary-General of the Conference.

158. Upon the proposal of the Chairman, the Committee thereupon decided to submit this report to the Conference for approval.

Action in plenary

159. At its 16th plenary meeting, on 31 August, the Conference considered the report of the Credentials Committee (A/CONF.81/13).

160. The representative of Poland, speaking on behalf of Afghanistan, Angola, Bulgaria, the Byelorussian Soviet Socialist Republic, Cuba, Czechoslovakia, Democratic Yemen, Ethiopia, the German Democratic Republic, Guinea, Guinea-Bissau, Hungary, Mongolia, Mozambique, Poland, the Ukrainian Soviet Socialist Republic, the Union of Soviet Socialist Republics and Viet Nam, stated that the delegations of these countries supported the statement made by the representative of the USSR in the Credentials Committee (see para. 154).

161. The representative of China made the following statement:

"Democratic Kampuchea is an independent sovereign State and a Member State of the United Nations. The Government of Democratic Kampuchea is the sole legal Government of Kampuchea. This has been repeatedly confirmed by the General Assembly. The United Nations Conference on Science and Technology for Development was convened in accordance with a resolution of the General Assembly and therefore will certainly abide by the decision of the Assembly. The credentials of the representatives of Democratic Kampuchean Government are fully in conformity with rule 3 of the rules of procedure of this Conference. That Government's representatives are completely qualified to participate in this Conference. We endorse the report submitted by the Credentials Committee based on the views of the overwhelming majority of the participating countries, that is, the Conference should accept the credentials of the representatives of Democratic Kampuchea.

"As is known to all, since the end of last year, the regional hegemonists, with the powerful support of a Super-Power, have dispatched 200,000 armed forces to launch an open aggression against Democratic Kampuchea, forcibly occupied its capital and large stretches of its territory and have brazenly pushed their policy of colonialization. In order to cover up their aggression against and annexation of a sovereign State, their scheme of seeking hegemonism in Indo-China, threatening the security of the neighbour countries in Asia, the regional hegemonists have fostered, with the help of bayonets, a puppet regime - the so-called "Kampuchean People's Revolutionary Council" - and tried every means to smuggle the representatives of this puppet regime into the international community. The regional hegemonists and their back-stage boss raise the issue of the representation of Kampuchea at this Conference, just for the purpose of winning a legitimate cloak for their act of annexing Kampuchea and establishing the "Great Indo-China Federation". This is the essence of the so-called "issue of the representation of Kampuchea".

"It is thus obvious that to defend or to oppose the representation of Democratic Kampuchea is a matter of principle of upholding justice and opposing aggression or conniving at aggression and recognising the consequences of aggression. It is for this reason that the attempt of altering the representation of Kampuchea has met with the opposition of most countries at a series of international conferences.

"This is a conference to discuss the restructuring of international relationships in science and technology and strengthening of international co-operation in science and technology. Our time is short but our task is heavy. We should not waste our precious time because of a small number of people quibbling over the representation of Kampuchea.

"Since the Credentials Committee has already approved the credentials of the representatives of various countries and has also put the reservations on record, we propose that the debate on this question be brought to an end and the report of the Credentials Committee be adopted."

162. The President of the Conference stated that both these statements would appear in the report of the Conference.

163. At the same meeting, the Conference approved the report of the Credentials Committee. 10/

10/ For the decision, see chap. VI, decision 2.

CHAPTER V

ADOPTION OF THE REPORT OF THE CONFERENCE

164. The Rapporteur-General introduced the draft report of the Conference (A/CONF.81/L.3 and Add.1-3) at the 16th plenary meeting, on 31 August 1979.

165. The Conference considered chapters I, II and III of the draft report and adopted them with certain oral amendments.

166. At the same meeting, the representative of the United Republic of Tanzania introduced, on behalf of Australia, Austria, Denmark, Ethiopia, Finland, Hungary, Jamaica, Mongolia, Norway, Papua New Guinea, Somalia, Sweden, Thailand, the United Republic of Tanzania, the United States of America and Viet Nam, a draft resolution entitled "Women, science and technology" (A/CONF.81/L.4/Rev.1).

167. The Conference adopted the draft resolution unanimously. 11/

168. Also at the same meeting, the representative of Finland, on behalf of the Nordic countries, introduced a draft resolution expressing the Conference's gratitude to the host country.

169. The Conference adopted the draft resolution by acclamation. 12/

170. The Conference adopted the draft report as a whole and authorized the Rapporteur-General to complete the report, in conformity with the practice of the United Nations, with a view to its submission to the General Assembly at the thirty-fourth session.

171. After a statement by the Secretary-General of the Conference, the President of the Conference made a closing statement and declared the Conference closed.

11/ For the text of the resolution, see chap. VI, resolution 2.

12/ For the text of the resolution, see chap. VI, resolution 3.

CHAPTER VI

RESOLUTIONS AND DECISIONS ADOPTED BY THE CONFERENCE

172. At its 16th (closing) plenary meeting, the Conference adopted the following resolutions and decisions.

A. Resolutions adopted by the Conference

1. Programme of Action on Science and Technology for Development

The United Nations Conference on Science and Technology for Development,

Having convened at Vienna from 20 to 31 August 1979 pursuant to General Assembly resolutions 3362 (S-VII) of 16 September 1975, 31/184 of 21 December 1976 and 32/115 of 15 December 1977 on the United Nations Conference on Science and Technology for Development,

Noting the contributions made during the preparatory process and the reports on the five sessions of the Preparatory Committee for the Conference,

Recalling the Declaration and the Programme of Action on the Establishment of a New International Economic Order 13/ and the Charter of Economic Rights and Duties of States 14/,

Convinced of the paramount need and importance of the application of science and technology to development in establishing the New International Economic Order and the goals of the third United Nations development decade,

Recognizing that concerned and sustained efforts are needed by all sections of the international community to achieve the target of strengthening the endogenous scientific and technological capacities of developing countries,

Conscious that deliberate and urgent steps are needed to achieve the target of restructuring the existing pattern of international scientific and technological relations,

Convinced that the role of the United Nations system in the field of science and technology should be strengthened, including provision of increased financial resources,

Recognizing the need for adopting effective means of utilizing new science and technology for overcoming obstacles to development and also the role to be played by science and technology in the development strategies for the future,

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13/ General Assembly resolutions 3201 (S-VI) and 3202 (S-VI) of 1 May 1974.

14/ General Assembly resolution 3281 (XXIX) of 12 December 1974.

Taking note of the consensus reached during this Conference through extensive and useful discussions in formulating the Programme of Action,

Convinced that adequate financial support and institutional means should be found for implementing the recommendations contained in the Programme of Action,

1. *Adopts* the Programme of Action set forth in the annex to the present resolution, 15/ containing the agreed recommendations of the Conference for consideration by the General Assembly and for initiating the necessary steps to implement the recommendations;

2. *Urges* all Governments to take effective action for its implementation;

3. *Requests* organizations of the United Nations system and other intergovernmental organizations to comply with its recommendations;

4. *Invites* the scientific and technological community, including the non-governmental organizations concerned, to be guided by its provisions.

16th plenary meeting
31 August 1979

2. Women, science and technology

The United Nations Conference on Science and Technology for Development,

Mindful that the United Nations Decade for Women was proclaimed in order to draw attention to the problems faced by women in their daily lives and to stimulate recognition at the national and international levels of the loss experienced where women, accounting for half of the world's adult population, are not given equal opportunity to contribute fully to national development,

Recalling General Assembly resolutions 3342 (XXIX) of 17 December 1974 and 3524 (XXX) of 15 December 1975 on the integration of women in development, in which the Assembly urged Governments to give sustained attention to the integration of women in the planning, formulation, design and implementation of development projects and programmes, as well as Assembly resolution 33/184 of 29 January 1979 on the importance of the improvement of the status and role of women in education and in the economic and social fields for the achievement of the equality of women with men,

Recalling the relevant proposals of the World Plan of Action for the Implementation of the Objectives of the International Women's Year adopted at the Conference of the International Women's Year held at Mexico City, 16/ the World

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15/ See chap. VII.

16/ See *Report of the World Conference of the International Women's Year* (United Nations publication, Sales No. E.76.IV.1).

Population Plan of Action 17/ and the World Food Conference, 18/ as well as the World Conference on Agrarian Reform and Rural Development 19/ on the integration of women in development,

Noting the importance accorded to the integration of women in development by the Governing Council of the United Nations Development Programme at its nineteenth session and by the Industrial Development Board of the United Nations Industrial Development Organization at its ninth session,

Mindful that the Training and Research Centre for Women of the Economic Commission for Africa, the Economic and Social Commission for Asia and the Pacific, the United Nations Conference on Trade and Development, the United Nations Children's Fund, the International Labour Organisation, the United Nations Development Programme, the Food and Agriculture Organization of the United Nations, the United Nations Educational, Scientific and Cultural Organization and the World Bank have planned activities and studies concerning technological development in order to enhance women's contribution to economic life,

Recalling Economic and Social Council resolution 1978/34 of 5 May 1978 on women in development and international conferences, in which the Council urged all Governments to ensure that the topic of women and development be included within the substantive discussions of international conferences, including the United Nations Conference on Science and Technology for Development,

Recognizing the importance of the present quantity and quality of the contribution of women, and its potential value where fully and appropriately utilized and developed, for the well-being and wealth of their families and societies as a whole,

1. *Invites* Member States to facilitate:

(a) The equal distribution of the benefits of scientific and technological development and its application to men and women in society;

(b) The participation of women in the decision-making process related to science and technology, including planning and setting priorities for research and development and in the choice, acquisition, adaptation, innovation, and application of science and technology for development;

(c) The equal access for women and men to scientific and technological training and to the respective professional careers;

2. *Recommends* that all organs, organizations and other bodies of the United Nations system related to science and technology should:

17/ See E/CONF.60/19.

18/ See E/CONF.65/20.

19/ A/34/485.

(a) Continually review the impact of their programmes and activities on women;

(b) Promote the full participation of women in the planning and implementation of their programmes;

3. Invites the proposed Intergovernmental Committee on Science and Technology for Development:

(a) To give due regard to the perspectives and interests of women in all its recommendations, programmes and actions;

(b) To include in its annual reports a review on the progress made concerning the implementation of the tenets of the present resolution;

4. Recommends to the forthcoming World Conference of the United Nations Decade for Women: Equality, Development and Peace, to be held in 1980, to give due consideration to the relationships between women, science, technology and development.

16th plenary meeting
31 August 1979

3. Expression of gratitude to the host country

The United Nations Conference on Science and Technology for Development,

Having assembled at Vienna from 20 to 31 August 1979 at the invitation of the Government of Austria,

Having adopted a Programme of Action designed to place the achievements of science and technology more effectively in the service of the economic and social development of all countries,

1. Places on record its profound gratitude to the Government of the Republic of Austria for making it possible for the Conference to be held at Vienna and for the excellent facilities placed at its disposal, and in particular to the city of Vienna for the generous hospitality and welcome accorded to the participants in the Conference;

2. Decides that, in recognition of the great contribution made by Austria to the Conference, the Programme of Action shall be known as the "Vienna Programme of Action on Science and Technology for Development".

16th plenary meeting
31 August 1979

B. Decisions adopted by the Conference

1. Referral of certain issues to the General Assembly

At its 16th plenary meeting, on 31 August 1979, the Conference decided to refer issues of the draft Programme of Action submitted to it by the Preparatory Committee on which agreement had not been reached 20/ to the General Assembly at its thirty-fourth session and invited the Assembly to consider those issues or to refer them to the Intergovernmental Committee on Science and Technology for Development, to be established at that session of the Assembly, or to other bodies of the United Nations system, as appropriate, in order that further progress may be made towards agreement on those issues.

2. Report of the Credentials Committee

At its 16th plenary meeting, on 31 August 1979, the Conference approved the report of the Credentials Committee. 21/

20/ See annex I.

21/ A/CONF.81/13.

CHAPTER VII

VIENNA PROGRAMME OF ACTION ON SCIENCE AND TECHNOLOGY FOR DEVELOPMENT

173. At its 16th plenary meeting, on 31 August 1979, the Conference adopted the Programme of Action on Science and Technology for Development (see chap. VI, resolution 1) and decided that it should be known as the "Vienna Programme of Action on Science and Technology for Development" (see chap. VI, resolution 3). The text of the Programme of Action, which was originally annexed to resolution 1, is reproduced below:

CONTENTS

CONTENTS (continued)

PREAMBLE

1. The United Nations Conference on Science and Technology for Development comes at a critical point in the evolution of the world economic situation and international economic relations characterized by crises in the world economy leading in particular to a further deterioration in the situation of developing countries. Developed countries continue to dominate the field of science and technology to the extent that around 95 per cent of all research and development is executed by them, while developing countries, which represent 70 per cent of the population of the world, have only about 5 per cent of the world's research and development capacity. These figures demonstrate the magnitude of the problem and the task facing the international community. The experience of the last few decades makes evident the need for determined measures on the national and international planes to redress this situation, for without such action the present inequitable situation will be aggravated further and the gap between developing and developed countries will continue to widen. ✓

2. The necessary resources and technological potentials exist for eliminating the under-development of the developing countries and for improving the well-being of humanity as a whole. The achievement of this goal presupposes that developing countries exercise full control over their own resources. It also presupposes an equitable distribution and creation of scientific and technological capabilities of the world.

3. The Conference is an integral part of the efforts of the international community for the establishment of the New International Economic Order through the adoption of decisions and the provision of concrete and action-oriented recommendations aimed at the use of science and technology for the development of all countries, and particularly of the developing countries.

4. The industrialized countries have, through their control of science and technology, provided themselves with an immense power to enhance the human environment, increase production and improve the standard of living of their population. However, their production and consumption patterns have led to a waste of resources and often carried with them negative social and environmental consequences. To avoid such undesirable effects, developing countries should carefully analyse the options in connexion with the choice, development and transfer of technology.

5. The ultimate goal of science and technology is to serve national development and to improve the well-being of humanity as a whole. Men and women in all groups of society can contribute positively to enhance the impact of science and technology on the development process. However, modern technological developments do not automatically benefit all groups of society equally. Such developments, depending on the given economic, social and cultural context in which they take place, are often seen to affect various groups in society differently. They may have a negative impact on the conditions of women and their bases for economic, social and cultural contributions to the development process. This is seen to happen in industrialized as well as in developing countries. Therefore, steps should be taken to ensure that all members of society be given real and equal access to and influence upon the choice of technology.

6. Developing countries have long recognized the need to pursue policies of creating the necessary structures at the national level in order to maximize their capacities to develop, absorb and use science and technology as well as to distribute the results of those important tools of development among all sectors of their population. It must however be recognized by the international community at large that there are, and will continue to be, limits to the ability of developing countries to realize their full potential as long as there is no restructuring of existing international economic relations on a just and equitable basis.

7. International development co-operation in the field of science and technology must assist developing countries in strengthening their creative and innovative capacity and thereby promote their autonomous scientific and technological development. This requires fundamental changes in the present pattern of international relations in this field so as to enlarge substantially international co-operation and thus enhance the opportunities for developing countries in the development and strengthening of their scientific and technological capacities, reflecting the requirements of each country in accordance with its realities and its vision of the future, as well as in the international process of the transfer of technology so as to substantially increase and facilitate such transfers, in particular to developing countries, and to enable them to have significantly improved access to the technology they require, including advanced technology.

8. In the context of the above and taking into account the objectives identified for the Conference in Economic and Social Council resolution 2028 (LXI), the following broad areas comprise the principal focus of this Programme of Action:

(a) Strengthening the scientific and technological capacities of developing countries;

(b) Restructuring the existing pattern of international scientific and technological relations;

(c) Strengthening the role of the United Nations in the field of science and technology and the provision of increased financial resources.

9. This Programme of Action sets forth the requirements for specific action at the national, subregional, regional, interregional and international levels, *inter alia*, on the following:

(a) Creation and/or strengthening of the policy-making capacity of developing countries in scientific and technological matters;

(b) Promotion of the self-reliant efforts of the developing countries to strengthen their scientific and technological capacity;

(c) Strengthening of the scientific and technological capacity of developing countries, *inter alia* through external support and assistance, to generate scientific and technological knowledge in those countries and to enable them to apply science and technology to their own development;

(d) Restructuring of existing international co-operation so as to promote a better distribution of world production and resources in the fields of science and technology;

(e) Allocation of adequate financial resources for the development of science and technology in and for the developing countries;

(f) Strengthening of scientific and technological co-operation among developing countries;

(g) Adoption of special measures in the field of science and technology in favour of least developed, land-locked, island and the most seriously affected developing countries;

(h) Strengthening of co-operation between developing and developed countries in the application of science and technology to development.

10. The aforementioned objectives to strengthen the science and technology capacities of the developing countries will be realized within the framework of this Programme of Action through, inter alia, the identification by developing countries of sectoral priorities at national, subregional, regional and inter-regional levels and the implementation of related programmes. In this context progress towards utilizing the world scientific and technological potential for the benefit of developing countries, which might have been uneven to some extent, should become systematic and thorough.

INTRODUCTION TO SECTIONS I and II

11. The primary responsibility for the development of developing countries rests upon these countries themselves. The developing countries are committed to continue assuming their responsibility, individually and collectively, through economic, scientific and collective self-reliance. However, effective action at the international level, especially by developed countries, is required to create an environment that is fully supportive of the national effort of the developing countries to realize their development goals.

12. The full recognition of the necessity for all countries to rely on their own endogenous scientific and technological capacities has characterized the preparatory activities for the Conference. Such self-reliance does not mean autarky but the ability, in essence, to take and implement autonomous decisions for the solution of national problems, and the strengthening of national independence.

13. The formulation of a comprehensive and coherent national science and technology policy, designed as part of the national plans, to contribute to the achievement of a country's development objectives is necessary for the effective application of science and technology for development.

14. Many countries, in particular those which have suffered from colonialism and foreign domination, have long been conscious of the need to restore their cultural heritage in order to strengthen their capacity for creation and innovation; to avoid the use of scarce human and material resources in creating new needs rather than satisfying existing ones; and to reach the threshold from which their knowledge and resources will enable them to grow and transcend dependency.

15. The science and technology development of developing countries has been hampered by the assumption that "demand" for science and technology would automatically emerge from the productive system. This however has not always been the case and there is a clear need to adopt measures to create, stimulate and promote the "demand" for endogenous scientific and technological activities, and for goods and services containing national and regional technology. It is also necessary to take into consideration the effects of consumption patterns on the demand for endogenous technology, and for goods and services incorporating such technology. Thus, any strategy to deal with science and technology development issues would involve both strengthening national capacity, i.e. "supply", and stimulating adequate national "demand". The management of "demand" for such scientific and technological activities, goods and services should also be the subject of co-operative efforts at the regional, interregional and international levels, particularly in respect of the technology of developing countries with limited domestic markets.

16. The critical role of financial resources in the application of science and technology for development and in the strengthening of endogenous capacities needs to be recognized. The scarcity of financial resources in developing countries often results in a resource allocation for science and technology far below the critical level required to achieve the desired results. The margin of flexibility available to many developing countries is severely limited in the light of the paucity of resources available. Mechanisms need to be established to augment the quantum and improve conditions for the transfer of financial resources for science and technology to developing countries. The developed countries and the international financial insitutions should play a significantly enhanced role.

17. For developing countries to attempt, as an alternative, to generate all the scientific and technological knowledge required for their development without making full use of the relevant knowledge already available, through the work of scientists and technologists all over the world, would not only be a task of extreme difficulty but would also be wasteful and unreasonable. It would not only extend beyond acceptable limits the time-frame in which these countries could hope to achieve their development goals but also, if adopted universally, it would retard technological progress in all countries, including the most advanced.

I. STRENGTHENING THE SCIENCE AND TECHNOLOGY CAPACITIES OF THE DEVELOPING COUNTRIES

RECOMMENDATIONS

A. National level

1. Scope and dimensions of science and technology policy

18. The Government of each developing country should formulate a national policy for science and technology, which involves carrying out certain essential responsibilities such as the planning, budgeting, management, co-ordination, stimulation, promotion and execution of scientific and technological activities relevant to defined development objectives.* It implies also the bringing about of careful interaction between factors responsible for growth and transformation.

19. Technology policies of developing countries should provide for a technological spectrum ranging from the most simple to the most advanced technologies. Their efforts should be to arrive at an optimum combination of capital and non-capital-intensive technologies in a country-specific, resource-specific and product-specific pattern.

2. Major elements of science and technology policy for developing countries

20. The science and technology components should be included in national development plans or strategies as basic instruments for achieving the different objectives and goals contained in them; these plans should also include specific requirements at the sectoral and intersectoral levels for the generation, mastery, transfer, acquisition, local dissemination, assimilation and utilization of science and technology, including know-how.

21. An effective science and technology policy should embrace elements such as:

(a) Formulation of science and technology plans with a view specifically to establishing targets for each science and technology sector, determining sectoral priorities arising from national development objectives and critically evaluating the resources which may be required as a result of co-ordinated intersectoral programmes;

(b) Survey of the state-of-art in each science and technology sector and assessment of the availability of national resources and science and technology potential;

(c) Mobilization of financial resources for scientific and technological development;

(d) Setting up of the appropriate legal, administrative, fiscal and institutional machinery required to carry out the process of scientific and technological development; furthermore, the science and technology policy should take into consideration manpower, investment and income-distribution policies, and be in harmony with the short-term needs as well as long-term requirements;

(e) Development of managerial capacities in research and development and technology in all its facets;

(f) Establishment of a national capacity for assessment, selection, acquisition and adaptation of foreign technology and expertise taking fully into account prevailing economic, social, cultural and environmental conditions;

(g) Stimulation of demand for indigenous research, technology and other science and technology services in general;

(h) Diffusion of science and technology among all sectors of the economy, their corresponding programmes, and their continued review, appraisal and adjustment at the macro and micro level;

(i) Promotion of communication and co-operation among government agencies, research institutions, professional societies and technology users;

(j) Undertaking of joint projects among all agents of science and technology development;

(k) Education and training of the human resources required to generate and implement science and technology development policies, plans, programmes and projects;

(l) Promotion of basic and applied research, and research and development in a balanced mix;

(m) Protection of the traditional scientific and technological base and, at the same time, upgrading of such knowledge in order to utilize it fully in the development process;

(n) Ensuring that the earning capacity of rural communities is increased through the application of science and technology.

22. The mobilization of science and technology for development should include appropriate measures to ensure that the application of science and technology to development would lead to a constant increase in the well-being of the entire population on the basis of its full participation in the process of development.

3. Measures and mechanisms for strengthening the scientific and technological capacities of developing countries

Institutional arrangements

23. Each developing country, as may be required, should establish one or more bodies for science and technology policy-making and implementation, supported at the highest level. They should have intimate linkages not only with research and development, but also with their mechanisms for evaluating, monitoring, screening and regulating the transfer of foreign technology, with science and technology information services, with the sources of funding and the productive sector. Such bodies should be as broadly based as possible and include respresentatives of all parties interested in the scientific and technological development process. Their functions should cover, *inter alia*, the following:

(a) To formulate, promote and monitor the implementation of science and technology policies;

(b) To mobilize and/or secure funds and to allocate them to the various science and technology institutions in the light of national development priorities;

(c) To co-ordinate the activities of science and technology institutions and to ensure close linkages with the productive sector, and to promote the undertaking of joint research programmes and projects;

(d) To promote regional and international co-operation in science and technology, and in particular to strengthen scientific and technological co-operation among developing countries;

(e) To evaluate the social and cultural aspects of science and technology and the social cost-benefit ratio involved in the technological transfer and innovation;

(f) To improve the working conditions of the scientists and technologists with provision for rewards and incentives so as to contribute to the solution of the brain-drain problem;

(g) To ensure the full participation of women in the science and technology development process;

(h) To advise local education and training bodies and make projections for building up a capacity in human resources for science and technology development.

24. The bodies responsible for science and technology policy should have close working relationships with the authorities managing and planning social and economic development, particularly to ensure the integration of science and technology in development programmes and to prevent science and technology efforts from being isolated from, or out of step with, other national development objectives.

25. Developing countries should, at the national level, ensure compatibility and co-ordination of the activities of the different components of the science and technology system, especially enterprises and research and development institutions, in a long-term perspective. The establishment of national research and development corporations to act as intermediaries between research institutions, entrepreneurs and financing institutions should be explored.

26. (a) Additionally, developing countries, in setting up a national system of science and technology, should consider the establishment of appropriate institutional structures such as:

(i) A network comprising sectoral research and development institutions;

(ii) Scientific and technological information networks;

(iii) Specialized institutions in consultancy, design and engineering, pre-investment and feasibility studies and management, administration and marketing;

(iv) Metrology, standardization, equipment maintenance and quality control agencies;

(v) Specialized institutions in the field of vertical transfer of technology as well as in the development of new products and capital goods;

(b) The national science and technology system should have, among others, the following objectives:

(i) Stimulation, in conformity with national priorities, of research and development by endogenous enterprises, particularly through the reorientation of governmental action regarding fiscal, financial and tax policies as well as through financing, subsidy, tax rebate and import policies;

(ii) Co-ordination of policies within the system to ensure optimal utilization of all inputs through an integrated use of the available natural, human and other national resources, with due regard to the need to protect and develop resources of the biosphere;

(iii) Creation and strengthening of national capacity to render consultancy, preinvestment and feasibility studies, administration and marketing services;

(iv) Creation of awareness, in the management of all research and development and production enterprises, of the need for optimal utilization of all equipment and machinery by setting up of technical teams for their maintenance and servicing.

Transfer, acquisition and assessment of technology

27. Each developing country should formulate a policy on transfer and acquisition of technology as an integral part of its national policy for scientific and technological development. Such a policy should provide for a technological spectrum ranging from the most simple to the most advanced technologies and for the assimilation and adaptation of imported technology.

28. Further, developing countries should strengthen their capacities for the assessment of technologies from the point of view of their national development objective.

29. Developing countries should develop the capacity to unpackage technologies to be acquired so as to make a financial evaluation of the different elements and an evaluation of their technical specifications. In this connexion, developing countries should also develop the capacity:

(a) To know in advance the amount of untied financial resources needed to finance what can be internally procured;

(b) To plan the training of human resources in order to provide needed technological capacities and the establishment of those installations necessary to produce new products and capital goods;

(c) To determine the contribution of imported technology to the development of the national technological base and its effect on the industrial structure of the recipient country and on the environment.

Scientific and technological information systems

30. National scientific and technological information systems should be formulated as an integral part of the over-all national development plans. This should include responsibilities such as planning, programme development, co-ordination and stimulation of information activities. Such systems should also include among their functions the appropriate co-ordination with the international information networks.

31. Developing countries, in order to improve and intensify the exchange of information through person-to-person contacts, should promote and support scientific and professional associations.

32. Developing countries should strengthen and co-ordinate their agricultural and industrial extension services in order to achieve a more effective and more efficient transfer of information to the end-users, particularly in the rural areas, and to allow feedback to the research and development institutions concerned.

33. Special attention should also be paid to the establishment of comprehensive mechanisms to utilize mass media for bringing about a scientific temper and awareness of scientific knowledge as well as the promotion of creativity and innovation among the population. These should include, inter alia:

(a) Setting up of science museums, science and technology fairs and hobby centres, and releasing publications for children; all sectors of society should benefit from these activities;

(b) Publication and release of scientific and technological journals and books for the public and students at all levels;

(c) Public broadcast programmes, with the active participation of the scientific community.

Development of human resources

34. Developing countries should formulate policies for the establishment of a scientific and technological manpower capacity. Such policies should, inter alia:

(a) Give incentives to universities, research institutions and other educational institutions so that they may become more responsive to the problems of society, particularly by integrating them with the productive system and the cultural pattern of the country;

(b) Develop mechanisms and programmes for professional and technical updating, systematically organized at all levels, so as to train specialized personnel required to cover all the links in the chain that associates research and development with production and marketing;

(c) Facilitate constant training, development and upgrading of their labour force so that they may be better able to assimilate and benefit from the swift changes characteristic of the modern world; relevant vocational training, and in particular adequate training of researchers and technicians employed by production units, should be an essential element of such a policy;

(d) Develop an endogenous managerial capacity in science and technology;

(e) Make a thorough evaluation, at the national level, of the "brain-drain" problem, including the emigration of skilled manpower, with a view to identifying measures for tackling the problem and reversing the exodus of the scientific and technological manpower.

Financial arrangements

35. Special efforts should be made to ensure that adequate resources are made available for the effective implementation of science and technology policies.

In this connexion, as and when required, appropriate financial mechanisms may be established whose functions could include:

(a) Linkages with the users of science and technology through their participation in the formulation and execution of projects;

(b) Special arrangements to ensure continuous financing for science and technology;

(c) The procurement of financial resources for national research and development activities;

(d) The procurement and utilization of funds from public and private international sources, international agencies, organizations and the United Nations system, which should comply with the over-all national development objectives.

B. Subregional, regional and interregional levels

1. Scope and dimensions of scientific and technological co-operation policy

36. Collective self-reliance among developing countries is a multidimensional process requiring the adoption of policies and action-oriented measures that are both bilateral and multilateral in scope, with a view to strengthening the internal capacities of developing countries and improving their bargaining position. Accordingly, this concept entails:

(a) The formulation of a scientific and technological policy framework through which their own financial, natural and human resources may become fully effective;

(b) The adoption of policies to encourage greater co-operation among themselves in establishing interlinked scientific and technological institutions, not only as a means to enhance absorptive capacity but also as a condition for undertaking joint programmes and projects;

(c) The stimulation of co-operation regarding topics and priorities chosen among themselves on the basis of specific programmes and projects designed jointly by means of technical meetings financed by international funds; these projects should take into account the need for complementarity among the capacities existing in the participating countries;

(d) Developing countries should, whenever ready to do so, substantially expand the flow of financial and/or technical assistance support to the least developed countries.

2. Major elements of science and technology co-operation policies

37. Subregional, regional and interregional co-operation aimed at increasing the scientific and technological capacities of developing countries should take into account the following elements:

(a) Need mutually to reinforce efforts to build their autonomous scientific and technological capacities by granting preferential treatment among themselves in the field of science and technology;

(b) Co-ordination of training of human resources, specialization, up-dating and on-going education activities;

(c) Rationalization and strengthening of the existing regional and subregional research and development institutions and effective use of sectoral projects;

(d) Need to promote the management of technology among the countries of the region;

(e) Need to initiate projects involving co-operation among two or more developing countries of the same region or different regions;

(f) Channelling of information on scientific knowledge and technological invention achieved in the developing countries, as well as a better system of information stemming from all the industrialized countries;

(g) Promotion of scientific and technological meetings, which can give rise to further action;

(h) Need to prepare a set of measures with a view to enhancing the co-operation among all the developing countries in the different regions, including possible enlargements of existing mechanisms for such co-operation.

3. Measures and mechanisms for strengthening the scientific and technological capacities of developing countries at subregional, regional and interregional levels

38. In order to strengthen and safeguard their legitimate scientific and technological interests and increase national and collective self-reliance, developing countries should, to the maximum extent possible:

(a) Undertake joint initiatives relating to the exploration and utilization of their natural and other resources;

(b) Stimulate and establish joint industrial projects, with the objective of maximizing the results of utilization of their resources, capital and skills, including suitable management and marketing arrangements;

(c) Establish subregional and regional "skilled manpower inventories";

(d) Stimulate and promote the transfer of scientific knowledge and technology among the countries of the subregions and regions;

(e) Undertake appropriate regional development projects which require a significantly high scientific and technological input;

(f) Take special measures in the context of greater horizontal linkages between developing countries, bearing in mind in particular the special needs of the least developed, land-locked, most seriously affected and island developing countries.

Institutional arrangements

39. Developing countries should strengthen and promote their own scientific and professional associations.

40. Developing countries should set up, as appropriate, a network of scientific and technological institutions or agencies which would carry out, in a co-operative manner, activities related to the whole gamut of scientific and technological activities, such as development of an endogenous scientific and technology base, promotion of technological innovation and research and development programmes, training, information systems, or negotiations with technology suppliers, including transnational corporations.

41. In order to ensure adequate institutional support, developing countries should adopt the following measures:

(a) Enable existing national centres for research and training to perform international functions;

(b) Strengthen the existing and encourage the establishment of new management and engineering consultancy organizations;

(c) Set up the associations required to assist national efforts to protect and upgrade traditional scientific and technological knowledge.

42. The appropriate subregional and regional organizations, including public and private consulting firms, should:

(a) Promote, catalyse and work on the transfer and assessment of technology at the entrepreneurial and research and development levels;

(b) Programme and promote joint subregional and regional projects in productive and research and development sectors.

43. Developing countries should use, strengthen and, when necessary, set up subregional, regional and interregional centres for the transfer and development of technology. Linkages between subregional and regional organizations dealing with the transfer and the application of technology should be stimulated.

Scientific and technological information system

44. (a) Measures should be adopted with a view, inter alia, to organizing appropriate forms of awareness, on the part of the public, of the role of science and technology in the development process on the basis of, for instance, achievements of other developing countries as well as promoting subregional and regional scientific and technical publications;

(b) Measures should also be taken by developing countries to raise the awareness of the public at large in the developed countries of the problems experienced by developing countries in the process of achieving scientific and technological development.

45. In accordance with national laws and regulations, developing countries should establish suitable interlinked information networks and data banks which would,

inter alia, enable exchanges of information on science and technology and on training and education programmes, conditions for the transfer of technology, terms of foreign investment, and activities of national and transnational corporations and enterprises in the field of science and technology. Such networks should provide for adequate co-ordination with international information networks.

46. Developing countries should share among themselves information and experience in the most relevant fields, such as agriculture, health, communications, industrialization and the like. They should establish co-operative arrangements and technical and managerial skills for sharing this information.

Development of human resources

47. Developing countries, in the framework of subregional, regional and interregional co-operative efforts, should:

(a) Strengthen the exchange of scientific and technological knowledge through co-operative projects, seminars, conferences, graduate studies, programmes and the like which involve scientific and technological work of intrinsic value to scientists from all the countries of a particular region;

(b) Develop appropriate linkage of scientists and technologists with the world scientific community, in order to stimulate and foster scientific and technological activities;

(c) Strengthen the existing and develop new education and training centres and programmes on innovation, and science and technology management;

(d) Undertake joint studies on the causes, scope and repercussions of the drain of qualified personnel from developing to developed countries;

(e) Create subregional, regional and interregional training, vocational, professional, research and technological centres;

(f) Increase the training facilities offered by developing countries for nationals of other developing countries.

Financial arrangements

48. In order to support the efforts by developing countries to strengthen the science and technology capacities, it is necessary that the over-all financial inputs into the national science and technology systems should be enhanced; further, the present funding mechanisms for this purpose are often inadequate both from qualitative and quantitative considerations. On the basis of the experience of developing countries that have received funds from the United Nations system and other international agencies as well as under the bilateral arrangements, there is need for a more effective financing within the United Nations system for strengthening the science and technology capacities of developing countries.

49. The regional development banks and international financial institutions are urged to increase substantially the funding of science and technology in developing countries.

C. International level

1. Role of developed countries in the process of strengthening the scientific and technological capacities of developing countries

Major elements of scientific and technological co-operation policies

50. There is a need for action on the part of developed countries to support and facilitate the internal efforts of developing countries to achieve development through the establishment of endogenous scientific and technological capacities. Such action should be geared towards sharing of knowledge and experience and the enhancement of the range of options available to developing countries in the process of achieving their nationally defined development goals.

51. Developed countries should, in this context, support scientific and technological research aimed at solving the problems of developing countries, which should be carried out, to the maximum extent possible, within those countries. Further, such research in developing countries should be congruent with national, subregional or regional priorities and should be carried out with effective, appropriate planning, participation and control of the appropriate national institutions of developing countries.

52. New forms of co-operation that reflect the interests and aspirations of developing countries should be promoted. Such an approach should include an intensive participation and initiative of developing countries in the designing, orientation and implementation of science and technology co-operative activities. It could materialize in comprehensive agreements, including long term agreements, covering technology, finance, production and trade.

53. This approach to international co-operation should be translated into the adoption of action-oriented measures by developed countries with the following objectives:

(a) To make available in a systematic manner, in accordance with their national laws and regulations, the results of their research and development relevant to the social and economic development of developing countries;

(b) To increase substantially the proportion of their research and development expenditures and efforts devoted to the solution of jointly identified specific problems of primary interest to developing countries in accordance with objectives and priorities set by each Government of the developing countries. Research and development efforts of developed countries devoted to the problems of developing countries should be consistent with the priorities of developing countries and should provide for the active participation of developing countries in their design, planning, execution and evaluation.

Institutional arrangements

54. Direct linkages should be established between the research and development systems of developed and developing countries through co-operative arrangements. Such arrangements should provide for the undertaking of joint research and development programmes, which should be carried out to the maximum extent possible in developing countries, so as to exchange personnel and share results.

55. Developed countries should co-operate with developing countries in the process of restructuring and improving the existing international machinery or building-up new international institutions that are more responsive instruments for development and international co-operation in science and technology.

56. In order to develop and strengthen their scientific and technological co-operation, developed and developing countries should, in appropriate cases, conclude and expand bilateral intergovernmental agreements, including long-term agreements, and set up joint intergovernmental commissions for this purpose.

57. Co-operation between the scientific and technological associations of developed and developing countries should be encouraged.

Scientific and technological information system

58. Information systems and networks to be established at subregional, regional, and international levels should ensure close linkages with the national information systems to provide all support for strengthening the national science and technology information capacity, including systems to facilitate access to technology information contained in patent documents, through training, institution building and intergovernmental co-operation in classifying, publishing and exchanging such documents.

Development of human resources

59. Developed countries should:

(a) Co-operate with developing countries in training their scientists and technologists both through the provision of fellowships for study abroad and through training programmes in developing countries involving scientists and technologists from developed countries; such exposure and training should be undertaken in conformity with the needs, priorities and specific conditions of developing countries;

(b) Train citizens of developing countries in technology management in appropriate institutions and in industrial plants located within their territories in order to promote the enhancement of production and services in developing countries;

(c) Facilitate and strengthen the awareness of their people of the need to understand fully the scientific and technological historical process, particularly through the provision of education on the development of scientific and technological cultures of developing countries; developing countries could assist in this task;

(d) Increase significantly free training or fellowships for training to students from the developing countries, both in developed and developing countries;

(e) Remove any discriminatory conditions affecting the training of personnel from developing countries;

(f) Intensify international discussions about ways and means to curb and reverse the brain-drain from the developing to the developed countries and to encourage the absorption of highly skilled and trained scientists and technologists within developing countries and support activities of international organizations aimed at finding urgently needed solutions to the brain-drain problem without prejudice to existing international agreements;

(g) Co-operate in the implementation of major programmes relating to the problems of developing countries, as identified by developing countries themselves, for basic and field research work;

(h) Support the efforts undertaken by developing countries to establish national, subregional, regional and interregional centres of excellence in higher education and research.

Financial arrangements

60. Developed countries are urged:

(a) Through individual or joint action, to untie grants, soft loans, credits and any other forms of development aid as well as their contributions to international financing institutions and foundations so as to facilitate the utilization and subsequent strengthening of the endogenous scientific and technological capacities of developing countries;

(b) To ensure the maximization of the use of local technologies and services required in development projects in the developing countries where the projects are set up;

(c) To encourage the strengthening of regional, subregional and interregional co-operation in the field of science and technology by means of increasing the volume and improving the terms and conditions of financing the programmes undertaken by developing countries at those levels.

2. Role of international organizations

61. International organizations, and especially those of the United Nations system, should support, on a subregional, regional and interregional basis, the establishment, strengthening and development of the science and technology capacities of developing countries.

Institutional arrangements

62. International organizations should:

(a) Provide for meaningful consultations and exchanges of experience at the international forums on science and technology policies and planning;

(b) Provide, within their mandates, upon request by Member States, advisory and financial services for the formulation of science and technology policy and the building up of the corresponding institutional machinery;

(c) Facilitate co-ordination among institutions and organizations engaged in science and technology planning in developing countries;

(d) As and when required, develop appropriate analytical methods and techniques for assisting developing countries in determining priorities, planning, forecasting, data management and processing, and assessment of new developments relevant to science and technology activities, through programmes and institutions located in developing countries;

(e) Give more active consideration to the formulation of policy for finding solutions to the brain-drain and mitigating the adverse consequences associated with it;

(f) Adopt appropriate measures to improve the capacity of existing centres and networks in science and technology, avoiding an undue proliferation of institutions; such measures should:

(i) Make the activities of sectoral and regional research and development institutions of developed countries more responsive to the needs and problems of developing countries;

(ii) Strengthen the problem-solving capacity of developing countries in supplementing their national and regional science and technology institutions with adequate technical, financial and human resources.

Technology transfer and assessments

63. Organizations within the United Nations system should harmonize their efforts and co-ordinate their activities so as to proceed to the rapid implementation of recommendations and decisions of the United Nations system regarding the strengthening of the technological capacity of developing countries.

Scientific and technological information systems

64. International organizations should act as a tool for systematic exchange of information on experiences of different countries in all fields pertaining to the application of science and technology for development. In this connexion, continuing consideration should be given to the establishment of a global and international information network, within the United Nations system, where emphasis will be placed on priority needs of the developing countries. An outline of such a network is contained in section II.

Development of human resources

65. International organizations should:

(a) Supplement the training of specialists in science and technology policy and its integration into planning, giving special attention to institutions of developing countries;

(b) Co-ordinate efficiently and rationally fellowship programmes under the various bodies of the United Nations system which offer research and training facilities to the nationals of developing countries in both developed and developing countries;

(c) Develop a world system for rewarding and honouring scientists and technologists whose contributions provide solutions to the major problems of developing countries.

II. RESTRUCTURING THE EXISTING PATTERN OF INTERNATIONAL SCIENTIFIC AND TECHNOLOGICAL RELATIONS

RECOMMENDATIONS

A. Acquisition and transfer of technology

Action by developing countries

66. Developing countries should:

(a) Share their experience and co-ordinate their policies for the selection, acquisition, adaptation, assessment and development of technologies, as well as their domestic legislation on industrial property, foreign investments and transnational corporations;

(b) Co-operate in improving the conditions and terms for the acquisition of technology, machinery and equipment by joint purchase arrangements whenever feasible;

(c) Co-ordinate positions and co-operate on matters in the field of science and technology which are subject to international multilateral negotiations.

Action by developed countries

67. Developed countries should take adequate specific measures in order:

(a) To encourage and facilitate the transfer of technology by their small and medium-sized enterprises and the participation of such enterprises in co-operative schemes, including joint ventures with corresponding public and private enterprises in developing countries;

(b) To co-operate with developing countries according to the priorities of the latter in strengthening the capacities of their institutions and enterprises to assist their technology needs and select, acquire, generate and apply technologies.

Action at the international level

68. Organizations within the United Nations system should play a more active role in informing, advising and assisting developing countries in any region or subregion on all aspects related to the transfer of technology so as to enable them to obtain more favourable terms and conditions. Other international organizations should consider adopting a suitable policy. Measures should, inter alia, be taken:

(a) To provide assistance, including experienced personnel, to developing countries at their request, either singly or jointly, in the formulation, negotiation and implementation of projects for the transfer of technology, and to establish training and exchange programmes for nationals of those countries, in order to develop endogenous capacities in dealing with the transfer of technology, including negotiating and bargaining skills, technology assessment and information retrieval skills;

(b) To assist developing countries, at their request, in setting up suitable institutions to deal with the transfer of technology;

(c) To assist in the establishment, especially on a regional basis, of data banks and centres for the transfer and development of technology in order to supplement national capacities to assess, select, adapt, diffuse and create technologies suitable for developing countries, including the capacity to establish effective linkages between and within research and development and the productive sector.

B. Restructuring of the international scientific and technological information system relevant to the requirements of the developing countries

Action by developed countries

69. Developed countries should:

(a) In view of the accumulation of scientific and technological knowledge in these countries, make those information resources which are readily accessible to their own nationals also readily accessible to users from developing countries;

(b) In regard to commercially available information, adopt measures and arrangements allowing developing countries to use their specialized information systems and acquire their publications at reasonable cost and, whenever possible, in local currency or free of charge;

(c) Provide the fullest possible access to available information on technologies, terms and conditions of supply, local technical and management requirements, and activities of transnational corporations and enterprises in the fields of science and technology.

Establishment of a global and international network

70. The scientific and technological international information network should include the following features:

(a) The network should be designed to meet particularly the needs of the developing countries and to provide access to information for users who contribute to problem-solving activities and decisions relating to development;

(b) The network should operate, *inter alia*, as a channelling mechanism facilitating contact between users and suppliers of information;

(c) In each country there should exist one national focal point for its different subnetworks while at the same time there should be, at the world level, under the auspices of the United Nations, a global centre focal point;

(d) Each national focal point should have the information-on-information for its country; the global central focal point should have the same for the world;

(e) The global central focal point will provide information-on-information to all national focal points. Users should be able to obtain the needed information, or information-on-information, normally from their national focal point and from other national focal points either directly or through their own national focal point;

(f) In cases of difficulty of obtaining a response from any other national point, the global central focal point should take measures to ensure the required information is provided;

(g) The global central focal point and individual country focal points should be managed by qualified personnel capable of easily, promptly and clearly understanding the requests for information and of directing the requests to the appropriate source;

(h) Each focal point should have the appropriate communication facilities so as to be able to receive or supply information as fast as needed, either directly through the individual national focal point or through the global one.

71. In establishing the international information network outlined above, all countries drawing up national scientific and technological policies and plans should include in them the development of programmes and activities for national information systems and networks.

72. National information systems and networks should aim to ensure access to and facilitate utilization of national and international sources of information on science and technology in order to stimulate endogenous development and national capacity for innovation and to support the assessment, transfer and adaptation of technology. This requires inter alia:

(a) The training of specialized manpower;

(b) The development of infrastructures, including communication facilities, data banks, libraries, documentation centres, archives, back-up literature, hardware and software;

(c) The development of the necessary information-handling procedures and techniques, tools, methods, norms and standards;

(d) The improvement of the stock of primary documents in developing countries, taking into account the establishment, when this proves necessary, of central libraries or documentation centres;

(e) That care should be taken that all countries should have access to the information systems of developed countries permitting research "on line".

73. Taking into account the urgency of the task, the scientific and technological international information network should be developed sequentially and in an evolutionary fashion so as to meet particularly the needs of the developing countries ensuring the maximum availability of information such as:

(a) Information required for development of science and technology;

(b) Information regarding the national capacity in science and technology;

(c) Technological information contained in patent documents;

(d) National programmes in science and technology.

74. The global and international information network should be so developed as to meet particularly the needs of the developing countries. Priority should be given to covering scientific, technical, socio-economic, legal and other aspects needed for decision-making in the selection and transfer of technology. The existing information systems within the United Nations and other international bodies set up for the exchange of scientific and technological information and which are also serving as industrial technology data banks should form an integral part of the proposed global network. Data from the developed and the developing countries on available technologies, conditions of licensing, identification of suitable experts, engineering and consultancy services and the like should be widely available so as to promote their effective utilization, thereby strengthening the concept of the global international network.

75. The developing and the developed countries should participate in, and make better use of, the existing scientific and technical information systems and take such steps as would enable their own information systems to be coupled to the global information network and ensure that all support is provided for the effective use of this global network.

C. Promotion of international scientific and technological co-operation for development

Elements of international co-operation in science and technology

76. The following arrangements for effective international co-operation should be encouraged:

(a) Co-operative activities aimed at the development of mutually beneficial and user-oriented information systems in areas of major scientific and technological concern, which are of particular importance to developing countries, at the subregional, regional, interregional and international levels;

(b) Bilateral scientific and technological co-operation arrangements providing for the exchange of scientific and technical personnel between institutions with the same objectives or activities; information about such bilateral co-operation should also be exchanged;

(c) Personal contacts and continuing working relationships between scientists and technologists and between scientific and technological societies and associations of developed and developing countries.

Action by developing countries

77. Developing countries cover a wide spectrum of development needs and scientific and technological infrastructure and capacities. They can learn much from each other's experience in applying science and technology to development. To enhance their science and technology co-operation, developing countries should:

(a) Promote mutual consultation and systematic exchange of information concerning their experience in science policy and planning, building scientific and technological infrastructure, and the acquisition, development and application of scientific and technological knowledge;

(b) Strengthen the existing and establish, develop and promote new consulting firms and services relevant to the area of science and technology;

(c) Make arrangements to facilitate the dissemination and exchange of science and technology knowledge and experience originating in the developing countries so that the comparative advantages and specializations of various countries or sectors can be fully utilized;

(d) Arrange for the training and exchange of science and technology personnel;

(e) Whenever possible, establish associations of research councils and joint research and development centres in areas of common interest, and provide for the exchange of recently developed science and technology knowledge;

(f) Promote science and technology projects among developing countries with similarities in natural and social factor endowments;

(g) Compile inventories of their science and technology resources and capacities for collective self-reliance in science and technology for development, and encourage their exchange.

Action by developed countries

78. (a) Developed countries should devote more resources to the solution of problems relevant to developing countries, and to co-operative projects between developing and developed countries; priority should be given to those projects which contribute the most to strengthening and promoting scientific and technological capacities in developing countries.

(b) The choice and mode of implementing co-operative projects should accord with the development priorities determined by the developing countries themselves;

(c) Training programmes for nationals from developing countries should emphasize those areas and disciplines for which there is a clear need in the developing countries as determined by developing countries themselves;

(d) The leader of a co-operative project undertaken in a developing country should be a national of that country, who should be responsible for its management and technical control. When this is not immediately possible, the project should include the training of local managerial and technical personnel;

(e) The choice of any foreign consulting firm and/or consultant required by a developing country should be made by the country itself unless otherwise mutually agreed;

(f) Sponsoring agencies in developed countries should accept that any science and technology co-operative project in a developing country should be undertaken jointly with the participation and control of local institutions to ensure that the project and its execution conform to the national interest, laws and regulations of the developing country concerned;

(g) Co-operation projects conducted in laboratories or research institutions of a developed country should involve scientists from the participating developing country. In the elaboration of the terms and conditions of the agreements concerning such projects, due regard should be paid to the objective of including provisions for the transfer of results to the participating developing country and their application there on a preferential basis. Conditions for commercial exploitation of the results of co-operative research should be determined by the co-operating parties. Due recognition to the developing country partner should be given in the patents covering such results.

(h) Co-operative projects should not be conducted, in cases where a developing country is used as a testing ground for new scientific concepts or technical innovations, without potential for benefit to its development;

(i) Whenever a co-operative project involves research in drugs, chemosterilants, pesticides etc., in a developing country, it should conform not only to the current regulations and ethical requirements in the developing country but also to the regulations of the developed country as well as to those accepted internationally unless an explicit decision to the contrary is taken by the developing country partner;

(j) Identification and assessment of the ecological implications of co-operative programmes should be an integral part of the programme itself. Co-operative research conducted in a developing country should conform to the environmental standards adopted by the developing country concerned;

(k) Co-operative programmes should be flexible so as to allow the developing country concerned to choose the combination of inputs (expert, equipment, training etc.) best suited to its specific needs;

(l) Scientific and technological co-operation should not be used to impose any particular political or economic system on developing countries.

Action by international and regional organizations

79. (a) Co-operation with the United Nations and other international organizations should contribute to the upgrading of the policy-making and managerial capacities of developing countries and the infrastructure necessary for the scientific and technological development, thus reducing their technological dependence on foreign entities;

(b) Co-operative projects undertaken with international agencies and organizations should be in accordance with the national plans and priorities of the developing countries. Inputs of the United Nations organizations should be co-ordinated with other projects launched through international co-operation, so as to increase their contribution to development programmes of the developing countries;

(c) Greater use should be made by international organizations of the expertise in developing countries, including consultancy organizations of all kinds;

(d) International organizations should support the aim of local scientific personnel taking over responsibility as soon as possible for continued functioning of projects launched through international co-operation;

(e) The choice of experts should take into account the dynamically changing needs of developing countries, and those countries themselves should be encouraged to make the choice of experts;

(f) Training is usually best accomplished within developing countries themselves. Where outside science and technology training is needed, regional facilities and capacities should be utilized on a priority basis;

(g) Science and technology programmes of organizations of the United Nations system should not be influenced by or be intended to serve third party commercial interests, or any other interest contrary to the interests of the goals of the United Nations system. To ensure this, the nature, scope and conditions of all contributions made by commercial enterprises to scientific and technological programmes undertaken by the organizations mentioned above should be made public. Organizations of the United Nations system should not undertake research projects at the instance of a third party, unless complete information about the interests of the third party is made freely available.

(h) Exchange of experience and co-operative projects between and among developing countries should be encouraged to build up collective self-reliance. Regional centres are valuable instruments for pooling resources, talents and facilities and for working out problems of mutual interest through a network of collaborating institutions from all participating countries.

D. Institutional arrangements to implement the structural transformation to be effected in international scientific and technological co-operation

Methodology for the implementation of an international co-operative programme for the application of science and technology

80. International co-operative programmes should be jointly designed and agreed upon by planners and scientific and technical specialists, appointed by the appropriate national authorities, and should be executed by institutions selected by them, drawing mainly upon the manpower capacity of participating countries. Project execution and institutional build-up projects may call for different funding procedures. These programmes and projects should, *inter alia*, be of the following kinds:

(a) Scientific and technological projects involving research and development;

(b) Training, specialization, updating and postgraduate programmes relating to science and technology;

(c) Strengthening of national, regional or subregional institutions;

(d) Promotion of specific activities such as information and technical assistance, services, and management of technology training operations;

(e) Promotion of the utilization of local or regional technology;

(f) Participation by specialists of international organizations should be sought in a supporting role and not in a managerial and decision-making role, unless otherwise decided by the Government of the developing country concerned.

Subregional and regional levels

81. At the subregional and regional levels, adequate arrangements should be made:

(a) To define priorities;

(b) To design jointly programmes and projects;

(c) To promote multilateral scientific and technological activities;

(d) To provide co-ordination with other regions and countries in such a way as to guarantee the proper balance of resources for every project and programme.

III. STRENGTHENING THE ROLE OF THE UNITED NATIONS SYSTEM IN THE FIELD OF SCIENCE AND TECHNOLOGY AND THE PROVISION OF INCREASED FINANCIAL RESOURCES

INTRODUCTION TO SECTION III

82. The restructuring of the organs, organizations and bodies within the United Nations system so that it can contribute to the establishment of the New International Economic Order and to the acceleration of the development of the developing countries has been one of the major concerns of the international community. Member States have increasingly emphasized the need for greater cohesiveness and co-ordination of the activities of the various organizations and agencies of the system. In view of the fundamental and pervasive role of science and technology in the development process, it is particularly important that the United Nations system should be in a position to maximize its potential contribution in this area.

83. The steps taken so far within the organs, organization and bodies of the United Nations system to improve the present situation have largely been institutional reforms involving reviews of the mandates of individual components of the system, so as to reduce overlapping, competitiveness and unnecessary duplication of effort. It is now apparent that "institutional approaches" alone cannot be sufficient in the sphere of science and technology.

84. New arrangements are therefore necessary to provide the required framework for international decisions and co-ordinated action designed to complement national efforts of developing countries to develop their capabilities and enhance the contributions of science and technology to their development.

85. In order to strengthen the role of the United Nations system in the field of science and technology, the following should be taken into account:

(a) Development co-operation activities in the field of science and technology should place heavy emphasis on strengthening the endogenous capabilities of the developing countries in order to enhance their own creative capacities;

(b) Development co-operation activities should not be conceived in sectoral terms but should take fully into account the main interactions that a well-conceived development process triggers among the various sectors comprising national, subregional, regional and interregional circumstances and realities;

(c) Development co-operation activities carried out in the field of science and technology by the United Nations system should be based on the priorities of individual developing countries;

(d) In view of the need to reduce autonomous and isolated actions by the numerous component parts of the United Nations system, there is a need to ensure co-ordination between them in the light of the integrated nature of the development process itself and the fact that considerations of a technical nature should be viewed in their economic, social and cultural context in the carrying out of these activities;

(e) Programmes of co-operation in the field of science and technology should, in their concepts and procedures for implementation, give due consideration to the essential linkages in the development process at the national, subregional, regional and interregional levels and, in particular, to the need for assuring adequate linkages between institutions at the national, subregional, regional and interregional levels and the appropriate productive sectors of the country or region concerned;

(f) Organizations of the system must, when encouraging the establishment of national institutions in the field of science and technology, take care to promote their integration with the productive sectors.

86. For the full and adequate use of the organs, organizations and bodies within the United Nations system for the application of science and technology to development, the following considerations should be taken fully into account:

(a) Modification and, if necessary, redefinition of objectives, policies and criteria, in response to the general commitment by all Member States to treat science and technology as an integral part of the New International Economic Order;

(b) Adjustment of the objectives, policies and programmes of the organs, organizations and bodies within the United Nations system and other relevant international agencies so as to support effectively the development objectives and priorities agreed upon by the countries, especially the developing countries, at the national, subregional, regional, interregional and international levels;

(c) Harmonization of the objectives and policies of the different organs, organizations and bodies within the United Nations system and co-ordination of their sectoral and intersectoral activities in developing countries in order to maximize the benefits derived from these activities and to eliminate waste and avoid unnecessary duplication;

(d) Adoption of specific programmes which will lead to the implementation of the Programme of Action, by means of co-ordinated action which includes both the general and specific interests and the effective participation of developing countries.

87. The international community has also recognized that the disparities and imbalances in the distribution of financial resources for science and technology at the world level require urgent action, in order to reach equitable and just distribution of the world scientific and technological effort and to strengthen the endogenous scientific and technological capabilities of developing countries.

88. While it is recognized that the organs, organizations and bodies within the United Nations system have allocated in the past a certain proportion of their resources to activities related to science and technology for development, there is a manifest need for channelling additional resources to the specific purpose of building endogenous capabilities of the developing countries.

89. For this purpose, it is recognized that special arrangements are required to increase the flow of financial resources, on a predictable, continuous and untied basis, for science and technology for development in the developing countries.

RECOMMENDATIONS

A. Policy formulation and guidelines

90. The organs, organizations and bodies within the United Nations system should, in accordance with this Programme of Action:

(a) Evolve special policies and measures and appropriate institutional arrangements to ensure intersectoral programming and co-ordination of the scientific and technological activities of the various United Nations bodies and agencies, having due regard for the different development styles and priorities of individual States, as well as for the need to co-ordinate United Nations programmes with national development plans so as to strengthen the scientific and technological capacities and the endogenous development of developing countries;

(b) Formulate or review and orient as may be required over-all harmonized science and technology policies in line with the development strategies required by the establishment of the New International Economic Order;

(c) Set up programmes for studies, research and publications on ethics and values in science and technology for development; such programmes would, *inter alia*, endeavour to create positive conditions conducive to the development and assimilation of science and technology in conformity with the social and cultural milieu of the developing countries.

91. Each organization of the United Nations system should evolve a medium-term plan vertically compatible with the over-all science and technology policies in accordance with this Programme of Action; horizontal compatibility between the medium-term plans of the organizations, organs and bodies within the United Nations system should be ensured through interagency consultation. While formulating these plans, the organs, organizations and bodies within the United Nations system should strengthen their evaluation mechanisms in order to assess the effective

contribution to the developing countries of the activities of the United Nations system in the field of science and technology and also to assess the participation of developing countries in the process of making effective these contributions. The Committee for Programme and Co-ordination would be associated with this work as appropriate.

92. Organizations of the United Nations system should draw up, in consultation with developing countries, lists of experts and advisory and engineering services in the developing countries and should make preferential use of these personnel and services in their technical and financial co-operation programmes.

93. The over-all efficiency and effectiveness of the system should be achieved by effecting, inter alia, the following changes in the system:

(a) Improvement of existing mechanisms and/or setting up channels to enable the system to enhance its comprehension and knowledge of the efforts undertaken by developing countries to achieve a greater level of scientific and technological development;

(b) Co-ordination and harmonization of the system's policies, programmes and functions in the field of science and technology;

(c) Decentralization of the decision-making process for the strengthening of the regional commissions, in accordance with General Assembly resolution 32/197 of 20 December 1977, by entrusting to them:

(i) The rationalization of their subsidiary machinery in the field of science and technology;

(ii) The assumption of the role of team leadership for co-ordination of science and technology co-operation programmes at the regional level;

(iii) The provision of inputs for the policy-making process of the intergovernmental committees;

(iv) The responsibility for supporting developing countries, at their request, in identifying projects and preparing programmes for the promotion of scientific and technological co-operation among those countries: 22/

(d) Co-ordination of the restructured regional commissions with subregional, regional, interregional and international co-operation organizations in the field of science and technology;

(e) Increasing the effective participation of developing countries in international organizations concerned with the application of science and technology to development, including the holding of interregional meetings on science and technology, in accordance with their established procedures and practices.

22/ This applies to the regional commissions concerned.

94. (a) Developing countries should be able to play a more effective role at the decision-making level in international organizations dealing with science and technology for development;

(b) Developing countries, similarly, should be better represented, in accordance with the principles of the Charter of the United Nations, in particular at the executive and decision-making levels, in the various secretariats and secretariat organs in charge of the planning and execution of scientific and technological projects.

B. Technology transfer and assessment

95. The organs, organizations and bodies of the United Nations system should take the necessary action conducive to increasing the capacities of the developing countries in all aspects related to the transfer of technology, as and when required by developing countries themselves, including, inter alia, the measures referred to in paragraph 68 above.

C. Scientific and techonological information systems

96. There is a need for strengthening the existing and developing new information centres and networks in developing countries. These activities could be effectively pursued within the organs, organizations and bodies of the United Nations system. The establishment of a global network of scientific and technological information should be carried out as specified in paragraphs 70 to 75 above.

97. The organs, organizations and bodies of the United Nations system should improve the existing information services and provide measures to co-ordinate their effective utilization in the field of science and technology.

98. The organs, organizations and bodies of the United Nations system should further develop and co-ordinate their scientific and technological publications services in order to make available the most important world publications in the various scientific and technological disciplines, including publications for the popularization of science and technology, in all the official languages of the United Nations.

D. Development of human resources

99. The organs, organizations and bodies of the United Nations system should:

(a) Continue to support and increase the provision for scientific and technical training and education at all levels - national, subregional, regional and interregional - in order to strengthen local personnel and science and technology specialists, in particular by the provision of scholarships;

(b) Expand opportunities for research and training offered both in developed and developing countries to nationals of developing countries so as to strengthen the research and training capabilities of developing countries through:

(i) The rationalization and co-ordination of existing fellowship programmes;

(ii) The establishment of special international fellowships in science and technology for development, linked to the financing system referred to in paragraphs 110 to 122 below;

(c) Assist developing countries to evaluate the brain-drain problem, including the emigration of skilled manpower, with a view to identifying measures for tackling the problem and reversing the exodus of scientific and technological manpower;

(d) Strengthen the status of existing prizes and create new awards to honour the scientists and technologists whose contributions provide solutions to the major problems of development;

(e) Play a major role in the development of higher education and scientific research and professional training in developing countries;

(f) Ensure that training programmes take place in developing countries on a priority basis;

(g) Strengthen support for national efforts to promote the full participation of women in the mobilization of all groups for the application of science and technology for development.

E. Institutional arrangements and structural transformations

100. The Conference recommends that the General Assembly of the United Nations should establish a high-level intergovernmental committee, to be known as the "Intergovernmental Committee on Science and Technology for Development" (hereinafter referred to as the Committee), which should assist it, inter alia: 23/

(a) To formulate policy guidelines for the harmonization of policies of the organs, organizations and bodies within the United Nations system in regard to scientific and technological activities, on the basis of this Progammme of Action and with a view to contributing to the establishment of the New International Economic Order;

(b) To promote the improvement of linkages among the organs, organizations and bodies within the United Nations system, with a view to ensuring the co-ordinated implementation of the Programme of Action; 24/

23/ At the same time the Conference recommends to the Economic and Social Council that its Committee on Science and Technology for Development should cease to exist.

24/ The Committee for Programme and Co-ordination and the Administrative Committee on Co-ordination should assist the Intergovernmental Committee, at its request, in accordance with their terms of reference.

(c) To identify priorities for activities within the Programme of Action with a view to facilitating operational planning at the national, subregional, regional, interregional and international levels;

(d) To prepare an operational plan for carrying out the Programme of Action;

(e) To monitor the acitvities and programmes related to science and technology within the organs, organizations and bodies of the United Nations system;

(f) To promote the optimum mobilization of resources in order to enable the organs, organizations and bodies within the United Nations system to carry out the activities of the Programme of Action;

(g) To initiate arrangements for the early identification and assessment of new scientific and technological developments which may affect adversely the development process as well as those that may have specific and potential importance for that process and the strengthening of the scientific and technological capacity of the developing countries;

(h) To give directives and policy-making guidance to the United Nations financing system for science and technology for development referred to in paragraphs 110 to 122 below.

101. The Committee shall be open to the participation of all States as full members. It shall meet once a year and shall submit its reports and recommendations to the General Assembly through the Economic and Social Council, which may transmit to the Assembly such comments on the report as it may deem necessary, particularly with regard to co-ordination. The Conference recommends that the representation of Member States in the Committee be at a high level. All organs, organizations and bodies of the United Nations, including the regional commissions as well as the specialized agencies and the International Atomic Energy Agency, shall be invited, in accordance with practices established in the light of the relevant resolutions of the General Assembly and the relationship agreements, to participate in the Committee at a high level, preferably at the level of heads of secretariats. The Committee may invite appropriate intergovernmental organizations, non-governmental organizations and other organizations to participate according to procedures it will establish. The Director-General for Development and International Economic Co-operation should be entrusted with the co-ordination of the contributions of the organs, organizations and bodies of the United Nations as well as of the specialized agencies and the International Atomic Energy Agency.

102. The Committee shall establish procedures and mechanisms which would ensure adequate and effective provision of scientific and technical expert advice to it. In this connexion, the terms of reference of the Advisory Committee on the Application of Science and Technology to Development should be modified as required with a view to enabling it to provide, upon the request of the Committee, all necessary assistance and advice.

103. The Director-General for Development and International Economic Co-operation should, within the framework of his mandate as defined by the General Assembly in its resolutions 32/197 of 20 December 1977 and 33/202 of 29 January 1979, be responsible for exercising over-all co-ordination, at the Secretariat level within the United Nations system, in science and technology. In this connexion, there is

need for secretariat support whose head should be at a high level to assist the Director-General in providing the necessary assistance to the Committee and in co-ordinating science and technology activities within the United Nations system. The Director-General, under the authority of the Secretary-General, should provide to the General Assembly at its thirty-fourth session a report on the organizational and financial implications. Taking into account the report, the General Assembly should allocate the resources, human and financial, necessary to provide for such a secretariat, drawing to the fullest extent possible on resources already existing within the United Nations, including the posts and budgetary resources of the Office for Science and Technology.

104. The organs, organizations and bodies within the United Nations system and their training, research and development institutions should:

(a) Improve the existing and establish new linkages among themselves;

(b) Support the co-operative efforts undertaken by research and development and training institutions of developing countries and between them and developed countries, as requested;

(c) Provide assistance in strengthening the present academic science and technology institutions in developing countries and also set up the appropriate networks between those institutions and those related to information when they are needed;

(d) Support and facilitate study tours and exchange visits between scientists and technologists in developing countries;

(e) Co-operate in order to reinforce the existing or establish new arrangements to provide technical assistance to developing countries in the field of science and technology.

105. In effecting structural transformations, United Nations programmes should pay special attention to the results of the negotiations on:

(a) The international code of conduct on the transfer of technology:

(b) The international code of conduct relating to transnational corporations;

(c) The revision of the Paris Convention for the Protection of Industrial Property.

106. Further, the organs, organizations and bodies of the United Nations system should take the necessary measures to achieve, inter alia, the following objectives of particular importance to developing countries:

(a) Assess and revise the existing procedures for the establishment, review and implementation of decisions and recommendations of international conferences relevant to the field of science and technology, with a view to an early establishment of the New International Economic Order;

(b) Strengthen existing and develop new research and development and consulting institutions in order to increase the generation and transfer of scientific and technical knowledge to developing countries;

(c) Mobilize world opinion in favour of a reduction of armaments and of the reallocation of scientific, technological and financial resources, now being used for military purposes, to economic and social development, particularly for the benefit of developing countries;

(d) Assess advanced scientific achievements with the purpose of preventing their use in threatening world peace, and their impact on humanity and civilization anywhere in the world;

(e) Proceed to the rapid implementation of all resolutions adopted within the United Nations system relevant to the field of science and technology, including resolutions 87 (IV) of 30 May 1976 and 112 (V) of 3 June 1979 adopted by the United Nations Conference on Trade and Development on strengthening the scientific and technological capacities of developing countries;

(f) Facilitate the access of developing countries to technical information already existing in documents such as those concerning patents and other information important to the transfer and use of technology.

107. The organs, organizations and bodies of the United Nations system should foster the involvement of scientists, experts and consultants from developing countries in scientific, technical and consultancy activities in developing countries.

108. The organs, organizations and bodies of the United Nations system should identify, in consultation with appropriate national science and technology agencies, the science and technology elements of the various development programmes undertaken by them in the developing countries, in order to facilitate the assessment and co-ordination of such elements by the responsible national agencies.

109. The Conference invites the General Assembly to initiate a basic study of the activities, mandates and working methods of all the various organs, organizations and bodies of the United Nations system in the field of science and technology for development and to examine the possibilities of improving the efficiency of the system in this field.

F. Global financial arrangements

110. The Conference recommends that the General Assembly establish a financing system for science and technology for development.

1. Objectives

111. The financing system shall finance a broad range of activities aimed at strengthening the endogenous scientific and technological capacities of developing countries and in particular to assist in the implementation of the measures envisaged in this Programme of Action. Those activities shall be complementary to bilateral and multilateral programmes for science and technology and supportive of

the national efforts of the developing countries in the fields of science and technology. It shall be a vehicle for the mobilization, co-ordination, channelling and disbursement of financial resources.

2. Resources of the financing system

112. The Conference agrees that in determining the nature and level of the resources of the financing system, the following considerations should be taken into account:

(a) The asymmetry of the technological capacity between developed and developing countries;

(b) The need for predictability and continuous flow of financial resources;

(c) The need for substantial resources in addition to those that now exist within the United Nations system;

(d) The need for untied external resources for the scientific and technological development of the developing countries.

3. Other financial resources

113. The financing system may enter into arrangements with international, regional and other public and private financial institutions with a view to the generation and channelling of additional resources to the developing countries for scientific and technological activities, including research and development, and the commercialization and acquisition of technology.

114. The resources to be derived from these arrangements should be supplementary to the system's own resources. Such resources could be provided by:

(a) International and regional financial institutions;

(b) Public and private banks of national, regional and international types;

(c) Public and private corporations;

(d) Other public and private financial institutions.

115. Additionally, the system may use other resources, such as:

(a) Resources that may accrue from concrete progress on all measures towards general and complete disarmament, including the urgent implementation of the already agreed disarmament measures;

(b) Resources that may accrue from the proposed "international labour compensatory facility" related to the reverse transfer of technology.

4. Allocation of resources for the interim and long-term arrangements

116. The resources available should be allocated to the various activities identified in this Programme of Action, including national, regional, subregional and interregional activities. In the context of decisions of the General Assembly on interim and long-term arrangements to be taken at its thirty-fourth and thirty-sixth sessions respectively, the Committee will establish guidelines for the allocation and the distribution of resources for the building up of the endogenous scientific and technological capacity of developing countries. These guidelines should be within the framework of the priorities of the developing countries, at the national, regional, subregional and international levels, for implementing in particular different types of projects and programmes of direct relevance to the developing countries, taking into account, inter alia, the need to take special measures to meet the urgent and specific problems of the least developed, land-locked, island and most seriously affected developing countries and the need to overcome poverty and to accelerate the development of the developing countries as well as other criteria to be adopted by the Committee. Additional criteria for the allocation of resources should provide, inter alia, for a part of the resources to be applied to high-risk research and development science and technology projects at the national, regional, subregional and interregional levels and to provide support for the developing countries in obtaining financial resources from other sources.

117. In view of the above considerations, the Conference decides as follows:

Long-term arrangements to start in January 1982

(a) The directing and policy-making body of the financing system for science and technology for development shall be the Intergovernmental Committee on Science and Technology for Development. The Committee should, taking into consideration the results of the study described in subparagraph (b) below, define the guiding principles, the general economic provisions, the forms of operations, and the general procedures for the formulation, submission, consideration and approval of programme and projects. The Committee shall submit to the General Assembly recommendations regarding the appropriate structure for the executive body of the financing system.

(b) The General Assembly should, at its thirty-fourth session, create an intergovernmental group of experts, appointed on the basis of equitable geographical distribution, to undertake with the support of the Director-General for Development and International Economic Co-operation a prompt and thorough study of all relevant arrangements for the operation of a financing system for science and technology for development. The terms of reference for the study would be as follows:

(i) The study would make an assessment of the requirements for additional funding for science and technology activities in developing countries and of potential sources of funding.

(ii) The study would include an inventory of existing multilateral and bilateral programmes for providing financial support for such activities.

(iii) The study would review alternative proposals, including all the proposals put to the Conference by the Group of 77 25/ for generating requisite additional funds for science and technology development activities on a long-term basis and for the disbursement and control of those funds, as well as those for institutional arrangements, and make recommendations thereon.

The study would be submitted to the Committee for its consideration and for making appropriate recommendations which would be presented to the General Assembly at its thirty-sixth session for decision.

Interim arrangements

(c) Pending the establishment of the long-term arrangements for the financing system for science and technology for development an Interim Fund will be created to be sustained by voluntary contributions. The Conference agrees that the target for voluntary contributions for the two-year period 1980 and 1981 should be no less than $250 million. During the interim period, to the extent that such funds are fully committed and taking fully into account the needs of the developing countries, the $250 million figure will be reviewed by the Committee with the aim of raising additional resources for the Interim Fund.

(d) The Interim Fund, which shall be created on an identifiable and separate basis, shall be administered by the United Nations Development Programme under policy guidelines to be established by the General Assembly at its thirty-fourth session and also the guidelines of the Committee when it starts its meetings. The Administrator of the United Nations Development Programme, in consultation with the Director-General for Development and International Economic Co-operation, shall prepare an initial prospectus for the operation of the Interim Fund to be submitted to the General Assembly at its thirty-fourth session for its decision. The Secretary-General is requested to call a pledging conference before the end of 1979. The General Assembly should provide the Administrator of the United Nations Development Programme with the necessary resources for these initial preparatory responsibilities until the Fund is in operation.

118. The Conference agrees that the establishment of interim arrangements should not prejudice the ultimate decisions with regard to long-term arrangements.

25/ A/CONF.81/L.1, paras. A.22, A.38, A.50, A.59, B.26 and C.20 to C.27.

ANNEX I

Issues of the draft Programme of Action on which agreement was not reached at the Conference*

STRENGTHENING THE SCIENTIFIC AND TECHNOLOGICAL CAPACITIES OF THE DEVELOPING COUNTRIES

A. National level

Measures and mechanisms for strengthening the scientific and technological capacities of developing countries

Transfer, acquisition and assessment of technology:

A.10 Further, developing countries should:

(b) Strengthen their capacities to [eliminate or (1)] effectively deal with all restrictive [business (7) and (8)] practices.

A.11 (a) Developing countries should develop the capacity to unpackage technologies to be acquired so as:

(ii) to determine whether some items or services can be internally procured; a/

(iii) to define alternative external sources of procurement and their conditions. a/

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* The passages reproduced in this annex are taken from the draft Programme of Action which was submitted to the Conference by the Preparatory Committee (A/CONF.81/L.1) and from texts in the report of the First Committee on which agreement was not reached.

The sources of texts appearing in square brackets are shown in parentheses, identified as follows:

(1) Group of 77 (other than the basic text)

(2) Canada

(3) European Economic Community (EEC)

(4) German Democratic Republic (on behalf of Bulgaria, the Byelorussian Soviet Socialist Republic, Czechoslovakia, the German Democratic Republic, Hungary, Mongolia, Poland, the Ukrainian Soviet Socialist Republic and the Union of Soviet Socialist Republics)

(5) Japan

(6) Nordic group

(7) Switzerland

(8) United States of America

a/ The United States reserved its position on the inclusion of subparas. (ii) and (iii) under subpara. (a).

A.12. b/ Developing countries should, in accordance with their national policies and priorities, establish and strengthen national mechanisms for the assessment, transfer, acquisition and adaptation of foreign technologies, which could undertake the following tasks:

(a) formulate policy guidelines and regulation on transfer of technology;

(b) establish an integrated system for the selection and assessment of technologies and for the development of a capacity to unpackage technologies to be acquired; c/

(c) (pending - depending on discussions on the confidentiality of information systems);

(d) promote the reorganization of the national legal structures for technology transfer, including the revision where necessary of the national legislation relating to industrial property, to promote domestic innovation;

(e) adopt instruments for regulating and guiding the import of technology, not only in regard to direct and apparent transfers of technology, but also relating to /the technological components of/ d/ technical assistance contracts, engineering services, investment and reinvestment /as well as invisible transactions and transfer pricing between foreign companies and their branches in developing countries: (1) and (4)/;

/(e) adopt measures for regulating and guiding the import of technology not only in respect to its direct transfer but also with respect to technical assistance contracts, engineering services, investment and reinvestment, and other technology transactions. (3)/;

(f) monitor investments, imports, monetary transfer, employment of foreign personnel, research and development in developing country branches of foreign enterprises and their co-operation with local research and development organizations; e/

(g) establish a system for compulsory registration of contracts and other technological transactions with foreign suppliers;

(h) participate in the negotiation of the purchase of technologies for the public sector and advise private enterprises in the acquisition of technology in order to maximize the value of such technology in meeting the economic and social needs of the country, and to avoid inappropriate or unnecessary purchases, excessive expenditures and clauses which may be harmful to national interests;

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b/ The United States, Canada and Switzerland stated that their agreement on para. A.12 was conditioned on the satisfactory negotiation on A.13 and A.13 bis. The EEC associated itself with this remark during discussions in the First Committee.

c/ The United States reserved its position on this subparagraph.

d/ Words within brackets proposed by the United States. The Group of 77 reserved its position with respect to these words.

e/ The United States and Japan reserved their position on this subparagraph.

(i) promote the adaptation and assimilation of technologies and encourage increased utilization of local inputs, particularly national resources and subcontracting;

(j) ensure the application of national standards and quality control requirements;

(k) assess the expected impact of choices of technology, including their social and environmental effects.

A.13. f/ National mechanisms for technology transfer, acquisition and development should be supported by a legal framework that, inter alia:

(a) Defines the national standards of technology transfer transactions;

(b) Lays down the rules governing direct investment, trade practices of technology transfer and industrial property rights;

(c) Promotes and encourages the increasing participation in the development process of national capacities in science and technology.

A.13. bis. /National mechanisms should be supported by a legal framework which promotes a favourable and beneficial climate for technology transfer, acquisition and development. The framework should encourage and facilitate transfer of technology to take place under mutually agreed, fair and reasonable terms and conditions, and should give proper regard to the existing rights and obligations of all parties concerned. Official measures should be consistent with obligations under international law, treaties and agreements; they should be applied equitably, in accordance with fundamental fairness and established procedures of law, and without discrimination. (8)/

/Official measures /should be consistent with obligations under international law, treaties and agreements; they/ should be applied equitably, in accordance with /fundamental fairness and/ established procedures of law /and without discrimination/. (7)/

A.14. g/ Developing countries should establish, as appropriate, machinery to effectively monitor, screen and evaluate imported technology including that from transnational corporations, with a view to ensuring maximization of domestic technological inputs. Such machinery could also ensure that activities of transnational corporations and other enterprises are consistent with the national socio-economic objectives and science and technology policies and ensure their maximum co-operation with developing countries. The objective of such machinery should be such that transnational corporations and other enterprises: h/

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f/ The United States stated that its agreement on para. A.13. was conditioned on the satisfactory negotiation of para. A.13. bis. Switzerland associated itself with this reservation during discussion in the First Committee.

g/ The United States stated that its agreement on para. A.14. was conditioned on the satisfactory negotiation on A.13. bis. and of a general chapeau proposed by the United States to be included in the programme of action.

h/ The EEC reserved its position on the introductory sentences of A.14.

(a) Do not impede but contribute to, the diffusion of technology within the country;

(b) Encourage subsidiaries to carry out research and development in developing countries and associate in this process local science and technology personnel;

(c) Give priority to the use of local raw materials, intermediate products, technology and personnel;

(d) Organize technical training programmes in the countries concerned;

/(e) Make available to the appropriate national entities information pertaining to the results of their research and development activities undertaken in developing countries;/ i/

/(e) Make available to the appropriate national entities general information with regard to the subject of their research and development activities undertaken in developing countries. (7)/

/(e) Disseminate more readily and widely information that is publicly available on the results of their research and development activities undertaken in developing countries. (8)/

(f) Undertake co-operative schemes, including joint ventures with developing countries' enterprises and research and development institutions.

Scientific and technological information systems

A.16. j/ The national scientific and technological information systems should ensure the availability and dissemination of:

(a) information required for development of science and technology;

(b) information regarding the national capacity in science and technology;

(c) information pertaining to foreign sources of technology supply, its terms, conditions and costs of all major factors and components contributing to the use and application of technology, to enable comparative evaluations to be made; k/ l/

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i/ The words in brackets were proposed by the Group of 77. The EEC and Canada reserved their position on the words within brackets.

j/ Reservation by Switzerland, Australia and the United States pending adoption of a satisfactory introductory note covering target areas A and B on the respect of legitimate interests of parties involved.

k/ The United States called for linguistic changes in the text and suggested replacing "contributing to" by "resulting from".

l/ The EEC expressed the wish to reserve its position on subpara. (c) and wished to retain the phrase "while at the same time respecting the legitimate interests of the parties involved".

(d) information pertaining to sources of foreign capital and their conditions;

(e) information pertaining to the national users of science and technology, such as enterprises, farms, co-operatives, trade unions, universities and technical schools.

Financial arrangements:

A.22. The International Science and Technology Development Financing System as proposed in target area C should provide financial resources to supplement national scientific and technological financing capacities.

B. Subregional, regional and interregional levels

Measures and mechanisms for strengthening the scientific and technological capacities of developing countries at subregional, regional and interregional levels

Technology transfer, acquisition and assessment

A.29. The appropriate subregional and regional organizations, including public and private consulting firms, should:

(b) Support and promote concerted actions among developing countries to /remove the present monopolistic control of developed countries on the existing structure of the international technology market (1)/ /strengthen their position in the international technology market, including their capacity to participate in and avail themselves of access to that market; (3) (8)/.

Financial arrangements

A.37. Regional development banks and international financial institutions are urged to reorient their policies so as to encourage the maximum utilization of the regional, subregional and interregional scientific and technological capacities of developing countries. In this context, they should review or modify their criteria for evaluation, appraisal and approval of projects with a view to supporting research and development activities and innovative approaches within developing countries and to consider the provision of risk capital financing. m/

/A.38. The financial arrangements outlined in the present section require the setting up of regional financial mechanisms, which should be considered as essential components of the International Science and Technology Development Financing System, as delineated in target area C./

m/ The Japanese delegation suggested the following words to replace the last three words: "the necessary capital and technical assistance".

C. International level

Role of the developed countries in the process of strengthening the scientific and technological capacities of developing countries

Major elements of scientific and technological co-operation policies

A.42. This approach to international co-operation should translate itself into the adoption of action-oriented measures by developed countries with the following objectives:

(c) To provide substantially increased support to developing countries in enhancing their scientific and technological capacities for the production and marketing of capital goods. n/

Technology transfer and assessment

A.46. To achieve a real process of technology transfer which differs both in content and impact from a mere international dissemination of productive techniques and processes, developed countries should:

(a) Provide /full (1)/ /freest and fullest possible (3)/ access to all types of /available (3)/ technological know-how and to all /available (3)/ technologies /in the public domain and facilitate access by the developing countries, to the extent practicable, to technologies whose transfer is subject to private decision (7)/, not only to the basic and conventional technologies but also to the most complex and advanced, such as nuclear technology for peaceful uses /consistent with the principle of the non-proliferation of nuclear armaments (4)/ micro-electronic technology and space technology, under just and equitable conditions and with due consideration to the development needs of the recipient countries;

(b) /Take measures for the adoption of regulations aimed at preventing technology suppliers from applying restrictive practices on all technology transfers to developing countries; (1)/

/Encourage technology suppliers to refrain from restrictive (8)/ business /practices which would unreasonably restrain trade and adversely affect the international flow of technology, (8)/ particularly such practices as hinder the economic and technological development of developing countries;

(c) Eliminate technical barriers which discriminate against the importation of goods with a technical component exported by developing countries;

(d) /Grant preferential treatment to firms and industries of developing countries in the area of licensing, patent rights and know-how; (1)/

/Assist firms and industries of developing countries to obtain greater information about sources of proprietary knowledge in their countries. (8)/

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n/ Reservations by the United States and the EEC.

(d) bis Support /appropriate/ o/ /, as appropriate,/ p/ measures by developing countries to stimulate and create demand for technologies according to national priorities.

Scientific and technological information systems

A.48. Subject to /national laws and regulations and (2)/ international agreements to which they are signatories, both developed and developing countries should eliminate restrictions on the reproduction and translation of scientific and technical journals and materials.

Financial arrangements

/A.50. An essential requirement to attain the scientific and technological development of developing countries is the setting up of an International Science and Technology Development Financing System./

/A.51. In order to contribute to the strengthening of science and technology capacity in developing countries, developed countries should reorient their financial policies, redeploy resources from the arms race and armament research and participate effectively in international funding arrangements on the basis of economic parameters that reflect adequately the prevailing asymmetry in technological capacities between developed and developing countries./

/A.52. Developed countries should devote on an annual basis 0.05 per cent of their gross national product to the solution of scientific and technological problems of developing countries. They should also devote at least 10 per cent of their research and development expenditure to programmes designed to solve problems of specific interest to developing countries./

Role of international organizations

Financial arrangements

A.59. International financial institutions /should/ /are urged to/:

(a) Establish suitable techniques, methodologies, new practices and instruments for the evaluation of expenditure and budget programming in order to incorporate scientific and technological considerations into the process;

(b) Place increased emphasis on lending for science and technology for development and in that context indicate the order of magnitude for such loans;

/(c) Untie science and technology development finance given to developing countries;/

/(c) bis Envisage financing science and technology for development in such a way that the use of local technologies and services can be maximized;/

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o/ The words within brackets were agreed to by the Group of 77, Switzerland, Canada and Australia.

p/ The words within brackets were agreed to by the United States and the EEC.

(d) Envisage financing local procurement as well as foreign elements for national science and technology projects and ensure that there is adequate provision of funds for building the necessary science and technology infrastructure and for research and development in the related sectors of the developing country concerned;

/(e) Contribute to the International Science and Technology Development Finance System proposed in target area C./

RESTRUCTURING THE EXISTING PATTERN OF INTERNATIONAL SCIENTIFIC AND TECHNOLOGICAL CAPACITIES OF DEVELOPING COUNTRIES

1. Acquisition and transfer of technology

B.1. Developing countries should:

/(d) Endeavour to create over-all conditions conducive to the development and transfer of technologies in accordance with national priorities. (3) (8)/

Action by developed countries

B.2. Developed countries should take adequate specific measures in order:

(a) To provide the freest and fullest /possible (3)/ access by developing countries to /available (3)/ technologies that are essential to their development, including the advanced technologies, as well as to the achievements of modern science and technology;

(b) To /encourage (8)/ /promote (1)/ /ensure (1)/ the supply of technology to developing countries on favourable terms and eliminate /so far as possible (6)/ discriminatory and /unreasonably (3)/ restrictive practices /conditions (7)/;

(c) To provide incentives in accordance with national /policies (3) (8)/ laws and regulations to enterprises that transfer technologies to developing countries on fair and equitable terms and that encourage adaptation and assimilation involving maximum local contributions and thus enhance the autonomous scientific and technological capacities of the recipient country.

B.3. Developed countries should also /upon request (3)/ make available to developing countries /whenever possible (4)/ without charge or for nominal payment, technologies required by developing countries which are publicly owned /or (1)/ /and (8)/ freely available. Where such technologies are made subject to private decisions g/ either by a process of packaging and control of know-how or by any other means, developed countries should /consider requests to (5) (8)/ progressively decommercialize /to the extent practicable and desirable (5) (8)/ such technologies transferred to developing countries. In this regard developed countries should establish /to the extent practicable (3)/ up-to-date registers or similar mechanisms of non-commercial technologies in the public domain to which developing countries would be granted the fullest and freest access.

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g/ The term "private decisions" in this particular context should be officially interpreted in the light of the legal codes of the respective countries.

B.4. Governments of developed countries should co-operate closely with Governments of developing countries in /monitoring (1)/ /and controlling (4) (1)/ the activities of transnational corporations with a view to maximizing the effects of the contributions which transnational corporations can make to strengthening the science and technology capacities of developing countries, while avoiding any negative effects of these corporations. /Developed countries should contribute to the establishment of machinery for this purpose. (1)/ /They should provide appropriate incentives and disincentives to transnational corporations to ensure that their subsidiaries in developing countries conform to the national development objectives, technological policies and regulations of developing countries. (1)/

Action at the international level

B.5. All countries should fully recognize the sovereign right of each State to regulate and exercise authority /and jurisdiction (1)/ /in accordance with national law, treaties and conventions (3) (8)/ over the acquisition of foreign technology.

B.6. Organizations within the United Nations system should play a more active role in informing, advising and assisting developing countries in any region or subregion on all aspects related to the transfer of technology so as to enable them to obtain more favourable terms and conditions. Other international organizations should consider adopting a suitable policy. Measures should *inter alia* be taken:

(a) To strengthen their capacity to provide developing countries with information on alternative sources of technology, on the technical and scientific information contained in patents and on technology transfer agreements and their terms /taking into account the confidentiality which exists between supplier and recipient of technology (3) (5)/ as well as analytical and evaluative data on transactions both between developed countries and between developed and developing countries, including the operations of transnational corporations.

(e) To /establish (1)/ /improve (5)/ /develop (6)/, within the United Nations system, a /technology bank capacity (1)/ /capacity (3)/ through which technologies of special importance to developing countries are acquired and thereafter made available to developing countries under favourable conditions commensurate with their capacities and needs; r/

B.7. All countries should accelerate efforts towards the integration of an international /legal (1)/ /normative (6)/ framework that /guarantees (1)/ /promotes (6)/ a process of equitable transfer of knowledge and the strengthening of the science and technology capacities of developing countries. This includes *inter alia* an early finalization of:

(a) An international code of conduct on the transfer of technology;

(b) A code of conduct on /related to (8)/ transnational corporations;

(c) The revision of the Paris Convention for the Protection of Industrial Property;

r/ Australia and Switzerland reserved their positions with regard to the context and placement of this paragraph.

(d) /The provision of copyrights on more favourable terms to developing countries in the field of science and technology; (1)/

/B.8. Governments of developed countries should take effective measures to ensure that transnational corporations whose headquarters are based in their countries suitably restructure and reorient their science and technology activities in developing countries to be in conformity with the host country's scientific and technological policies and inter alia ensure that they:

(a) Substantially increase research and development activities in their subsidiaries in a manner compatible with the research and development priorities of the host country;

(b) Contribute to the increase of research and development expenditures in developing countries through the full utilization of institutions in developing countries by entering into research and development contracts and similar arrangements;

(c) Provide for greater research and development co-operation between their subsidiaries and the network of national research and development institutions;

(d) Do not enter into technology transfer arrangements that would hinder or limit the economic and technological development of developing countries;

(e) Make available the fullest information to the Governments of host countries on the terms of technology transfer between them and their subsidiaries in an "unpackaged" form;

(f) Make available to the relevant comprehensive information systems of the United Nations all information on the terms of technology transfer to their subsidiaries and to local enterprises;

(g) Enable their subsidiaries to transfer technologies to local enterprises in the host country on favourable terms and conditions;

(h) Fully utilize consultancy, design and engineering organizations of the developing countries in the establishment and execution of projects in those countries;

(i) Co-operate with developing countries in their efforts to establish a "critical mass" of scientific, technological and managerial manpower through the institution of in-plant training facilities, support to national training institutions and the like, and in the establishment and development of consultancy services;

(j) Replace scientists and technologists from developed countries in their subsidiaries by qualified personnel to the maximum extent possible, within an agreed time-frame. (1)/

2. Restructuring of the international scientific and technological information system relevant to the requirements of the developing countries

Action by developing countries

B.9. s/ Developing countries, /in accordance with the rights and obligations of all parties involved/ t/ should take the appropriate measures to stimulate the exchange and effective utilization of information among themselves on:

(a) indigenous technologies and capacities to render technological services;

(b) technology transfer transactions, including /general/ u/ terms and conditions of transfer;

(c) foreign financing and investment;

(d) activities of transnational corporations;

(e) national policies, legislation and practices regarding the transfer of technology;

(f) criteria for the selection of technologies;

(g) contracts, including completed as well as rejected proposals listed in the national registers;

(h) experience in applying transferred technologies;

(i) the results of their science and technology policies and their research programme.

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s/ Reservation by Switzerland, Australia and the United States pending adoption of a satisfactory introductory note covering target areas A and B on the respect of legitimate interests of parties involved. In this respect the following texts were proposed:

By G77 "According to mutually agreed specific obligations in conformity with the national legislation of each developing country, regarding confidentiality of information"

By EEC "Subject to proper concern for rights and obligations including confidentiality of information"

By USA "Measures by all governments, international institutions and other entities taken pursuant to recommendations adopted in this section of action must respect the rights and obligations of all parties concerned under national and international law, treaties and agreements. They should be applied equitably, with fairness and in accordance with established procedures of law, with due regard to the protection of confidential information".

t/ Text proposed by the EEC.

u/ Text proposed by the United States of America, and would be prepared to withdraw it if text of chapeau is accepted.

Establishing of a global and international network

B.11. The international /referral (7)/ information network should be substantially developed within the framework of the United Nations system, so as to collect and provide information that is relevant to developing countries. In developing this international information network, full use should be made of existing specialized information systems, services and programmes, especially those within the United Nations system, avoiding possible duplication. Such a network should include a series of subnetworks in each developing or developed country.

B.14. Taking into account the urgency of the task, the scientific and technological international information network should be developed sequentially and in an evolutionary fashion so as to meet particularly the needs of the developing countries, ensuring the maximum availability of information such as:

(c) Information pertaining to foreign sources of technology supply, its terms, conditions and costs of all major factors and components contributing to the use and application of technology, to enable comparative evaluations to be made; v/ w/ x/

(d) y/ Information on the specific interests and locations of national institutions, experimental farms, enterprises and organizations which use science and technology for development;

3. Promotion of international scientific and technological co-operation for development

Action by developed countries

B.19. (h) In cases where the raw data pertaining to a developing country partner collected in the course of a co-operative project are considered by that developing country partner to be sensitive from its security or economic point of view, the decision to release such data or information should be at the discretion of the developing country partner. Publication of analyses and conclusions should be a joint undertaking. z/

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v/ The United States called for linguistic changes in the text and suggested adding, after the words "conditions and costs", the words "to the users".

w/ The EEC expressed the wish to reserve its position on subpara. (c), and wished to retain the phrase "while at the same time respecting the legitimate interests of the parties involved".

x/ Switzerland called for some changes, as the United States of America, and suggested replacing the words "contributing to" by "resulting from", and, if accepted, would withdraw the word "/referral/" in para. B.11.

y/ The United States reserved its position subject to the adoption of an introductory sentence on confidentiality.

z/ The United States suggested the addition of the following words at the end of the subparagraph: "except by prior agreement". Otherwise it reserved its position on the subparagraph.

4. Institutional arrangements to implement the structural transformations to be effected in international scientific and technological co-operation

National level

B.22. To ensure that agreements concluded at the international level materialize into concrete results, implementation of these should be conducted /and aa//
/or bb// cc/ supported by institutional arrangements rooted at the national level, which are capable of implementing the structural transformations and decisions agreed upon during the Conference.

International level

/B.24. The steps taken so far at the international level, and particularly within the United Nations system, to overcome the inadequacies of the system, have not placed sufficient emphasis on science and technology for development and their role as crucial factors in the development of developing countries. Therefore in order to reinforce national efforts for accelerating the scientific and technological development of the developing countries, there is a need for an institutional arrangement within the United Nations system with the following elements:

(a) A high-level intergovernmental body open to membership by all States;

(b) Appropriate secretariat support;

(c) A financing mechanism or system with the necessary resources (1)/

/B.25. Through their own national and collective efforts as well as those of the international community as a whole, the developing countries should attain by the year 2000 the goal of carrying out 20 per cent of the world research and development. The Intergovernmental Committee referred to below shall establish programmes of consultation involving all States with a view to the drawing up of contrete measures for the achievement of this goal. (1)/

5. Global financial arrangements

B.26. /It is necessary to have an effective financial mechanism or system to assist in the implementation of the measures recommended in this action programme, including regional and subregional projects. This mechanism or system should have the following characteristics:

(a) It should be used for the strengthening of scientific and technological capacities of developing countries, including the acquisition of technology;

(b) It should mobilize and channel all types of financial resources, particularly from developed countries;

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aa/ Proposed by G77.

bb/ Proposed by other parties.

cc/ Both proposals are acceptable to Eastern European Countries.

(c) Its resources should be substantial and supplementary to the resources that now exist, and furnished on a predictable, automatic and continuous basis;

(d) The volume of its financial resources should be sufficient to contribute effectively to the implementation of the measures contemplated in the Programme of Action. An initial target must be determined;

(e) It should be set up within the United Nations system, in such a way as to be duly co-ordinated with the competent organs of that system, and independent in its operation;

(f) The developing countries should be enabled to participate fully in its operation. (1)/

ANNEX II

Texts proposed by the Chairman of the First Committee on some of the issues in annex I for addition to the Vienna Programme of Action

1. As indicated in paragraph 127 of the report, the paragraphs reproduced in this annex were read out by the Chairman of the First Committee at the 16th plenary meeting of the Conference as reflecting the outcome of consultations in an informal contact group. The Conference agreed that the text of these paragraphs should be annexed to this report in order that they might receive further consideration, if it was felt desirable, in the context of future consultations. The paragraphs are based on the draft Programme of Action submitted to the Conference by the Preparatory Committee (A/CONF.81/L.1) and on the annex to the report of the First Committee (A/CONF.81/12/Add.1 and 2). The numbering of the paragraphs reproduced below follows that of the corresponding paragraphs in annex I:

TARGET AREA A

A.22. The financing system for Science and Technology for Development as recommended in target area C should provide financial resources to supplement national scientific and technological financing capacities.

A.29. (b) Support and promote concerted actions among developing countries to remove any monopolistic control over the existing structure of the international technology market and to strengthen their position in the international technology market, including their capacity to participate in and avail themselves of access to that market.

A.38. Regional financial mechanisms should be considered as important complements to the funding mechanism recommended under target area C of this Programme of Action.

A.42. (c) To provide substantially increased support to developing countries in enhancing their scientific and technological capacities for the production and marketing of capital goods, when in accordance with national development policies.

A.48. Subject to national laws and regulations and international agreements to which they are signatories, both developed and developing countries should eliminate restrictions on the reproduction and translation of scientific and technical journals and materials.

A.50. An essential requirement to attain the scientific and technological development of developing countries is the establishment of a financing system for Science and Technology for Development.

A.51. In order to contribute to the strengthening of science and technology capacity in developing countries, developed countries should review and modify their financial policies to participate effectively in financial arrangements including those recommended under target area C so as to adjust the asymmetry in technological capacities between developed and developing countries.

A.51. bis Consideration should be given, particularly by the developed countries, to the redeployment of the resources devoted to armaments and military research, *inter alia*, to the scientific and technological programmes for the development of developing countries.

A.59. International financial institutions are urged to:

(a) Establish suitable techniques, methodologies, new practices and instruments for the evaluation of expenditure and budget programming in order to incorporate scientific and technological considerations into the process;

(b) Place increased emphasis on lending for science and technology for development and in that context indicate the order of magnitude for such loans;

(c) Untie science and technology development finance given to developing countries in such a way that the use of technological capacity and services of the recipient country can be maximized;

(d) Envisage financing local procurement as well as foreign elements for national science and technology projects and ensure that there is adequate provision of funds for building the necessary science and technology infrastructure and for research and development in the related sectors of the developing country concerned;

(e) Contribute to the financing system for Science and Technology for Development proposed in target area C.

TARGET AREA B

B.1. (d) Endeavour to create conditions for the development and transfer of technologies in accordance with national priorities.

B.6. (a) To strengthen their capacity to provide developing countries with information on alternative sources of technology, on the technical and scientific information contained in patents and on technology transfer agreements and their terms as well as analytical and evaluative data on transactions both between developed countries and between developed and developing countries, including the operations of transnational corporations.

(e) To develop, within the United Nations system, a capacity through which technologies of special importance to developing countries are acquired and thereafter made available to developing countries under favourable conditions commensurate with their capacities and needs.

B.9. Developing countries should take the appropriate measures to stimulate the exchange and effective utilization of information among themselves on:

(a) indigenous technologies and capacities to render technological services;

(b) technology transfer transactions, including terms and conditions of transfer;

(c) foreign financing and investment;

(d) activities of transnational corporations;

(e) national policies, legislation and practices regarding the transfer of technology;

(f) criteria for the selection of technologies;

(g) contracts, including completed as well as rejected proposals listed in the national registers;

(h) experience in applying transferred technologies;

(i) the results of their science and technology policies and their research programme.

B.19. (h) In cases where the raw data pertaining to a developing country partner collected in the course of a co-operative project are considered by that developing country partner to be sensitive from its security or economic point of view, the decision to release such data or information should be at the discretion of the developing country partner. Prior agreement between the parties should define the conditions of publications of analyses and conclusions should be a joint undertaking.

B.22. To ensure that agreements concluded at the international level materialize into concrete results, implementation of these should be conducted and/or supported by institutional arrangements rooted at the national level, which are capable of implementing the structural transformations and decisions agreed upon during the Conference.

B.24. The steps taken so far at the international level, and particularly within the United Nations system, to improve the effectiveness of the system, have not placed sufficient emphasis on the use of science and technology for development and their role as crucial factors in the development of developing countries. Therefore, in order to reinforce national efforts for accelerating the scientific and technological development of the developing countries, it is recommended that there be an institutional arrangement within the United Nations system with the following elements as elaborated in target area C:

(a) a high-level intergovernmental commiteee;

(b) appropriate secretariat support;

(c) a financing system with the necessary resources.

B.26. It is necessary to have an effective financing system to assist in the implementation of the measures recommended in the Programme of Action, including national, regional, subregional and interregional activities. This system should have the characteristics described in target area C, paragraphs C.21, C.22, C.23, C.24, C.25, C.26 and C.27.

2. The Chairman of the First Committee also read out the following proposed amendments which might be included in the Preamble of the Programme of Action:

PREAMBLE

5 bis (f) ter. The strengthening of programmes to develop the human resource capabilities of developing countries at the national and international levels.

7. Peace, security and national independence are important factors for ensuring the effective utilization and further development of science and technology for all countries and, in particular, for the developing countries. There should be concrete progress towards general and complete disarmament, including the urgent implementation of disarmament measures, which would release substantial resources that can be mobilized for accelerating the development of developing countries.

7 bis. Various agencies of the United Nations system deal with science and technology and capacity building measures. Viewed as a whole, however, all levels of the United Nations system need better sources of advice concerning science and technology and improved co-ordination as well as improved scientific and technological programmes. More effort is needed to strengthen the role of United Nations activities in the field of science and technology, as well as the role of non-governmental organizations.

8. Scientific and technological development should pay due attention to the need to solve global problems affecting all countries, to protect and develop the resources of the biosphere, as well as to the rational exploitation and consumption of natural resources, taking into account the special requirements of developing countries and the sovereign rights of each State to manage its own natural resources, having in mind that at the centre of the process of development the principal actor and final beneficiary is the human being.

3. Finally the Chairman of the First Committee read out the following proposed amendments which might be included in the introduction to sections I and II of the Programme of Action:

Introduction to Target Area A

1. For well known historical reasons, the generation of knowledge in recent centuries has been predominantly concentrated in a few geographical centres. The diffusion of technological knowledge from these centres to the developing world has been limited. The participation of the developing countries in the production of knowledge has been seriously impeded. There is a situation of over-all predominance by developed countries and their enterprises and of dependency of developing countries in the field of science and technology.

3. The technological transformation of developing countries requires a greatly strengthened capacity for autonomous decision-making on the choice and use of technologies most relevant to the country's economic and social needs. This process requires an increasing scientific and technological capacity to create, innovate and select technologies, exercising their right to control the acquisition and utilization of foreign technologies.

ANNEX III

Statements made by certain delegations at the closing plenary meeting of the Conference*

A. Statement by the representative of Poland on behalf of the delegations of the Byelorussian Soviet Socialist Republic, Bulgaria, Czechoslovakia, the German Democratic Republic, Hungary, Mongolia, Poland, the Ukrainian Soviet Socialist Republic and the Union of Soviet Socialist Republics

/Original: Russian/

1. The delegations of these countries are pleased to note that, as a result of joint efforts, delegations have been able to complete their consideration of the complex and at times contradictory questions before the Conference and, in a spirit of mutual understanding, to arrive at the decisions that are adopted by consensus.

2. Our States attach great importance to this Conference, which will doubtless facilitate the strengthening of international co-operation in the resolution of the problems associated with the development of science and technology in all countries and, above all, in the developing countries. The Conference will help to win broader recognition for the fact that, in present-day conditions, science and technology have become decisive factors contributing to social development, as well as a powerful means of transforming the world and radically restructuring the system of international economic relations on a democratic and just basis. The general recognition of the need for the more active and purposeful development of the developing countries' own scientific and technological potential is an important development. Our States have always adhered to this principle and, in order to ensure the more effective use of science and technology, continue as in the past to provide the developing countries with comprehensive assistance both on a bilateral basis and through their active participation in multilateral efforts, primarily within the framework of the United Nations.

3. General and complete disarmament is an important factor in the further development of science and technology and the successful resolution of the global problems facing mankind. Progress in the field of disarmament would also have an extremely beneficial effect on the situation in developing countries, since the substantial resources that would be released as a result of disarmament could be used to provide developing countries with assistance in their scientific development. Détente, peace and the security of peoples are essential pre-conditions for truly broad and effective international co-operation.

4. Our countries' delegations have contributed actively to the positive results achieved at the Conference. In accordance with their position of principle, they are prepared to work actively towards the implementation of the progressive provisions of the Programme of Action adopted at the Conference, provisions directed towards the strengthening of the scientific and technological potential of developing countries. At the same time, we would like to state the following:

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* Reproduced in accordance with a decision taken by the Conference at its 16th plenary meeting (see para. 146).

(a) The organizational measures recommended by the Conference consist largely of the establishment of a new Intergovernmental Committee on Science and Technology for Development. We consider that the methods used to deal with such organizational questions must be fully consistent with the Charter of the United Nations and must take due account of the role of the Economic and Social Council within the system of United Nations bodies concerned with economic questions, since scientific and technological progress is an integral part of social and economic development. No organizational decision leading to the disruption of these interrelated processes can contribute to the effective resolution of the problems facing the United Nations in this field. In this connexion, our countries consider that, at this stage, it would be better to enlarge the terms of reference of the existing Economic and Social Council Committee on Science and Technology for Development so that genuinely sound and effective organizational solutions can be worked out on the basis of the Committee's experience.

(b) In considering questions concerning the organization of the relevant Secretariat unit, the underlying principle should, in our opinion, be that organizational measures must be based not on budget increases or additions to the existing United Nations staff but on the effective utilization of existing means and resources and the elimination of parallelism and duplication in the work of the United Nations Secretariat.

(c) In future work on questions concerning the financing of measures related to United Nations activities in the field of science and technology, a careful and thorough analysis should be made of existing methods and sources of finance in order to ensure their more effective utilization and, in seeking additional sources, the principle of voluntary financing should be strictly adhered to.

5. The delegations of the aforementioned countries express their firm conviction that the broad exchange of views that took place during the Conference and a sober and realistic approach to the implementation of the decisions taken will benefit international co-operation in the field of science and technology for development.

B. Statement by the representative of Ireland on behalf of the delegations of the States members of the European Economic Community

/Original: English/

1. On behalf of the member States of the European Communities, I should like to join with the other speakers in expressing our thanks and appreciation at the successful organization and outcome of this Conference. Our thanks and appreciation are extended first to the President of the Conference and to the host country, Austria, which has provided such magnificent facilities for the Conference. We are equally grateful for and appreciative of the spirit of constructive co-operation and goodwill which has marked the contributions of all delegations to the Conference. We should like also to express our special thanks and congratulations to the United Nations Secretariat which, with its tireless efficiency, made the happy results of this Conference possible.

2. The nine member States of the European Communities are happy to participate in the adoption here today of the Vienna Programme of Action on Science and Technology for Development. The programme is an important step forward in improving the flow of information and resources from developed to developing countries in the sphere of science and technology. The Conference has accepted a number of important principles on the strengthening of the scientific and technological capacity of developing countries. It has recalled the need and adopted principles for an international information network for the benefit of developing countries.

3. We are pleased that the Working Group on Science and Technology and the Future clearly identified some of the immediate problems of developing societies and also stressed the need to define appropriate programmes to be initiated soon as well as indicating some of the scientific fields in which these programmes could be acted upon.

4. I think the striking thing that has been achieved in the agreed recommendations of this Conference is that they provide a new focus and direction for world policies in enlarging and expanding the contribution of science and technology for development. The fact that these far-reaching recommendations were reached in a Conference which was a relatively short one underlines not only the careful preparation that went into it but the generally-recognized need that recommendations such as we have arrived at were urgently required.

5. I should now like to place on record a few points on behalf of some individual States, members of the European Communities:

(a) Belgium, the Federal Republic of Germany, France, Ireland, Luxembourg and the United Kingdom wish to state that nothing to which they have agreed in the final decisions of this Conference should be taken to prejudge positions on the outcome of the study on the financing system for science and technology for development and on the arrangements and decisions to be made afterwards. They maintain their well-known reservation on the efficacy of any sectoral fund for science and technology for development. In the interest of achieving a consensus they have not opposed the arrangements for an interim fund, once it was established that the contributions would be on a voluntary basis.

(b) France also states that it must be very clear that the United Nations Development Programme will continue to ~~finance~~ from its own resources actions in the field of science and technology for development. France accepts the prospect of the setting-up of a "financing system", the terms "financing system" expressing, in its view, the mobilization of resources in order to group together all existing or future financial facilities.

(c) Denmark, Italy and the United Kingdom regret that it has not been possible for the Conference to reach consensus on matters that they consider as particularly relevant for the full implementation of the Action Programme, such as the transfer of technology and the role that the transnational corporations can play in the field of science and technology for development.

C. Statement by the representative of the United States of America

/Original: English/

1. We are pleased that the United Nations Conference on Science and Technology for Development has adopted the Programme of Action by consensus. The Conference

opened 11 days ago amidst dire warnings that it would fail, and that it would contribute little to establishing new and effective ways for science and technology to address the great global imbalances of our times.

2. None the less, to the satisfaction of all of us, the Conference has just concluded with the clear promise of a new beginning. There is significant agreement among us, both on the principal goals of science and technology for development and on major new measures for achieving them.

3. Much remains to be done, but the Conference has good reason to feel encouraged. Agreement was reached on the following important measures:

(a) An Intergovernmental Committee was created - in effect a new world forum. Henceforth, all nations will have a voice in formulating policies and plans for the use of new resources in the area of science and technology for development.

(b) An Interim Fund was created, pending the arrangements for the financial system, which will be managed by the United Nations Development Programme, with a target for voluntary contributions, over a two-year period, of not less than $250 million.

(c) Moreover, the Conference has reached agreement on a Programme of Action to enhance scientific and technological capacity in the developing countries, and to improve international information flows and the commercial transfer of science and technology. Differences of view still remain, but the mutual understanding of these issues has been expanded, and this should facilitate further discussion of the unresolved issues in the months ahead.

4. Of equal importance is the agreement reached on the three priority goals which our new-found co-operation should advance:

(a) Overcoming the worst aspects of poverty;

(b) Solution of global problems affecting most, if not all nations - food, energy, health, overharvesting of seas and forests, and the general impairment of our human environment;

(c) The progress of developing countries towards self-reliant growth.

5. The Conference dared to raise difficult questions and contentious issues. It did not shirk its responsibilities. The Conference faced the issues placed before it, discussed them for long hours and now should take some satisfaction in the results of its work.

6. The Chinese have a proverb: every journey of a thousand miles requires a first step. We have taken that first step, to overcome the worst aspects of poverty, and to create a better world for human kind by the year 2000. The two years of preparatory work by Governments and the scientific and educational communities provided the essential road map for our journey.

7. Working together, we have achieved a momentum which must be sustained through the 1980s and beyond, for the problems we have addressed are not susceptible to quick technological fixes, but require sustained planning and continuing effort.

8. President Carter pledged at the beginning of this Conference the willingness of the United States to support all practical endeavours to overcome the endemic problems of food scarcity, the energy crisis, the population explosion, and the lack of adequate health care; the United States will work with others to fulfil that pledge.

9. Let us never forget that it is a pledge we make to each other, as brothers and sisters on a small planet we share. Let us not give way to either discouragement or cynicism. Let us rather rejoice at what we have begun, take courage at what there is yet to do and looking back some future day at what we have launched here in Vienna, may we say in heartful fellowship together: We were present at the new creation. and we watched and worked for the emergence of a better world.

D. Statement by the representative of Japan

/Original: English/

1. First of all, I pay my warmest tribute to the President of the Conference and to the Government of Austria for all the efforts which have led this Conference to a successful conclusion with the adoption of the Vienna Programme of Action.

2. I should also like to express the deepest appreciation of my delegation to all the scientists, technologists, government officials and representatives of international organizations and non-governmental organizations who have contributed to the success of this Conference. Our thanks should also be addressed to the members of the United Nations Secretariat.

3. Now that the Programme of Action has been formulated and adopted, it is incumbent upon all the participants and all the member countries to unite their efforts in order to translate what is envisaged in the Programme into reality. Japan, for its part, is determined to take an active part in this joint effort through the forum of the General Assembly and its new Intergovernmental Committee as well as through continuous actions in the field. I wish to note that there is a need for increased efforts to resolve many issues which still remain open at the close of this Conference, and I trust that these issues will be resolved with greater awareness of mutual responsibility and sincere co-operation.

4. As to the consensus reached, the Government of Japan will make decisions taking fully into account all the views expressed in the course of the deliberations during the Conference and further developments in the North-South dialogue. We also recognize the need for additional resources to support the self-reliant efforts of the developing countries to strengthen their autonomous and endogenous capabilities in the field of science and technology, and we shall continue to increase our co-operation to support their efforts through bilateral and multilateral channels, by weighing and balancing all the considerations that have a bearing on the optimum allocation of resources.

5. As to the question of absorptive capacity which was discussed at length at this Conference, I would like to stress the conviction of my delegation that much greater efforts should be made to facilitate the creation and development of the absorptive capacity of particularly the least developed among developing countries.

6. Finally, my delegation wishes to express its regret that two paragraphs we proposed in the First Committee document A/CONF.81/C.1/L.12 for inclusion in the preamble were not incorporated as the Committee was unable to give full consideration to our proposal for lack of time. In the various forums where the elements of the Programme of Action will be taken up, we shall further pursue our proposal on the important principles relating to the respect for international obligations, the protection of confidentiality of information, and non-discrimination.

E. Statement by the representative of Switzerland

/Original: French/

1. The principles adopted and the guidelines approved, which together form the Vienna Programme of Action, will encourage the Swiss authorities to continue and strengthen their co-operation in the scientific and technological development of the developing countries at both the bilateral and the multilateral levels, particularly through the United Nations Development Programme and the regional banks.

2. As our statement during the general debate made clear, Switzerland is prepared to bear its share of increased financing for international co-operation activities aimed at the scientific and technological development of the developing countries.

3. This means that it is gratified by the adoption by consensus of the Programme of Action, particularly section III. It also means that Switzerland intends to participate in the Pledging Conference the convening of which is envisaged in the Programme of Action.

4. Switzerland is also prepared to play a positive role in the institutional support bodies.

5. Switzerland intends to join in the common endeavour to facilitate the access of developing countries to the sources of information necessary for their development. Its authorities accept the principle of a phased development of information networks so that they may gradually embrace the results of basic research and incorporate the available, i.e., non-confidential, results of applied research.

6. The Swiss delegation considers that the discussion at this Conference of the contribution of transnational companies and of transfers of technology has led to a better understanding of the positions of individual countries and groups of countries. It takes the view that consideration of the proposals made by each of them could be useful during the continued negotiations within bodies mandated for that purpose. Switzerland intends to continue to participate in a spirit of co-operation in the international effort to accommodate equitably all the national interests involved.

7. The Swiss delegation has participated very painstakingly in the work of the Vienna Conference. It did so because it considers that science and technology are essential factors for the progress of mankind and the development of third-world countries and also because the problems raised call for international support action of a kind that will bring about a real strengthening of the scientific and technological capacity of the developing countries.

8. The Swiss delegation hopes that the follow-up to this important world conference will make a positive contribution to the successful continuation of its North-South dialogue and the building of a more equitable world.

9. In conclusion, may I repeat our thanks to the Austrian authorities for their impressive hospitality.

F. Statement by the representative of China

/Original: Chinese/

1. The Conference is drawing to a close. The Chinese delegation thinks this Conference is one which has achieved certain positive results. We have drawn up at this Conference, after untiring and persistent efforts by the Group of 77 and with co-operation on the part of the other groups, a Programme of Action conducive to the strengthening of the developing countries' capabilities in science and technology and to international co-operation in science and technology. We have exchanged experience among various countries in the field of using scientific and technological capabilities to promote development and increased the understanding and friendship among the scientists and peoples of various countries. Although this Conference has not fully met the reasonable demands of the developing countries, it has nevertheless laid a good foundation for future work.

2. All these achievements are due largely to the wise and excellent leadership of the President of the Conference. We wish to express also our gratitude and appreciation, in particular, to the Government of the host country, Austria, and its people for their valuable contributions made to this Conference. We would also like to express our thanks to Mr. da Costa, the Secretary-General of the Conference, and all the staff of the Secretariat for their satisfactory service.

3. The Chinese delegation would like to take this opportunity to state briefly its views on certain points.

4. The Chinese delegation thinks that the Programme of Action adopted by the Conference basically expresses the reasonable demands of the developing countries and will play an active part in promoting world economic development and social progress.

5. We are pleased to note that, as regards the establishment of a high level Intergovernmental Committee and a financial funding system, the views of the majority of the countries have drawn closer and agreement has been reached in principle, which in our view is a positive outcome of this Conference. The Chinese delegation is willing to make positive contributions to the implementation of the reasonable recommendations contained in the Programme of Action. However, it has to be stated that, to our regret, some reasonable proposals put forward by the developing countries regarding many aspects are not reflected in the Programme of Action, and this is a defect.

6. On the questions of maintenance of world peace, China shares the aspiration of the majority of the countries of the world. We think that in the world today, in order to maintain or defend world peace, it is imperative to oppose resolutely big and small hegemonism which is leading all over the world to aggression, interference, subversion and control. We must oppose the tricks of sham détente and sham disarmament. The Chinese delegation, like the majority of the other delegations, has come to this conference with a constructive attitude. However, a small number of delegations at this Conference have hurled slanders and attacks on China. We categorically reject these unfounded accusations. The position of the Chinese Government is known to all; we will not repeat it here.

G. Statement by the representative of Tunisia on behalf of States members of the Group of 77

/Original: French/

1. Madam Chairman, allow me first of all to congratulate you on behalf of the Group of 77, to thank you for the manner in which you have guided the work of our Conference and to thank your colleagues, the officers of the Conference. I also wish, on behalf of the Group of 77, to thank the Secretary-General of the Conference for the help he gave us not only in the preparatory phase of the Conference but also, above all, throughout our deliberations here in Vienna. His dedication and his familiarity with the problems discussed certainly helped to facilitate the work of the delegations here present.

2. The Group of 77 has not, of course yet made a detailed evaluation of the results of the Vienna Conference, which is about to end. I shall therefore not try to make such an evaluation. We are, however, all aware of the fact that on a number of matters - some of them important - significant results were attained, unquestionable and favourable results. Among them I might mention certain matters involving strengthening the activities of the United Nations system in the sphere of science and technology. I might also mention a number of measures and recommendations included in sections I and II of the Programme of Action.

3. We, as members of the Group of 77, tried to go farther. We approached this Conference in a constructive spirit and in the hope of reaching results that would honour the United Nations and all mankind. I shall not say that we are disappointed, because we are not. But we certainly do regret that, on a great many basic issues which were included in the draft submitted by the Group of 77, we were not able to go as far as we wanted. The reservations and interpretations that have been entered here, before I began to speak, concerning certain recommendations, particularly those concerning section III of the Programme of Action, are a source of even deeper regret. We hope that these reservations and interpretations are not intended to render the few positive results attained meaningless.

4. In our view, the recommendations in section III, particularly those concerning institutions and financing, are clear and should not be subject to interpretation.

5. Here at Vienna we have taken an important step on the way towards helping the developing countries to strengthen their scientific and technological capacity. We are very happy that this step has been taken, but much remains to be done. We hope that the forthcoming negotiation phases will enable us to make further progress. The Group of 77, for its part, promises all its partners that it will do its utmost to make the forthcoming phases a success. That, however, will not depend on it alone: it will depend on good will of all, and it is on this note that I shall finish my statement.

ANNEX IV

Science and Technology and the Future

Text adopted by the Conference on the recommendation of the Working Group on Science and Technology and the Future

1. Scientific and technological development must operate within the larger framework of the over-all national and international development processes and interact reciprocally with them. Science and technology are capable of yielding fruits beneficial to humanity. In fact, developments in science and technology have made an important contribution to raising the quality of life and they provide powerful tools to overcome the worst aspects of poverty and dependence in all countries. The challenge now is to reorient scientific and technological development and the infrastructure in which it operates and redress the present imbalances within and between societies. They do not by themselves provide a panacea for all the problems of humanity. Science policy should be mainly linked with and geared towards long-term objectives, whereas technology policy should lay stress primarily on short- and medium-term planning and, in general, should focus on strategic sectors. Technology policy must also have long-term stable elements relating to self-reliance.

2. The application of science and technology in solving the immediate problems of developing societies requires the identification of goals, their quantification where possible, a link with the development planning process, and a time frame for their attainment. These goals include:

(a) Overcoming poverty and seeking ways to reduce the disparities that exist between developed and developing societies in, for example, life expectancy, infant mortality and education, hence the need to define appropriate programmes which might be initiated as soon as possible;

(b) Significantly improving ways of mobilizing resources for the solution of the global problems caused by:

(i) increasing stress being placed on life-supporting eco-systems and the environment in which life exists;

(ii) pressures placed on the development of natural resources and their better utilization, taking into account inter alia opportunities which exist for minimizing waste, maximizing recycling opportunities, and adjusting consumption patterns throughout the world especially in developed countries in order to release increased resources. Developing countries have to carry out their own studies of global problems so as to bring their own perspectives to bear on the world problematique.

(c) Attaining a more effective and equitable sharing of and participation in technological advances in a world of technological progress and shifting comparative advantages, and ensuring a just distribution of the benefits, so as to emphasize self-reliance, and public participation in scientific and technological planning, thus ushering in a new era of science and technology and contributing to the establishment of the New International Economic Order;

(d) The sharing, exchange and dissemination of information on science and technology through a series of networks at national, subregional, regional and international levels.

3. In the context of reaching these goals, one of the must urgent questions is disarmament and further enhancement of world peace. The abolition of foreign economic, political and technological domination was also mentioned. Humanity must face up to the problems associated with major expenditures on armaments and the tremendous scope which exists for improving the lot of human beings. With the progressive achievement of the goals of disarmament, the resources so released can be redeployed for supporting the further development of science and technology in the whole world and in particular in the developing countries. More effort should be given to analysing in what ways research and technical application now directed towards war use could be adjusted for peaceful applications.

4. Of paramount importance to all nations is the need to recognize that a fundamental element in the achievement of national goals in social and economic development, global justice and international co-operation at all levels is the strengthening of scientific and technological capabilities of developing countries. It is also essential that developing countries should have access to all technologies needed to build up capabilities which permit them to maximize such productive potential as is offered by their own resources. Another element should be the restructuring of international scientific and technological relations so as to encourage build-up of scientific and technological capabilities in developing countries, improve international scientific and technological communication and encourage additional international collaborative research and development efforts.

5. In order to achieve this, at the international level, there is equally a need to improve and strengthen the international scientific and technological structure and the role of international intergovernmental organizations in such a way as to permit such organizations to act as effective instruments in satisfying the priority objectives of Member States. In addition to accomplishment of the special procedures for the technology transfer, it is necessary to draw attention to the opportunities and possibilities of creation of international technology coming out of international collaboration being open to all countries. In this regard, it is necessary to create international projects for technology.

6. Science and technology are ever changing and evolving and must be consistent with national aspirations and objectives; be sensitive to the changing needs of the under-privileged; and embrace intellectual integrity and social justice.

7. Scientists in all disciplines, including social scientists, should consider, in their work, the implications of science and technology for cultural values and traditions. The development problems facing developing countries are such that they cannot be solved by the scientists in the developing countries alone. Their solution requires the involvement of scientists and technologists in all countries. In this context, scientists in developed countries have a special responsibility. They should be encouraged and helped by their Governments to take

a more active interest in solving problems in developing countries, and to work alongside their colleagues in these countries in order to gain a greater understanding of the conditions which exist in those countries and their problems. Exchanges of scientists and technologists between developed and developing countries should be encouraged and facilitated. Mechanisms for communication must also be established at the governmental and non-governmental levels among researchers working on similar problems in different developing countries and between scientists working in developing and developed countries. Informal communications between scientists based on mutual interest are also among the powerful instruments which can be used to help in problem solving. These mechanisms should be provided with the necessary material and intellectual support. The world community of scientists has already made a beginning in this regard and some voluntary assistance has been provided, although on far too small a scale.

8. In order to build up a cadre of scientists and technologists, Governments of developing countries should create good work environments and provide conditions of work that are conducive to the training and retention of their scientists and technologists. The brain drain of the most skilful scientists and technologists from the developing countries creates a serious obstacle in their own scientific and technological development, and hence developed countries should also assist by actively discouraging the brain drain from developing countries. In this context, there is an urgent need for a dialogue between developed countries and developing countries so as to work out the complex of measures at both national and international levels to deal with this problem effectively.

9. This can be achieved in part by Governments in developing countries providing support for existing and new centres of excellence dedicated to both basic research and applied research of relevance to their societies. Science, in effect, is part of the cultural heritage of humanity, to which all scientists, men and women, must contribute in a creative way. Problem-oriented research is not limited to applied research. An effective policy of problem-oriented research should also embrace the promotion of basic science in this context. Since the development problem has a complex structure and the problem areas do not coincide with the traditional separation in scientific discipline, a multidisciplinary or multisectoral approach is required. These contribute powerfully to the formation of the social-cultural environment necessary to raise the status of applied and development research. For this reason, basic research without overlooking technological support is an integral part of the strategies leading to independence and self-reliance of nations.

10. In this respect, special attention must be given to the role of the universities and research institutes as major centres of intellectual activity. The human resource potential in science and technology available in the universities and research institutes needs to be fully mobilized in the developing countries so as to provide an immediately available framework for increasing research and development activity relevant to the needs of their countries. The multiplier effect of these institutions and the opportunity for multidisciplinary approaches should be fully exploited.

11. Science which produces knowledge by individual and collective creativity is the common heritage of humanity and a key to humanity's common destiny. The view was also expressed by many delegates that technology which often flows from scientific discovery is a common heritage of humanity. Developing countries need

the whole range of technologies, from the simple ones to the most sophisticated, adapted to their local social, economic and environmental situations when necessary. In this context the mechanisms for the fair transfer of technology need to be emphasized as much as the appropriateness of the technology itself. Scientific and technological findings often lie dormant without being used, mainly for reasons having their origins in the social, economic and cultural structure. It is important that such barriers be eliminated wherever possible. It is also important that technological innovations be introduced in such a way as to minimize negative social, cultural and environmental impacts.

12. Science, technology and social values are very much intertwined. Confidence in the future, the generation of mutual understanding between peoples, and a wish to anticipate and plan for the future are essential elements of any culture and civilization. Another essential element, and in fact a nation's ultimate asset, is its people, who are capable of generating, adapting, understanding and applying technology and other information in order to advance and achieve economic growth.

13. Of supreme importance is the quality of leadership and its ability to set priorities in accordance with national objectives, for instance promoting innovation, encouraging enterprise, etc. Every effort should also be made to establish mutual confidence and understanding between scientists and technologists on the one hand and all levels of planners and decision-makers on the other. Scientists and technologists should also be involved at the highest level in science and technology planning and decision-making.

14. The utilization of science and particularly technology by developing countries is basically concerned with three main aspects:

(a) The application of already existing knowledge, much of it falling within the public domain;

(b) The development and introduction of science and technology in developing countries themselves in order to reduce the imbalance which exists in the research and development (R and D) efforts between developing and developed countries; and

(c) The solution of the pressing problems which are becoming increasingly difficult to solve on the basis of conventional methods.

15. As concerns R and D activities in developing countries, every effort should be made by the world community to raise the level of these activities from the present very low level to a substantially increased level. It was the considered view of many delegations that a more quantitative goal should be set and they felt that this should be of the order of 20 to 25 per cent of global world research and development expenditure by the year 2000.

16. The fulfilment of these objectives should seek to remove the obstacles that have characterized the scientific and technological activities in developing countries. Thus, it is necessary to attain self-reliance and to move away from the present overwhelming dependence in many countries on the technical knowledge that is generated exclusively in the developed countries. To this end, linkages must be fashioned to ensure that the "scientific and technical knowledge generating system" responds to the needs of the productive sectors and also that new types of productive activity can develop under the stimulus of these local research and development activities.

17. There are other dimensions of the challenge in building indigenous capabilities:

(a) An essential underpinning - and a parallel demand as well - is the massive expansion of the educational system in order to provide access to primary, secondary, technical and higher education to most, if not all, the populations, male and female equally;

(b) Professional training must include the acquisition of manual and mechanical skills and be complemented by the training of an adequate number of supporting personnel;

(c) Attention must be paid to the development of infrastructural services, for example in the field of standardization and quality control etc. Facilities for the regular servicing and maintenance of equipment, plant and machinery should also be provided. These facilities must include the means for the local manufacture of many essential parts;

(d) There must be rediscovery and selective upgrading of traditional technologies by the introduction of modern scientific and technological methods; and

(e) The popularization of science and technology through general education, the mass media, and other suitable channels - must be employed to increase the understanding and awareness of people towards the ideas and operations of science and technology stressing their relevance to local situations.

18. Governments in developing countries should also encourage and support the activities of non-governmental organizations, academies of science, universities and other specialized institutions. The use of new management, planning and decision-making tools which are now available and which can help guide and spread the use of science and technology for development should also be fully exploited. These include, for instance, systems analysis, information sciences, computer sciences operations research, and the more recent advances which have been made in risk assessment and technology assessment methodologies.

19. Important areas of global concern include such fields as: food and agriculture; natural resources, including energy; population, health, education and training, environment and human settlement; transport and communication; industrialization, including capital goods. Many problems in these important areas of concern require multidisciplinary approaches for their solution.

20. The different problems and obstacles for which specific scientific and technological actions are called for are highly varied and differ very much from country to country. They are also referred to in much of the background documentation, as well as the national and regional papers, prepared for the

Conference. a/ There are also a number of the rapidly developing fields in science and technology which are going to have a significant impact on the longer term development problems which will face humanity in the years ahead. These include the broad spectrum of activities relating to satellite technology, computer communications, micro-processing and electronics and information science in general. Other areas which are attracting growing attention are activities in the field of non-conventional generation of energy, particularly in thermal nuclear fusion research, solar energy and the use of alcohol as fuel; in the field of biology, including bio-technologies, genetic engineering, enzyme technology and in the marine sciences, including ocean eco-systems etc. Research and development in these areas may well provide major breakthroughs which could have great significance for humanity in both developed and developing countries. All these developments, especially the new ones, should be pursued, evaluating attentively the risks for health and environment and preventing their misuse. Developing countries should also build or strengthen national and/or regional research centres in these or other such frontier areas to enable them to participate fully in the march of science, leap-frogging where possible.

21. Technological development often affects men and women differently and the introduction of new technologies has tended to have an adverse impact on the latter, thereby lessening their earnings and social status. It is therefore of the utmost interest to society that in future the full participation of women be ensured in the planning and setting of priorities for research and development as well as in activities relating to the design, choice and application of science and technology for development. They should also be provided with equal access to scientific and technological training and professional career opportunities. In developing countries an adequate share of resources available for research and training should be allocated to the advancement of skills of women in the fields traditionally occupied by them as well as new fields.

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a/ *Inter alia*, document A/CONF.81/9 and documents in the A/CONF.81/NP and A/CONF.81/RP series. Some of the fields which are indicative of the interests expressed in and emanating from the various documents and from national and regional papers include, for example: the application of new or improved scientific and technological methods for the rapid improvement of traditional farming techniques to increase productivity of rural communities; better soil and water management at the farm level; development of fisheries; better methods of post-harvest crop storage; food processing and preservation; alternatives to pest and vector control; combating malnutrition; development of indigenous building and road construction materials; improved or new methods of transport and communication, particularly for rural areas; prevention and treatment of tropical diseases; indigenous production of safe vaccines and drugs for local use; traditional medicine, pure water for human use, including underground water; desalination; development of better sewage treatment methods; natural disaster warning systems; development of renewable sources of energy, including solar energy and biomass as a source of food, energy and chemicals; use of remote sensing methods for survey of natural resources; development of tropical forest resources; technology for coal gasification and liquefaction; industrial research; biological research, including genetic engineering and germ plasm banks; nuclear technology; satellite communication systems; informatics and computer technology development.

22. Rapid development of science and technology throughout the world will depend in part on the younger men and women who can be brought into these fields and involved in decision-making bodies and given full opportunity to use their intelligence and skills. In the bio-sciences, for example, three steps are essential to accomplish this: (a) improved education in the ideas and methods of modern biology including the necessary grounding in physics, mathematics and chemistry; (b) creation of well equipped research laboratories in many developing countries; and (c) a much greater exchange among young biological scientists and technologists of developed and developing countries. This approach should be equally applicable to all other fields.

23. A creative development within the main body of contemporary society could bring new and more appropriate concepts and theories to bear on the problems which beset humanity now and in the foreseeable future. By diversifying scientific world view, and releasing it from the grips of traditional development concepts, new scientific approaches could generate a flow of new knowledge which would enhance the quality of life of humanity in general and particularly in developing countries. Emphasis should also be placed on social goals that centre on achieving a life of dignity and peace and an environment in which human beings live in compatibility with nature.

24. In discussing science and technology for the future, it is important that some mechanisms be created to ascertain trends in the fields of science and technology and to achieve a more efficient approach to identifying and solving global issues. In this connexion it is important that organizations and specialized agencies of the United Nations system involved in science and technology and in technical development assistance take into account the long-term effect of their activities. This applies equally to international and regional centres and to the projects based on world co-operation. They should be able to identify the consequences of alternative courses of action in order to assist Governments in their decision-making processes.

25. All this calls for the elaboration of a long-term strategy for the development and application of science and technology ensuing from the anticipated social progress and the corresponding advances in the way of life.

26. Many issues relating science and technology to development are essentially global issues, affecting the well-being of all humanity. They call for new paths and patterns in international relationships, in particular in relation to sharing of knowledge. They appeal to the social responsibility of Governments and scientists and call for a spread of the humanitarian characteristic of true science to all strata of society. They also demand a more active role on the part of scientists in the solution of societal problems and the political will of Governments, so that the beneficial potentialities of science and technology of today become the reality of a not-too-distant future.

27. To guard against possible adverse effects of scientific and technological activities, it is of the utmost importance that the organizations and specialized agencies of the United Nations system develop means both internally and externally to monitor and assess new and advanced scientific and technological developments to provide an early warning system to alert the Governments and peoples of the world, and particularly those of developing countries, to the potential dangers involved in certain scientific and technological developments. The immediate purpose would be to provide advice to Governments on the potential consequences of such developments, to prevent their use in threatening world peace, humanity and civilizations.

28. An appropriate United Nations body on science and technology and other competent organizations and specialized agencies of the United Nations system should review the present structure of science and technology; examine the emerging trends and prospects in science and technology; and evaluate the impact of these trends on the problems of developing countries and make recommendations regarding the structural and directional changes required in the structure of science and technology to service the needs and problems of the peoples of the world, with special regard to the needs of developing countries. Such a study should propose appropriate mechanisms for assessing the trends of technological development including an evaluation of their impact on society. In undertaking such a study, and suggesting concrete measures to be taken in this regard, the body together with the other competent organizations and specialized agencies of the United Nations system should seek the help of competent scientists, including social scientists. They should also identify interdisciplinary problem areas of world-wide importance, especially in developing countries, for special study and action. The full spectrum of the scientific and technical resources of the world should be mobilized towards the implementation of these studies.

Concluding remarks

29. The huge potential and the vast store of human knowledge revealed in the scientific and technological advances are a unique heritage which must be tapped for the benefit of humanity as a whole. Science and technology must continue to be used to bring about the general improvement in the quality of life in the developed and developing countries of the world alike. The wealth of unused resources still to be released through the application of science and technology will play a vital part in reducing the existing imbalance between countries, satisfying unmet needs and removing obstacles to the realization of a just, equitable and participatory world. These objectives can only be achieved in a stable climate of peace and co-operation in which the human and material resources are channelled to peaceful purposes and where global issues are seen as the common concern of the human race.

30. Science and technology are in the process of very rapid change and innovation. New avenues of research must continue to be opened and each country should be entitled to participate in this worth-while endeavour. The storehouse of knowledge must be opened and the insatiable desire for co-operation must be encouraged in the hope that new advances in science and technology will bring about a better world.

31. All nations must strive towards a world of dignity and justice for all peoples, free from hunger, poverty and disease and where the common resources of the international and scientific community are mobilized for the common good.

32. At the national level, efforts must be made to use science and technology for the setting up of development strategies in conformity with national aspirations. All countries should develop endogenous capabilities to assess the trends of science and the consequences of technological options keeping in view the rational use of natural resources, the preservation of the environment and the harmonious integration of science and technology with values and culture.

33. The future of science and technology for development depends on the men and women who dedicate their lives to exploring new areas of knowledge for the better service of humanity. Encouragement should be given to young people from the

developed and developing countries to participate fully in research in the basic and applied sciences through the establishment of appropriate institutions at the national, regional and international levels. Governments should encourage the pursuit of basic science, research at universities and establish appropriate institutions for applied research with a view to strengthening the scientific and technological infrastructure. Developing countries should receive support in carrying out this urgent task. The increased participation of the youth of the world in creatively solving scientific and technological problems should be encouraged. If science and technology are to be used fully for development, the voice of the users, as well as those of scientists and technologists - men and women alike - must be heard, in planning, decision-making and implementing programmes. All available human resources must be utilized by giving equal opportunities to all segments of society to ensure participation at all levels of development. The developed countries of the world must assist the less privileged countries to acquire technological skills and know-how in all areas, including the frontiers of science.

34. A more equitable world in the future will presuppose that the common heritage of knowledge be enriched by everyone's contribution, each nation being equally entitled to share in the results of scientific and technological advances.

35. Science of the future must include in its concerns the uplifting of the welfare of the total human being. It must speak to the satisfaction of psychological and emotional needs as well as material requirements for survival. Similarly technology of the future should aim at the continued amelioration of the human condition. The comprehensive use of human resources, upgrading of skills and the broadening of technical education are among the most urgent objectives of development which must be achieved in the interest of a brighter future for the human race. Scientific and technological education must be raised to even greater heights in all countries, and especially in the developing countries.

36. Experienced men and women of science and technology, working to prepare for this Conference, have come to remarkable agreement on these goals, as well as the needed content and methodology for development in the coming decades. A great body of work has been performed in preparation for the Conference by scientists, engineers and other specialists from individual countries, from regions as well as those from governmental and non-governmental organizations. Sustaining this flow of thought and action beyond the Conference is a challenge which all countries must face equally.

37. The United Nations system must be involved in the study and continuous monitoring of the trends of science and technology with a view to ensuring that undesirable effects are averted and developments are geared to the creation of a better world, free of hunger and human deprivation as well as free of environmental and other hazards. A new mental attitude and concern for the common future of all nations based on participation and co-operation and the sharing of the fruits of science and technology will be the best way to bring about a more desirable future for the human race.

ANNEX V

List of documents

Symbol	Title
	A. Basic Conference documentation
A/CONF.81/1	Provisional agenda
A/CONF.81/1/Add.1	Provisional agenda. Addendum
A/CONF.81/2	Provisional rules of procedure
A/CONF.81/3	Organizational matters - Organization of the work of the Conference: note by the Secretariat
A/CONF.81/4	Science and technology and the concept of development. Consolidated discussion paper prepared by the Secretary-General of the Conference
A/CONF.81/4/Add.1 and Corr.1	Science and technology and the concept of development - Utilization of the United Nations system in the application of science and technology to development: note by the Administrative Committee on Co-ordination
A/CONF.81/5	Science and technology and the future
A/CONF.81/5/Add.1	Science and technology and the future. Addendum (Part I: Dynamism and development)
A/CONF.81/5/Add.2	Science and technology and the future. Addendum (Part II: The critical point)
A/CONF.81/5/Add.3	Science and technology and the future. Addendum
A/CONF.81/6 (Vol.I)	Summaries of national and regional papers

Austria, Belgium, Bulgaria, Byelorussian Soviet Socialist Republic, Canada, Czechoslovakia, Denmark, Finland, France, German Democratic Republic, Germany, Federal Republic of, Greece, Holy See, Hungary, Ireland, Italy, Malta, Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden, Switzerland, Turkey, Ukrainian Soviet Socialist Republic, Union of Soviet Socialist Republics, United Kingdom of Great Britain and Northern Ireland, United States of America, Yugoslavia, Economic Commission for Europe, Israel

A/CONF.81/6 (Vol. II) Summaries of national and regional papers

Afghanistan, Australia, Bangladesh, Bhutan, China, Fiji-Papua New Guinea-Samoa-Solomon Islands-Tonga, India, Indonesia, Iran, Japan, Malaysia, Mongolia, Nepal,

Symbol	Title

New Zealand, Pakistan, Philippines, Republic of Korea, Singapore, Sri Lanka, Thailand, Economic and Social Commission for Asia and the Pacific

A/CONF.81/6 (Vol.III)

Argentina, Barbados, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Trinidad and Tobago, Uruguay, Venezuela, Economic Commission for Latin America

A/CONF.81/6 (Vol.III)/Add.1 Suriname

A/CONF.81/6 (Vol. IV)

Algeria, Botswana, Burundi, Central African Empire, Chad, Congo, Egypt, Ethiopia, Gabon, Gambia, Ghana, Guinea, Kenya, Lesotho, Libyan Arab Jamahiriya, Madagascar, Mali, Morocco, Niger, Nigeria, Rwanda, Senegal, Seychelles, Sierra Leone, Somalia, Sudan, Swaziland, Togo, Tunisia, Uganda, United Republic of Tanzania, Upper Volta, Zaire, Zambia

A/CONF.81/6 (Vol.IV)/Corr.1 Ethiopia

A/CONF.81/6 (Vol.V)

Bahrain, Democratic Yemen, Iraq, Jordan, Kuwait, Lebanon, Qatar, Saudi Arabia, Syrian Arab Republic, United Arab Emirates, Yemen, Palestine Liberation Organization, Economic Commission for Western Asia

A/CONF.81/7	Letter dated 14 June 1979 from the Under-Secretary of State for Foreign Affairs of Sweden to the Secretary-General of the Conference
A/CONF.81/8	Letter dated 18 August 1979 from the Head of the Tunisian Delegation to the Secretary-General of the Conference
A/CONF.81/9	Colloquium held under the auspices of the Advisory Committee on the Application of Science and Technology to Development: note by the Secretary-General of the Conference
A/CONF.81/10	Note by the Secretary-General of the Conference
A/CONF.81/11	Note by the Secretary-General of the Conference
A/CONF.81/12 and Add.1-3	Report of the First Committee
A/CONF.81/13	Report of the Credentials Committee
A/CONF.81/14 and Corr.1 and Add.1	Report of the Second Committee
A/CONF.81/15	Report of the Working Group on Science and Technology and the Future

Symbol	Title
A/CONF.81/L.1	Draft Programme of Action
A/CONF.81/L.2	Report on the Pre-Conference Consultations held at the Stadthalle, Vienna, on 18 August 1979
A/CONF.81/L.3 and Add.1-3	Draft report of the Conference
A/CONF.81/L.4	Austria, Denmark, Ethiopia, Finland, Jamaica, Norway, Papua New Guinea, Somalia, Sweden, Thailand, United Republic of Tanzania and Viet Nam: draft resolution (women, science and technology)
A/CONF.81/L.4/Rev.1	Australia, Austria, Denmark, Ethiopia, Finland, Hungary, Jamaica, Mongolia, Norway, Papua New Guinea, Somalia, Sweden, Thailand, United Republic of Tanzania, United States of America and Viet Nam: revised draft resolution (women, science and technology)
A/CONF.81/C.1/L.1	United States of America: text suggested for the preamble to the Programme of Action
A/CONF.81/C.1/L.2 and Rev.1	Portugal and Spain: amendment to the text proposed by the Group of 77 for the preamble (A/CONF.81/L.1, annex I)
A/CONF.81/C.1/L.3	Finland, Norway and Sweden: amendments to the text proposed by the Group of 77 for the preamble (A/CONF.81/L.1, annex I)
A/CONF.81/C.1/L.4	United States of America: proposed alternative text for paragraph B.8 (A/CONF.81/L.1)
A/CONF.81/C.1/L.5 and Corr.1, Corr.1/Rev.1 and Corr.2 and Add.1	Report on the work of Working Group A
A/CONF.81/C.1/L.6	Report on the work of Working Group C
A/CONF.81/C.1/L.7	Report on the work of Working Group B
A/CONF.81/C.1/L.8	Ireland: amendment to the draft Programme of Action (A/CONF.81/L.1)
A/CONF.81/C.1/L.9	Ireland: amendment to the draft Programme of Action (A/CONF.81/L.1)
A/CONF.81/C.1/L.10	Poland and Tunisia: proposal for paragraph 5(h) of the preamble (A/CONF.81/L.1)
A/CONF.81/C.1/L.11	Poland and Tunisia: proposal for paragraph 7 of the preamble (A/CONF.81/L.1)

Symbol	Title
A/CONF.81/C.1/L.12	Japan: proposal to insert additional paragraphs in the preamble (A/CONF.81/L.1)
A/CONF.81/C.2/1	Strengthening the role of the United Nations system in the field of science and technology and the provision of increased financial resources. Possible institutional arrangements for an intergovernmental body dealing with science and technology issues: note by the Secretariat
A/CONF.81/C.2/L.1	Finland, Norway and Sweden: proposed addition to the text proposed by the Group of 77 for the introduction to target area C (A/CONF.81/L.1, annex IV)
A/CONF.81/C.2/L.2	Ireland: amendment to the text proposed by the Group of 77 for target area C (A/CONF.81/L.1)
A/CONF.81/C.2/L.3	Poland: on behalf of Bulgaria, the Byelorussian Soviet Socialist Republic, Czechoslovakia, the German Democratic Republic, Hungary, Mongolia, Poland, the Ukrainian Soviet Socialist Republic and the Union of Soviet Socialist Republics: amendment to the text proposed by the Group of 77 for target area C (A/CONF.81/L.1)
A/CONF.81/C.2/L.4	Ireland: amendment to the text proposed by the Group of 77 for target area C (A/CONF.81/L.1)
A/CONF.81/C.2/L.5	Tunisia: counter-proposals of the Group of 77 to the texts proposed by Ireland for paragraphs C.12 and C.13 of target area C (A/CONF.81/C.2/L.2 and L.4)
A/CONF.81/C.2/L.6 and Add.1	Ireland: amendment to the text proposed by the Group of 77 for target area C (A/CONF.81/L.1)
A/CONF.81/C.2/L.7	Ireland: amendment to the text proposed by the Group of 77 for target area C (A/CONF.81/L.1)
A/CONF.81/C.2/L.8	Draft report of Second Committee
A/CONF.81/WG/L.1 and Rev.1 and Rev.1/Add.1	Draft report of the Working Group on Science and Technology and the Future
	Information documents
A/CONF.81/INF.1	Guidelines for the preparation of national papers
A/CONF.81/INF.2 and Rev.1-5	National focal points
A/CONF.81/INF.3 and Rev.1	Meetings contributing to the preparation of the Conference

Symbol	Title
A/CONF.81/INF.4	National preparations for the Conference: co-operation with Member States
A/CONF.81/INF.5 and Add.1-3	National papers and regional papers: note by the secretariat of the Conference
A/CONF.81/INF.6 and Add.1-3	Background papers: note by the secretariat of the Conference
A/CONF.81/INF.7	National papers and regional papers - Background papers: note by the secretariat of the Conference
A/CONF.81/INF.8	List of participants

B. Background documents

1. National papers

A/CONF.81/NP.	Source
64	Afghanistan
46	Algeria
27 and Corr.1	Argentina
1	Australia
18	Austria
107	Bahrain
15	Bangladesh
95	Barbados
10	Belgium
116	Bhutan
20	Bolivia
79	Botswana
122	Brazil
2	Bulgaria
92	Burundi
21	Byelorussian Soviet Socialist Republic
23	Canada
3	Central African Empire
25	Chad
80	Chile
105	China
78	Colombia
82	Congo
81	Costa Rica
97	Cuba
119	Cyprus
50	Czechoslovakia
59	Democratic Yemen
68 and Add.1	Denmark
128	Djibouti

A/CONF.81/NP.	Source
113	Dominican Republic
53	Ecuador
65	Egypt
19	El Salvador
42	Ethiopia
96	Fiji-Papua New Guinea-Samoa-Solomon Islands-Tonga
28	Finland
40 and Add.1	France
123	Gabon
101	Gambia
56	German Democratic Republic
30 and Add.1	Germany, Federal Republic of
34	Ghana
66	Greece
112	Grenada
98	Guatemala
22	Guinea
14	Guyana
70	Haiti
114	Holy See
71	Hungary
29	India
33	Indonesia
90	Iran
91	Iraq
87	Ireland
38	Italy
129	Ivory Coast
93	Jamaica
60	Japan
67	Jordan
7	Kenya
72	Kuwait
69	Lebanon
44	Lesotho
117	Libyan Arab Jamahiriya
124	Luxembourg
100	Madagascar
125	Malawi
109	Malaysia
54	Mali
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111	Mongolia
102	Morocco
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106	Nigeria
62 and Add.1	Norway
12	Pakistan
84	Panama
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35	Poland
115	Portugal
89	Qatar
52	Republic of Korea
77	Romania
6	Rwanda
37	Saudi Arabia
5	Senegal
4	Seychelles
88	Sierra Leone
13	Singapore
121	Somalia
11	Spain
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74	Sudan
127	Suriname
45	Swaziland
16	Sweden
57	Switzerland
17	Syrian Arab Republic
103	Thailand
99	Togo
94	Trinidad and Tobago
118	Tunisia
55	Turkey
61	Uganda
31	Ukrainian Soviet Socialist Republic
36 and Add.1	Union of Soviet Socialist Republics
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85	United Kingdom of Great Britain and Northern Ireland
49	United Republic of Cameroon
26	United Republic of Tanzania
8	United States of America
83	Upper Volta
39	Uruguay
41	Venezuela
108	Yemen
43	Yugoslavia
24	Zaire
63	Zambia
126	Palestine Liberation Organization

2. Regional papers

A/CONF.81/RP.1	Economic Commission for Europe
A/CONF.81/RP.2	Economic and Social Commission for Asia and the Pacific
A/CONF.81/RP.3	Economic Commission for Latin America
A/CONF.81/RP.4	Economic Commission for Africa
A/CONF.81/RP.5	Economic Commission for Western Asia

3. Background papers submitted by specialized agencies and other organizations of the United Nations system

Symbol	
A/CONF.81/	(a) United Nations
BP/UNCTAD	Background document
BP/UNEP	Science, Technology, Environment and Development
BP/UNEP/Add.1	Infoterra - An International Information Network
BP/UNIDO	Strengthening of Technological Capabilities of Developing Countries: A Framework for National Action
BP/UN/CHS	Science and Technology in Human Settlements
BP/UN/HR	Background document
BP/UN/IESA	Background document
BP/UN/PSCA	Economic and Social Consequences of the Arms Race and of Military Expenditures: Report of the *Ad Hoc* Group on the Relationship between Disarmament and Development
BP/UN/TCD	Development Process and Technological Options in Developing Countries (Part I)
	Report of the African Expert Group Meeting to Assess Preparations for the United Nations Conference on Science and Technology for Development in Light of World Trends and African Needs (Part II)
A/CONF.81/	(b) Specialized agencies
BP/ILO	Technology, Employment and Development: The ILO Experience
BP/FAO	The Food and Agriculture Organization in Science and Technology for Development
BP/FAO/Add.1	Agriculture Science and Technology for the Future
BP/FAO/Add.2	Report of the World Conference on Agrarian Reform and Rural Development

Symbol

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BP/UNESCO	New Perspectives in International Scientific and Technological Co-operation
BP/WHO	Science and Technology for Health Promotion in Developing Countries
BP/IBRD	The World Bank as an Agent of Technological Development
BP/WMO	Activities of the World Meteorological Organization in the Field of Science and Technology for Development
BP/IMCO	Science and Technology in the Field of Shipping: The Work of the Inter-Governmental Maritime Consultative Organization
BP/WIPO	Background document
BP/IAEA	Background document

4. Background papers submitted by other intergovernmental organizations

Symbol

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BP/IGO/1	Background paper Inter-American Development Bank
BP/IGO/2	The Role of the Asian Development Bank in Strengthening Technology Capabilities of its Developing Member Countries Asian Development Bank
BP/IGO/3	Science and Technology Policy Priorities for Joint Arab Scientific Programmes Federation of Arab Scientific Research Councils
BP/IGO/4	Transfer of Technology Through Migration Intergovernmental Committee for European Migration
BP/IGO/5	Solar Energy for Development (Executive Summary) Commission of the European Communities
BP/IGO/5/Add.1	Solar Energy for Development (Proceedings) Commission of the European Communities
BP/IGO/6	Background document European Space Agency
BP/IGO/7	Background document Organisation for Economic Co-operation and Development

Symbol

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BP/IGO/8	Una Experiencia de Cooperación: Diez Años de Actividades del Programa Regional de Desarrollo Cientifico y Tecnologico de la OEA Organization of American States
BP/IGO/9	Background document Council of Europe
BP/IGO/10	Background document Agence de coopération culturelle et technique
BP/IGO/11	ASEAN Sub-regional Paper Association of South East Asian Nations
BP/IGO/12	Council for Mutual Economic Assistance: Co-operation in Science and Technology Council for Mutual Economic Assistance
BP/IGO/12/Add.1	Assistance Rendered by CMEA member countries: Bulgaria, Hungary, the GDR, Cuba, Poland, the USSR and CSSR to Developing Countries in the Setting up of their Scientific and Technical Infrastructure Council for Mutual Economic Assistance
BP/IGO/13	The Arab Paper for the UNCSTD League of Arab States
BP/IGO/14	Background document Organization of the Islamic Conference
BP/IGO/15	Background document Permanent Secretariat of the General Treaty on Central American Economic Integration

5. Background papers submitted by non-governmental organizations

Symbol

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BP/NGO/1	Research and Technological Developments in Irrigation and Drainage Water Management International Commission on Irrigation and Drainage
BP/NGO/2	Report on the Asian Regional Seminar on the Contribution of Science and Technology to National Development American Association for the Advancement of Science, *et al*.
BP/NGO/2/Add.1	Contributions of Science and Technology to National Development. Proceedings of the Asian Regional Seminar American Association for the Advancement of Science *et al*.

Symbol	
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BP/NGO/3	Transfer of Technology for Development International Chamber of Commerce
BP/NGO/4 and Add.1 and 2	Proceedings of the Symposium on Science, Technology and Development World Federation of Scientific Workers, *et al*.
BP/NGO/5	Report of International Symposium on Science and Technology for Development; Singapore International Council of Scientific Unions, *et al*.
BP/NGO/6	Appropriate Technology - Who Decides? World Education
BP/NGO/7	Mobilizing Technology for World Development - Report of the Jamaica Symposium International Institute for Environment and Development, *et al*.
BP/NGO/8	Eurocean Report Association Européenne Océanique
BP/NGO/9	The Role of Library System in Aiding National Development International Federation of Library Associations and Institutions
BP/NGO/10	A Case Study in Transfer of Science and Technology Contributed to the UNCSTD International Cell Research Organization, *et al*.
BP/NGO/11	Background document The Associated Country Women of the World
BP/NGO/12	World Conference, Science in the Service of Life L'Institut de la Vie
BP/NGO/13	Background document Permanent International Association of Road Congresses
BP/NGO/14	Background document International Council of Nurses
BP/NGO/15	The International Federation for Documentation at the Service of Development International Federation for Documentation
BP/NGO/16	Statement of the World Conference on Science and Technology and the Future World Future Studies Federation

Symbol	
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BP/NGO/16/Add.1 and 2	Science and Technology and the Future World Future Studies Federation
BP/NGO/17	Women in Science and Technology for Development International Society for Community Development
BP/NGO/17/Add.1	How to Gain Access to Information on Science and Technology for Development from Data Bases Through Computer Telecommunications System International Society for Community Development
BP/NGO/18 and Add.1	Background document International Alliance of Women, *et al*.
BP/NGO/19	Science and Technology for Human Advancement Bahai International Community
BP/NGO/20	Background document World Peace Council
BP/NGO/21	Background document The Associated Country Women of the World
BP/NGO/22 and Add.1	Background document International Organization of Consumers Unions
BP/NGO/23	Background document Center of Concern
BP/NGO/24	Background document Afro-Asian Peoples' Solidarity Organization
BP/NGO/25	Background document The International Association for the Exchange of Students for Technical Experience
BP/NGO/26	Les relations économiques internationales, la science et la technique World Federation of Trade Unions
BP/NGO/27	Transfer and Development of Technology World Federation of Engineering Organizations
BP/NGO/27/Add.1	Arab Engineers Union Paper for the Conference World Federation of Engineering Organizations
BP/NGO/28	Standardization and Technology for Development International Organization for Standardization

Symbol

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BP/NGO/29	Good Servant Bad Master Oxfam
BP/NGO/30	Background document International Confederation of Free Trade Unions
BP/NGO/31	Innovative Roles of Private Sector Organizations in Improving Health Conditions in Developing Countries International Health Resource Consortium
BP/NGO/32	Background document World Federation of Democratic Women
BP/NGO/33	Culture Technologique Association des universités partiellement ou entièrement de langue française
BP/NGO/34	Background document Association internationale des parlementaires de langue française
A/CONF.81/BP/MISC/1	The Contribution of Transnational Enterprises to Future World Development (Industrial Sector Advisory Group to the Secretary-General of the Conference in Relation to agenda item 7: Science and technology and the future.)
A/CONF.81/BP/MISC/2	Technology, the Worker and the Future (Trade Union Report for the Conference)

6. Other background papers

By decision of the Preparatory Committee at its fifth session, the following documents were made available to the Conference:

Symbol	
A/CONF.81/PC/22	Report of the Advisory Committee on the Application of Science and Technology to Development
E/6002 and Corr.1	Institutional Arrangements in the Field of Transfer of Technology: Establishment of a Network for the Exchange of Technological Information
E/6055	Institutional Arrangements in the Field of Transfer of Technology: Establishment of a Network for the Exchange of Technological Information

C. Documents issued before the Conference

The Preparatory Committee for the United Nations Conference on Science and Technology for Development held five sessions; the reports on these sessions are contained in the undermentioned documents:

First session (31 January-14 February 1977): Official Records of the General Assembly, Thirty-second session, Supplement No. 43 (A/32/43 and Corr.3).

Second session (23 January-3 February 1978): Official Records of the General Assembly, Thirty-third session, Supplement No. 43 (A/33/43 and Corr.1).

Third session (22 January-5 February 1979): Official Records of the General Assembly, Thirty-fourth session, Supplement No. 43, vol. I (A/34/43, vol. I).

Fourth session (23 April-4 May 1979): Official Records of the General Assembly, Thirty-fourth session, Supplement No. 43, vol. II (A/34/43, vol. II).

Fifth session (25 June-7 July 1979): Official Records of the General Assembly, Thirty-fourth session, Supplement No. 43, vol. III (A/34/43, vol. III).

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