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LATIN AMERICAN REGIONAL PREPARATORY MEETING FOR  
THE UNITED NATIONS CONFERENCE ON SCIENCE AND  
TECHNOLOGY FOR DEVELOPMENT

(Panama, Panama, 16 to 21 August 1978)

REPORT

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Any observations which participants may wish to make in respect of  
this document should be submitted to the Executive Secretary of CEPAL  
before 31 October 1978.



## CONTENTS

	<u>Page</u>
I. ORGANIZATION OF WORK, AGENDA AND SUMMARY OF DEBATES .....	1
A. ATTENDANCE AND ORGANIZATION OF WORK .....	1
1. Place and date .....	1
2. Attendance .....	1
3. Election of Officers .....	2
B. AGENDA .....	2
C. SUMMARY OF DEBATES .....	3
1. Opening and closing speeches .....	3
2. Presentation of country reports .....	6
3. Presentation of the conclusions of the subregional meetings .....	6
4. Participation of different international organizations in the preparatory activities of the World Conference on Science and Technology for Development .....	10
5. Presentation and discussion of the regional document ...	13
6. Bases and components for a Programme of Action .....	13
7. Adoption of the Rapporteur's report .....	15
II. DECISIONS ADOPTED BY THE MEETING .....	15
A. GENERAL ASPECTS OF A PRELIMINARY NATURE FOR THE PREPARATION OF A PROGRAMME OF ACTION IN THE FIELD OF SCIENCE AND TECHNOLOGY FOR DEVELOPMENT .....	15
1. Introduction .....	15
2. Specific suggestions .....	21
A. At the National Level .....	21
B. At the Regional Level .....	23
C. At the International Level .....	25
B. RESOLUTIONS .....	31
1. Plan of work for the period preceding the United Nations Conference on Science and Technology for Development ...	31
2. Progress of work, norms of procedure and allocation of funds for the activities anticipated for the organization of the Conference .....	32
C. RECOMMENDATIONS .....	33
1. System of financing for the technological development of the developing countries .....	33
2. Revision of the Paris Convention for the protection of industrial property .....	33
3. Code of conduct for the transfer of technology .....	34

	<u>Page</u>
<b>Annexes</b>	
1. List of Participants .....	37
2. List of documents .....	43
3. Statement by Mrs. Beatriz Rangel, member of the delegation of Venezuela .....	45
4. Observations by the countries on the document Science, Technology, Development and Co-operation in Latin America (ST/CEPAL/Conf.66/L.2/Rev.1) .....	47
5. System of financing for the technological development of the developing countries .....	59

## I. ORGANIZATION OF WORK, AGENDA AND SUMMARY OF DEBATES

## A. ATTENDANCE AND ORGANIZATION OF WORK

1. Place and date

1. The Regional Preparatory Meeting for the United Nations Conference on Science and Technology for Development, convened jointly by the Secretary-General of the Conference and by the Executive Secretary of the Economic Commission for Latin America, was held in Panama from 16 to 21 August 1978. The meeting took place in the Palacio Justo Arosemena.

2. Attendance

2. The meeting was attended by representatives of twenty-five member States of the Commission: Argentina, Barbados, Bolivia, Brazil, Canada, Colombia, Costa Rica, Cuba, Chile, Ecuador, El Salvador, France, Guatemala, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Peru, Trinidad and Tobago, the United Kingdom, the United States of America, Uruguay and Venezuela.

3. A representative of Austria, a United Nations Member State which is not a member of CEPAL, attended the meeting in a consultative capacity.

4. The following specialized agencies of the United Nations system were also represented at the meeting: United Nations Conference on Trade and Development (UNCTAD), United Nations Industrial Development Organization (UNIDO), United Nations Children's Fund (UNICEF), United Nations Development Programme (UNDP), United Nations Environment Programme (UNEP), International Labour Organisation (ILO), United Nations Food and Agriculture Organization (FAO), United Nations Educational, Scientific and Cultural Organization (UNESCO), World Health Organization (WHO), International Telecommunications Union (ITU), Intergovernmental Maritime Consultative Organization (IMCO), World Intellectual Property Organization (WIPO).

5. Also represented at the meeting were the Organization of American States (OAS), Inter-American Development Bank (IDB), Permanent Secretariat of the General Treaty on Central American Economic Integration (SIECA), Board of the Cartagena Agreement (JUNAC), Central American Institute for Research and Technology (ICAITI), Latin American Economic System (SELA), and the Intergovernmental Committee for European Migrations (CIME).

/6. Lastly

6. Lastly the Inter-American Council of Commerce and Production (IACCP) and the Arab League Education, Culture and Science Organization (ALECSO) were also represented.

7. The full list of participants at the meeting appears in Annex 1 of this report.

### 3. Election of Officers

8. During the opening session, the following Officers were elected:

Chairman: Diomedes Concepción (Panama)

First Vice-Chairman: Arnoldo K. Ventura (Jamaica)

Second Vice-Chairman: Alfredo Ramírez Araiza (Mexico)

Third Vice-Chairman: Miguel Ozorio de Almeida (Brazil)

Fourth Vice-Chairman: Mariano Ramírez Arias (Costa Rica)

Rapporteur: Luis Javier Jaramillo (Colombia)

### B. AGENDA

9. At its first session the meeting adopted the following agenda:

1. Opening speeches

2. Election of officers

3. Adoption of the agenda (ST/CEPAL/Conf.66/L.1/Rev.1)

4. Presentation of country reports

5. Presentation of conclusions of the subregional meetings

6. Presentation and discussion of the regional document

(ST/CEPAL/Conf.66/L.2/Rev.1)

7. Bases and components for an Action Programme

(ST/CEPAL/Conf.66/L.2/Rev.1)

8. Adoption of the Rapporteur's report

10. The documents listed in Annex 2 of this report were available to the participants during the meeting.

11. The debates took the form of plenary meetings and two working groups were created to deal with points 6 and 7 of the agenda.

/C. SUMMARY

## C. SUMMARY OF DEBATES

### 1. Opening and closing speeches

12. The meeting opened with a ceremony in the Palacio Justo Arosemena in the morning of 16 August. Statements were made by Enrique V. Iglesias, Executive Secretary of CEPAL, Guy B. Gresford, Deputy Secretary-General of the United Nations Conference on Science and Technology for Development, and Nicolás Ardito Barletta, Minister of Planning and Economic Policy of the host country.

13. The Executive Secretary of the Commission spoke of the extremely thorough preparation for the meeting carried out by CEPAL and the subregional groups. He regretted that scientific and technological wealth was concentrated in a small group of countries and that the advantages of the application of science and technology barely touched a great proportion of mankind. In the face of these facts, it was necessary to revitalize the machinery of international co-operation, and the awareness of the need to integrate scientific and technical development programmes in the framework of the economic and social development plans of the countries of the region.

14. Despite the growth of the Latin American economy over the last twenty-five years, the progress in its industrialization and its increasing share in international trade and in the activities of the transnational corporations, the bulk of the population had not benefited from the fruits of scientific and technological progress, although a new middle class with a great capacity for action and consumption had emerged.

15. The countries differed with regard to the criteria and methods which they should apply in order to achieve integral development; however, there was a generalized awareness that the role of science and technology would be a valuable instrument for the solution of the social problems of the region.

16. Although there were great differences of size and degree of development between the Latin American countries, there were also common elements which the meeting should consider. The individual countries of the region were limited in their capacity for action, but mutual co-operation would make it

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possible to obviate such limitations. At the global level, there was an awareness on the part of the industrialized countries of the necessity for international co-operation, which to date had been inadequate. Political measures should be taken to rectify this situation, through the agencies of the United Nations system and the international agencies while taking into account the recent decisions relating to the creation of a New International Economic Order. For all of this the unity of the developing countries was fundamental and should be strengthened at all levels.

17. Speaking on behalf of the Secretary-General of the United Nations Conference on Science and Technology for Development the Deputy Secretary-General discussed some points of consensus reached among member States. He spoke of the forms of dependence of purchased and transferred technology and the contradictory remedies required for this, and expressed the hope that a new international scientific and technological order would emerge from the Conference. He observed that science and technology must be applied in a voluntary, conscious manner with public participation, and described the numerous advantages accruing to the developed world from Third World development in this area. He mentioned the need for a new type of negotiation to produce internal and external changes in developed and developing countries alike and the impact of science and technology on culture. Lastly, he stressed the importance of maintaining the valuable network of national focal points.

18. The Minister of Planning and Economic Policy of Panama expressed the appreciation of his Government and nation for the fact that this important regional meeting was being held in Panama. He cordially welcomed the delegates, and remarked on the special affection with which linked his nation to the Latin American and Caribbean countries with which it joined in efforts to reach positions in knowledge and information which enabled the regional situation to be strengthened vis-à-vis integral development.

19. He said that all those present were aware of the great power of science and technology whose main instruments were the knowledge and stock of human experience they possessed to supply our peoples with what they required for their development. This was the reason for the justifiable concern of the countries and the world as to the means of utilizing, transferring and channelling scientific and technological know-how.



20. He stressed the importance of science and technology from the economic point of view and said that it must be endowed with eminently human content and deep-rooted implications in terms of integration, justice and equilibrium.

21. He said that sufficient awareness must be created in our countries and in those which effectively and efficiently generated science and technology as to how to establish the links between the parties for their transfer, while maintaining the autonomy of our development process and generating additional economic benefits, but at the same time producing very short-term social benefits.

22. He mentioned the repercussions of this process and the enormous importance of the integration of the different branches of knowledge; our physical and social scientists should take the same road to reach that degree of development.

23. In referring to the adoption of technologies, he stressed that they must respond to the capacity of production.

24. The creativity which we should seek in many of our small countries was not in the generation of new sciences and technologies but in the design of the mechanism which would enable us to adapt those existing to our own reality, to the type of resources available and the type of market in existence.

25. Lastly, he stressed the need to create awareness, especially among those who produce most of the technology and science and transfer it to us in different forms, so that they will be prepared to take part in the creation of the machinery required to make the transfer through the international agencies, and agencies for State co-operation, international private activity and for the training of human resources, so as to strengthen the autonomy of the Latin American and Caribbean nations.

26. At the closing meeting held on the evening of 21 August, a statement was made by Beatriz Rangel, member of the delegation of Venezuela, expressing her country's views on the preparatory work progress made in the conference. (see annex 3). Statements were also made by Carlos Cornejo (Peru) on behalf of the participants and Gustavo R. González, representing the host country.

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## 2. Presentation of country reports

27. The following delegations made a brief presentation highlighting the most important aspects of the country reports which were presented at the request of the secretariat: Argentina, Barbados, Bolivia, Brazil, Colombia, Costa Rica, Cuba, Chile, Ecuador, Guatemala, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Peru, Trinidad and Tobago, Uruguay and Venezuela. The delegations of Canada, the United States, France and the United Kingdom indicated that country reports dealing with their national situations were being presented in other forums. The secretariat was requested to publish a document containing the summaries of the country papers submitted by the Governments which would be circulated to all member Governments after the meeting.

## 3. Presentation of the conclusions of the subregional meetings

28. During the meeting, statements were made of the conclusions of the subregional meetings held by the countries members of the Andean Group, the countries members of the Central American Common Market, the countries of the Southern Cone, and the countries members of the Caribbean Development and Co-operation Committee.

29. At the request of the Central American countries, the representative of the Permanent Secretariat of the General Treaty on Central American Economic Integration (SIECA) summed up the position of the governments of the member States of the Central American Common Market to the United Nations Conference on Science and Technology, established at a meeting held from 31 July-2 August 1978 in Guatemala City.

30. At the international level, it was observed that the Conference should seek machinery so that science and technology would contribute to the New International Economic Order, international scientific and technological co-operation and research. A code of conduct was proposed for the transfer of technology, as well as a code of conduct for transnational corporations and an international fund for technological development. At the national and subregional levels, it was considered necessary to strengthen the institutional structure, revise existing legislation on industrial property, use the purchases and commerce of the public sector, create machinery to stimulate advisory services, strengthen research capacity, promote the  
/establishment of

establishment of information systems and define international technical co-operation requirements. Sectoral action should also be taken with regard to the transfer and generation of appropriate technologies.

31. The desirability of co-operation between developing countries was stressed. At the same time the functions of the United Nations should be reordered in order to delimit the areas of responsibility of the various specialized agencies and set up a mechanism to co-ordinate their science and technology activities.

32. The delegate of Uruguay, representing the countries of the Southern Cone presented the conclusions of the First and Second Subregional Meeting of Government Experts of the Countries of the Southern Cone (Buenos Aires, Argentina, from 27-29 March 1978 and Santiago, Chile, from 20-30 June 1978).

33. The countries of the Southern Cone, aware that the work of the Conference could provide important possibilities for scientific and technological development, considered that the contacts and agreements of the subregions and countries should be reviewed at the regional meeting, while a common position on the part of Latin America and the Caribbean could facilitate the adoption of efficient scientific and technological policy measures.

34. The countries should have their own scientific and technological capacity and the conference should identify new or better means of international technical co-operation, the present procedures of which required revision. In reviewing the machinery for financial co-operation, it should be borne in mind that part of the resources allocated to scientific and technological development must be channelled through national institutions.

35. The Conference should give special attention to the problems of the transfer of technology, where both the Governments and the international agencies could contribute to adopting measures for strengthening the bargaining capacity of the countries.

36. Mention was made of the importance of international technical and financial co-operation to support the countries in solving their problem of the lack of resources for scientific and technological development. Technical co-operation among the developing countries constituted an important

/possibility for

possibility for international co-operation which must be complemented by other forms of such co-operation. The Conference must adopt decisions in order to create follow-up machinery for its agreements, endeavouring to make use of existing institutional capacity.

37. The representative of Jamaica, in the name of the CDCC member States presented the conclusions of the two subregional meetings, the first of which was held in Jamaica in February 1978 and the second in Panama on 15 August 1978.

38. Because of the small size of the countries of the subregion there was a need to devise methods to promote small scale enterprise development; to refashion the educational system to provide the numbers and types of trained personnel to suit the needs of the subregion, and to obtain better co-operation and integration of effort there. Technology more appropriate for the subregion should be developed and should include an inventory of traditional technologies and efforts directed towards modernizing and improving these forms, while care should be taken to exclude obsolete technology and intermediate technology not suited to the subregion. There was need to pay special attention to the problem of the brain-drain and to devise methods of overcoming it. The operations of the transnational corporations in the subregion should be closely monitored, and a regional information exchange system on these operations set up.

39. The delegate of Bolivia, representing the countries members of the Andean Group, presented the conclusions of the First and Second Andean Subregional Preparatory Meetings of the United Nations Conference on Science and Technology for Development UNCSTD, held from 27 February to 3 March 1978 and from 3-7 July 1978 in Lima, Peru.

40. He said that the Cartagena Agreement possessed the necessary instruments for the member countries to become progressively integrated until they achieved firm and effective economic unity next decade and were able to take joint action, not only internally but also in their relations with the international community.

41. The Andean Group was engaged in the task of implementing a concerted policy of economic relations with other countries and groups of countries in the different international forums. The member countries and the organs of the Cartagena Agreement were therefore interested in strengthening through joint action the bargaining capacity of each individual country, and on the basis of a clear concept of co-operation and solidarity, in sharing with other Third World countries, in Latin America and the Caribbean or in other geographical areas, the experiences and results of their integration process. In pooling efforts, a positive contribution would be made to the construction of a more balanced international economic order which would respond to the just expectations of the peoples of the region.

42. The Andean Group was concerned that the New International Economic Order would signify a real change in the present international distribution of labour in which some countries produced agricultural and mineral products and others processed goods. It also considered that in order to arrive at a new order, the norms of international trade must be established with the participation of the Third World countries.

43. In technological matters, the Third World countries should have improved access to know-how for application to the needs which they themselves would identify. The creation of a New International Economic Order, as far as the role of technology was concerned, involved for greater efforts on the part of the international community to place the resources of technical knowledge at the service of development.

44. This meant that the decisions of the developing countries with reference to creating the capacity for generating, adapting and importing technology should be made autonomously at the national and subregional levels, bearing in mind that in so doing the creation of new centres of leadership which would replace earlier centres must be avoided.

45. The Andean Group considered that the United Nations Conference on Science and Technology for Development should review the different alternatives in the light of specific lines of action which had been developed or which it was planned to develop, in order to overcome the obstacles which had prevented an adequate application of technological

/know-how to

know-how to development problems. The identification and reporting of these obstacles was the beginning of the road which must be run if they were to be overcome. The policies and strategies designed to tackle them must be adopted by the Third World countries and should receive a compulsory contribution from those who had been profiting from the present economic order up to that moment.

46. It was in this context that the Andean Group considered that a world project of collective technological interdependence for development should materialize, and enable problems to be dealt with by means of activities which would strengthen each country's individual capacity. In brief, it was a question of implementing a project which would make it possible to maximize global benefits in making an appropriate use of the factors of production at the world level.

4. Participation of different international organizations in the preparatory activities of the World Conference on Science and Technology for Development

47. The representative of the Latin American Economic System (SELA) referred to scientific and technological dependence in the region. He added that there was a clear need to apply the New International Economic Order so as to effect a real change in international relations and promote the development of the scientific and technological sector on which many developing countries depended. SELA considered that regional capacity must be strengthened and that this required a mechanism such as the Latin American Information Network (RITLA).

48. With regard to a Regional Plan of Action for Latin America and the Caribbean vis-à-vis the World Conference, the SELA representative considered that the present meeting should concentrate on formulating guidelines and that these should be given a definite form at a co-ordination meeting of officials at the highest possible level within SELA in order to give the Plan the necessary political force.

49. The representatives of the United Nations Conference on Trade and Development (UNCTAD) said that the action of his organization in science and technology had mainly been concentrated on two specific areas: the restructuring of the legal framework, and the formulation, creation and

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support of policies and institutions connected with the development and transfer of technology. He stressed the fact that the UNCTAD secretariat, and particularly its advisory service, was co-operating with the developing countries in the study and formulation of policies, the establishment of institutional machinery or national, subregional, regional or sectoral centres and personnel training.

50. The representative of the Arab League Education, Culture and Science Organization (ALECSO) referred to the importance which his organization gave to the forthcoming World Conference and said that a working document had been prepared which included some recommendations based on principles of national self reliance, collective self reliance and positive international and regional co-operation.

51. The representative of the World Industrial Property Organization (WIPO) stressed the importance which his Organization attributed to UNCSTD and the fact that its objectives included practically all the points on the agenda of the Conference. He mentioned the regional meeting organized by WIPO in collaboration with the different regional commissions and went on to refer to the meeting on the system of patents on which it was working actively both nationally and internationally, especially in the task of revising the Paris Convention for the Protection of Industrial Property.

52. The representative of the Organization of American States (OAS) said that the progress achieved in Latin America and the Caribbean in knowledge of technological matters could not be underestimated. It was now necessary to identify the key areas which should be the object of attention during the next few years. It would be necessary to avoid certain false dichotomies in order to be able to progress towards a more integrated and dynamic approach to technological policy. The accumulated experience of several generations of processes and products would make it possible to apply with increasing efficiency a technological policy in keeping with the economic and social objectives of the countries of the region.

53. The representatives of the United Nations Children's Fund (UNICEF) mentioned the felicitous coincidence that a World Conference on Science and Technology would be held in 1979, which had been proclaimed International

Children's Year by the General Assembly of the United Nations. He expressed the hope that as a result of this coincidence, the progress of science and technology would be of benefit to children.

54. The representative of the United Nations Educational, Scientific and Cultural Organization (UNESCO) expressed his organization's approval of the growing stress in the country reports and in the subregional action proposals on an aspect which constituted one of the basic principles of UNESCO's activity - the necessary endogeny of development and the explicit consideration of man as an actor in and as an end of development, taking "man" as being all men and their spiritual and material needs.

55. UNESCO was attentive to the conclusions and agreements which the meeting would adopt, and most particularly the new orientations proposed for scientific and technological co-operation through the international agencies and their catalytic action on co-operation among developing countries.

56. The representative of the United Nations Environment Programme (UNEP) said that in accordance with its mission, his organization was promoting a development style which mobilized resources to satisfy population needs in present and future generations through the maximum long-term use of the production potential of the ecosystems. Development and the environment were reconciled in this style, and stimulated the use of adequate environment technologies to achieve their objectives. UNEP had collaborated with the different agencies in the search for new technologies. In particular, it had implemented projects with CEPAL on the technology of human settlements, on development styles and environment, and on water, development and the environment.

57. The representative of the World Health Organization (WHO) said that the orientation which the countries had been adopting with regard to technical co-operation among developing countries in recent years had been followed with interest and great expectancy. The new approach to co-operation which the countries had been considering might well take the form of a set of recommendations and decisions which would certainly benefit the efforts of the international agencies in the search for new policies and strategies which would inject dynamism into co-operation among the countries and define a new and more important role for the agencies.



58. The World Health Organization saw the debates and conclusions of this meeting as the new tonic which the countries wished to give to the consideration of these important topics; they also contributed to anticipating a more active and committed participation by the countries in the efforts of the international agencies to define the co-operation policies and strategies with them.

5. Presentation and discussion of the regional document

59. The meeting examined the document Science, Technology, Development and Co-operation in Latin America (ST/CEPAL/Conf.66/L.2/Rev.1), prepared by the secretariat. It then formulated a series of comments and recommendations of a preliminary nature contained in the document Comments by the countries on the document Science, technology, development and co-operation in Latin America and in Addendum 1 to it (see annex 4). The secretariat was given the task of taking into account these comments and recommendations in restructuring and revising the regional document which would be considered and adopted by the meeting at its second session to be held in December 1978.

6. Bases and components for a Programme of Action

60. In connexion with this point, the meeting examined a series of proposals presented by different countries and groups of countries and the guidelines and suggestions given in Chapter V of the document Science, technology, development and co-operation in Latin America.

61. Following lengthy discussion, the document General aspects of a preliminary nature for the preparation of a programme of action in the field of science and technology for development was adopted; the text is given in chapter II of this report (see paragraph 71).

62. This document and other inputs from the country and subregional documents will serve as a base for the work of the secretariat to be submitted to the second session of the meeting for consideration.

63. The delegation of the United States requested that with reference to points 5 and 6 of this report the following interventions should be mentioned:

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64. "The United States delegation urged that a directory of existing regional scientific and technological institutions be compiled before consideration of the creation of new institutions."

65. "The United States delegation considered the revised comment on page 7, paragraph 4 of the document Comments by the countries on the document Science, technology, development and co-operation in Latin America, that the brain-drain was "fomented by the industrialized countries", to be simplistic and inaccurate since it did not take into consideration all the complex forces and factors that contributed to this phenomenon" (see annex 3).

66. "On two occasions, the United States delegation intervened to voice its dissatisfaction that all positive language referring to transnational corporations was excluded from the document. It urged that such positive language be included so as to encourage a dialogue with the private sector on improved transfer of technology. The delegation noted that the United States had taken the first steps toward such a dialogue between the United States Government and the private sector by commissioning a study on the transfer of technology with the participation of major private sector organizations."

67. "The United States maintained its previously-stated positions with respect to the documents and conferences cited in paragraph 13 of the document General aspects of a preliminary nature for the preparation of a programme of action in the field of science and technology for development (see page 26 of this report), and noted that it could not join in endorsement of the Fifth Summit Meeting of the Non-Aligned Countries, in which it did not participate."

68. "The United States delegation stated its position that it was not appropriate to consider the creation of new financial mechanisms for science and technology co-operation without first examining existing financial resources and mechanisms and how they might be better applied." This intervention applies to the suggestions contained in paragraphs 2 and 3 on page 35 and paragraph 1 on page 37 of the document mentioned in paragraph 67 supra. The United States delegation stated it did not consider UNCSTD and its preparatory meetings to be proper forms for discussing either the code of conduct for the Transfer of Technology or the revision of the Paris Convention, these reservations apply to paragraph 2 on page 37 and paragraph 4 on page 39 of the same document.

69. "In joining the final consensus, the United States delegate stated that it did so in the belief that a variety of ideas and proposals should be considered by UNCSTD, but could not endorse all ideas or proposals included in the report."

7. Adoption of the Rapporteur's report

70. At the last plenary session the Meeting was presented with the Rapporteur's report and gave the secretariat of CEPAL the task of revising the wording of the text before distributing it to the Governments.

II. DECISIONS ADOPTED BY THE MEETING

71. With regard to the preparation of a programme of action in the field of science and technology for development the following text was adopted:

A. GENERAL ASPECTS OF A PRELIMINARY NATURE FOR THE PREPARATION  
OF A PROGRAMME OF ACTION IN THE FIELD OF SCIENCE  
AND TECHNOLOGY FOR DEVELOPMENT

1. Introduction

1. A consensus has emerged in recent years that despite the efforts of the developing countries to overcome the internal and external obstacles which hinder their economic and social development they have not to date succeeded in designing a new style of development which is qualitatively different. This is not a question of cutting down the distance separating them from the industrialized countries in following the same path; the objectives must be modified qualitatively and not only quantitatively. It is, however, known that without scientific and technological progress, the developing countries will not be able to reach the goals of economic, social and cultural development which they have set themselves. As a result, there exists an awareness that it is very important to formulate scientific and technological policies and establish legal bases for the transfer of technology and development.

/2. Scientific

2. Scientific and technological development is part of the general framework of a development which should be oriented towards satisfying both material and non-material human needs, and implies the redefinition of the patterns of consumption, in accordance with the real and individual needs of each country, avoiding the creation of artificial needs, wastefulness and tendencies towards luxury consumption. This development should be of internal origin, self-sufficient, and ecologically adequate and should be based on changes in the economic and social structure and on decisions directed by the interests of the majorities. There should be a close correspondence between these development characteristics and the material structure of production which makes it possible to implement it.
3. At the same time, since man is protagonist and also the end of the development process, this process should be permanently oriented towards the creation of conditions which will ensure the full realization of human beings as individuals and as members of society. Consequently, it is essential to pay special attention to the development of human resources capable of introducing knowledge expressed in specialized language and guiding the process of scientific and technological development.
4. The common elements which characterize the concept of self-sufficient scientific and technological development are: the necessary participation of the state agencies, autonomy of decision in technological matters and the promotion of the demand for scientific and technological activities which respond to the new mode of development. This implies intervention in a variety of fields, ranging from financial, credit and fiscal policies, to industrial, labour and monetary policies. In this conception of development, it is not a question of ignoring everything that has been achieved, but of seeking an innovatory approach which will utilize, adapt and construct on the basis of elements of existing technologies of which advantage should be taken.
5. In this context, the first step which must be taken is most certainly to achieve the internal strengthening of the countries of the region in this connexion. At the national level, this implies the creation of a scientific and technical potential and a system linking science, technology and production; this system will connect the agricultural and industrial sectors with progress

/in basic

in basic and applied research, and will link up the academic centres, the industrial laboratories, the information and standardization institutions and the production sector by means of machinery created for this purpose. It is important to endeavour to make the best possible use of the countries own resources and make their development a dynamic process, while conserving their social, cultural and economic identity.

6. Secondly, it is extremely important for the countries of the region to adopt a joint position aimed at solving common problems. The countries must also stress the complementarity of the application of science and technology to development. The aim of strengthening collective technological co-operation for development is the creation of a national and subregional capacity for importing, adapting and creating technologies, and for taking decisions in connexion with such activities by the developing countries.

7. All the activities should be accompanied by a serious effort to create an awareness in the broadest sectors of the population of the importance of science and technology for development, and by a wide-ranging dissemination movement which will contribute to clarifying this role.

8. Although it has been mentioned on more than one occasion, it is not superfluous to mention that scientific and technological co-operation among developing countries is an urgent need since it allows the most to be made of their common cultural and historical experiences; its advantage is a better adaptation of scientific and technological resources while it permits more economic and fairer solution in keeping with the overall development of the countries, while strengthening their individual and collective bargaining capacity.

9. All the outward-directed efforts made by the national authorities should be oriented towards establishing the endogenous capacity of scientific and technological development so as to avoid dependence. It is also sought to abolish the use of economic, political or other measures aimed at forcing another State to subordinate the exercise of its sovereign rights. We can affirm that technology may constitute a factor for controlling development, and in consequence, it is necessary to regulate the activities of those that possess it in order to keep them from dominating the international market.

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In this respect, the developing countries should take an active share in the different international forums which are endeavouring to set up codes of conduct for the activities of the transnational corporations and for the transfer of technology. Stress should be laid on the need to modify the adverse provisions of the Paris Convention and remove other barriers to the transfer of technology towards developing countries.

10. Co-operation should contribute to strengthening the internal capacity of the developing countries so as to constitute an effort to complement and not replace the national effort; regional scientific and technological co-operation specifically should be diversified in order to maintain the link with the needs, resources and capacities of different societies and communities. It should be developed on a solid scientific basis with a broad element of efficient participation and ensure a fair distribution of its benefits. On some occasions, this may imply the making of structural changes in the economic, social, cultural, educational and technological fields in order to ensure a fair distribution of the fruits of scientific and technological development in all sectors of the developing nations.

11. In order to contribute to reducing differences existing between industrialized and developing countries, it would be advisable to make known on a permanent basis the experiences of some countries or groups of countries with regard to the adoption of norms to control technology contracts and prohibit restrictive clauses. Such experiences serve to confirm that the participation of government agencies in the negotiation of technology has considerably reinforced the bargaining power of local enterprise vis-à-vis the transnational corporations, and gained just and reasonable conditions for the interested parties in many cases.

12. The World Plan of Action which the United Nations Conference on Science and Technology for Development will consider and adopt should be characterized by the application of the concepts of the New International Economic Order, particularly those which consecrate the right of all States to make use of progress and development in science and technology to speed up their own economic and social development, and to regulate and supervise, by means of codes of conduct or other measures, the activities of the transnational corporations, whose action may have a particularly harmful effect on the

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transfer of technology and on the exercise of full sovereignty over natural resources, which should be the object of careful scientific and technological research; the Programme of Action which will be adopted in the Conference should be linked up with the Third United Nations Development Decade, preparation for which will be made in the light of the New International Economic Order.

13. At the international level, this Programme should be in keeping with the Programme of Action for the New International Economic Order and the Charter of Economic Rights and Duties of States, as well as with the plans of action on population, human settlements, industrial development and others, which have been discussed and adopted by the different agencies of the United Nations system, especially in the sections dealing with scientific and technological matters in relation to development, and the decisions of the Conference on technical co-operation among developing countries. These activities should strengthen existing machinery for international co-operation and are aimed at complementing national scientific and technological efforts. It is considered important in this respect to support the proposals and action arising out of the Manila Declaration and Programme of Action, the Conference on Economic Co-operation among Developing Countries and the Fifth Summit Meeting of Non-Aligned Countries, so that the developing countries can arrive at a joint position vis-a-vis the developed countries in international forums.

14. The Programme of Action should contain specific measures of support to national and international efforts so as to permit the transfer of technology in conditions which will lead to the full economic, social and cultural development of the developing countries and support initiatives to provide them with information media suited to their needs on the basis of international co-operation for the development of scientific and technological work. It is essential to ensure the full and effective participation of the developing countries in the international decision-making process on international monetary matters.

15. Both nationally and internationally, scientific and technological policy should aim at creating or strengthening the capacity of the countries to generate and adapt the know-how and technologies most suited to their

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needs and their resources, thus fulfilling the objectives of endogenous development based on self-reliance, while avoiding the use of the results of scientific and technological research for the purpose of perfecting mass extermination devices or means of causing systematic damage to mankind, or its use to prepare means by which some States can put pressure on others.

16. A World Plan of Action for the application of science and technology to development can be implemented satisfactorily if there exists a political will, one of whose cardinal objectives is to abolish existing injustice and inequalities with regard to developing nations in international trade and monetary policy, industrialization, food, agriculture, science and technology, and others. The developing countries should propose a programme of action to the Conference containing concrete formulae for solving the specific situations they are facing.

17. Technological research and the transfer of technology are the activities by means of which the countries increase the amount of production knowledge they possess. The implementation of these activities requires other knowledge previously obtained in the same country or in other countries. Consequently, the creation and operation of information networks on all the aspects of scientific and technological development at the national and subregional levels is indispensable if improved efficiency is to be achieved in the tasks destined to increase the technological capacity of any country. Consequently, it is essential to give special attention to the promotion and operation of these information systems, taking into account the fact that the traditional forms of organization and operation of these systems in industrialized countries come up against insurmountable barriers in the developing countries; there is a lack of human resources capable of translating the knowledge presented in specialized jargon, and making it available to the entrepreneurs and untrained personnel who will use it. It is therefore necessary to foment the implementation of meaningful efforts to change this situation.

18. The creation of a New International Economic Order, as far as the role of technology is concerned, implies much greater efforts on the part of the international community to place the resources of technical know-how at the

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service of development. This, then, is in short a project which will make it possible to maximize the global benefits by making adequate use of the factors of production at the world level.

## 2. Specific suggestions

### A. At the National Level

1. The formulation of medium and long-term science and technology strategies and plans ensuring in them a primordial function of the State and also ensuring that they are based on the national effort; they should be complementing with specific measures and legal and institutional machinery which allow their implementation and continuing evaluation and readjustment.
2. Due consideration, on formulating these science and technology strategies and plans, of the characteristics of each country, in the light of its socio-economic structure and priorities, and the need of ensuring continuity and encouragement of national scientific and technological systems.
3. Orientation of the objectives of science and technology strategies and plans towards the firm achievement of integral development, and through it, justice and peace.
4. Express incorporation of the science and technology variable in national development plans and strategies as an essential tool to achieve the various objectives and targets contained in them, while the specific needs for generating, locating, transferring and utilizing knowledge should be included both at the global and the sectoral levels.
5. Strengthening of the national science and technology research infrastructure.
6. Priority support to the training of human resources required for generating and implementing science and technology plans, programmes and projects; intensification of professional training and development of local labour programmes and carrying out of training efforts relating to technological administration and management in the firms.

/7. Improvement

7. Improvement and reorientation of educational services, bearing particularly in mind science and technology, in terms of the needs of developing countries.

8. Adequate promotion, of basic research, as one of the links in an integral conception of development.

9. Adoption of urgent policy measures relating to the causes, scope and repercussions of the drain of qualified personnel from the developing to the developed countries, and the forms and measures required to eliminate and reverse the phenomenon. The developed countries, and, where relevant, the international agencies should provide co-operation here.

10. Extension and strengthening of national financing mechanisms which will permit an appropriate development of science and technology, avoiding forms of external dependence.

11. Establishment and strengthening of national scientific and technological information systems which will make it possible to ensure access to information networks at the international level, efficiently linked to national users, and inclusion in these information systems of:

(a) Information on the transfer of technology.

(b) Information concerning foreign investment.

(c) Information on scientific and technological know-how generated internally in the developing countries.

12. Promotion of a scientific and technological development process which will contribute to giving a higher level of linkage between industry and other economic sectors, tending to raise the level of living of social groups with scanty resources, and allowing them to be incorporated into economic activity.

13. Adoption of measures aimed at creating, stimulating and promoting the demand for endogenous scientific and technological activities, as well as for goods and services which incorporate endogenous technology. In this regard, special attention should be paid to the adoption of measures such as the unpackaging of technology, public sector contracts and purchases, legal and administrative mechanisms and the preferential utilization of local engineering consultancy services, as well as to the effect of consumption patterns on the demand for local technology, goods and services.

/14. Strengthening

14. Strengthening of the links between research and development institutions and the production sector, as well as local capacity to manage and market technology, with the objective of generating endogenous technology, and of adapting and absorbing foreign technology the acquisition of which has been negotiated in the best possible conditions.
15. Establishment of programmes aimed at detecting specific technological demands in the different sectors, identification of the scientific and technological capacity of the country to satisfy such demands and the implementation of projects aimed at setting up a relation between demand and capacity.
16. Establishment and reinforcement of the appropriate legal and institutional machinery so that foreign investment, the activities of the transnational corporations, and the transfer of technology will respond to each country's needs, by effecting a follow-up of its activities.
17. Periodic revision and updating of country legislation on industrial property, so as to adjust it to the changing conditions of development.
18. Endeavour on the part of the countries in the legitimate exercise of their sovereign rights over their own natural resources to expand the application of science and technology in their exploration, conservation, and use.
19. Stimulation of the efforts of scientists and technology specialists by means of measures and methods aimed at drawing attention at the national level to their work and giving them due social recognition.

B. At the Regional Level

1. Promotion in the legitimate exercise of the sovereign rights of the countries over their natural resources of regional science and technology co-operation based on the identification of areas of common interest to countries of the same region, for which purpose support should be given to the appropriate machinery encouraging, inter alia, activities relating to:
  - (a) Scientific and technological research for the exploration, exploitation conservation and development of natural conventional and non-conventional resources and energy sources.

/(b) Research

(b) Research and development in export commodities.

(c) Establishment of co-operative centres for technology, acquisition and manufacture of pharmaceutical products.

2. Pursuit of the implementation of co-operation activities favouring regional scientific and technological development on the basis of clearly defined projects for:

(a) Co-ordinated training of human resources, and educational training, specialization and refreshed activities, including personnel specialized in legal matters and in the international management of technology marketing;

(b) Evaluation and strengthening of regional research institutions;

(c) Establishment and strengthening of national research institutions and science and technology supporting services and extension of their results to the region;

(d) Development of regional science and technology data systems and services;

(e) Creation, selection and adaptation of technology.

3. Promotion of training and development of planners and managers of science and technology policies and programmes, by strengthening and completing existing infrastructure in the region.

4. Promotion of training of human resources in the field of entrepreneurial administration and management, as well as for the production of goods and services, so as to be able to absorb technology and improve bargaining capacity in the region.

5. Encouragement of co-operation within the framework of priorities defined by the countries and on the basis of specific projects relating to the scientific and technological infrastructure which clearly determine external participation and its contribution to the development of the capacity of the countries of the region.

6. Promotion of evaluation and strengthening of regional research institutions, as well as extension of sectoral investment programmes originating in the various integration schemes.

7. Establishment and strengthening of regional scientific and technological information systems which, inter alia, will cover the need to have available:

- (a) A technological information network;
  - (b) An information service on the scientific and technological progress achieved by developed countries;
  - (c) An exchange of information on the marketing of technology in the region;
  - (d) Interconnexion with world information networks;
  - (e) Information on the projections of world scientific and technological development and its applications to integral development.
8. Strengthening and improvement of regional machinery facilitating consultation and co-ordination in order to obtain better terms for the acquisition and development of technologies. In this context, promotion of the establishment of regional centres for the transfer of technology.
9. Encouragement of an effective participation of the advisory and engineering services of the countries of the region, together and individually, in attending to regional demand generated.
10. Establishment of a system by means of which the relatively less developed countries can have access, under favourable conditions, to technologies already existing in other developing countries.

C. At the International Level

That the developing countries

1. In the legitimate exercise of their sovereign rights over their natural resources promote among themselves scientific and technological co-operation in research and its practical application in the exploration, exploitation, conservation and use of conventional and non-conventional natural resources and energy sources.
2. Implement common activities in connexion with international financial machinery aimed at achieving adequate conditions for financing scientific and technological development to satisfy the specific needs of the developing countries.
3. Adopt, inter alia, the following measures to strengthen their technological capacity:

/(a) Establishment,

(a) Establishment, operation and strengthening of the appropriate institutional machinery for scientific and technological development, including scientific and technological information networks at the interregional level, to contain systems for the collection and exchange of information on the conditions for the transfer of technology and foreign investment;

(b) Granting of preferential treatment in scientific and technological matters to the relatively less developed countries;

(c) Strengthening of their capacity for bargaining with the developed countries.

4. Adopt, in the full exercise of their sovereignty, the necessary and appropriate measures to prevent the activities of the transnational corporations or any other power sources or structures from contributing to prevent the achievement of the legitimate objectives contained in their scientific and technological development programmes and strategies.

5. Identify and use the means and instruments required to obtain from the transnational corporations, or other suppliers of technology, technological information which may contribute towards fulfilling their scientific and technological plans and programmes.

6. Continue their action in the appropriate international forums to obtain easier and trouble-free access to technology in the form of an international treaty, and also help to adopt an International Code of Conduct on the Transfer of Technology which will take into special consideration the interests of the developing countries with absolute respect for their sovereignty.

7. Implement common activities with regard to international financial machinery with the aim of obtaining adequate conditions for the financing of scientific and technological development to satisfy the specific needs of the developing countries.

8. Take an active share in the meetings planned to revise the Paris Convention for the Protection of Industrial Property and in the existing international instruments which have incorporated some of its vindications.

9. Also take an active share in the negotiations of the international Conference on the Code of Conduct.

/That the

That the developed countries

1. Promote scientific and technological research programmes to solve problems in the developing countries in the light of national priorities and subregional or regional areas of common interest, and with the effective participation and control of the national institutions of these countries. Implement scientific and technological research programmes preferably in the developing countries themselves.
2. Increase their financial contributions to the international agencies and national institutions for the promotion of science and technology so as to assist this promotion and increase its efficiency. These contributions should be free of political conditions, pressures or interference in the internal affairs of the recipient countries.
3. Make the contributions corresponding to a financing system for scientific and technological development in the developing countries.
4. Contribute to eliminating the factors which cause the drain of qualified personnel from the developing to the developed countries, and adopt a position of support to the developing countries in the debates on the matter taking place in the United Nations agencies.
5. Co-operate with the developing countries in establishing and strengthening their scientific and technological infrastructure, in the light of their development plans;
6. Adopt urgent measures to eliminate the restrictive practices which govern the present transfer of technology, and facilitate the adoption of guarantee schemes by the suppliers of technology.
7. Give the developing countries the freest and completest access possible to technological know-how and vanguard technologies under fair and equitable conditions, acceptable to both parties, bearing in mind the specific development needs of the recipient countries, and the need to stimulate research and innovation in areas of interest to them;
8. Adopt appropriate measures for the developing countries to have more complete and freer access to information which will enable them to obtain an adequate selection of technologies;

/9. Contribute

9. Contribute to the redistribution of world scientific and technological efforts by facilitating an effective transfer of resources and know-how to the developing countries and removing the ties which have traditionally weighed down international co-operation;

10. Adopt an open attitude towards the vindications of the developing countries within the negotiations taking place to revise the Paris Convention for the Protection of Industrial Property and to establish a Code of Conduct on the transfer of technology.

That the developed and developing countries

1. Consider the feasibility of setting up a finance system to strengthen the autonomous capacity for scientific and technological advance of the developing countries so as to give due attention to their social and economic development needs. The system should aim at creating joint technological research programmes directed towards solving common problems of the developing countries. It should also be monitored by the developing countries, and will give preferential treatment to those which are technologically relatively less developed. Its funds should be allocated to scientific and technological activities in the developing countries and oriented towards:

(a) Acquisition of the knowledge needed to create or assimilate the technological processes required to solve socio-economic problems;

(b) Development of the capacity for designing and engineering the processes, equipment and instruments required for technological innovation;

(c) Development of local capacity for utilizing locally generated or imported techniques;

(d) Technical and administrative training required in order for the technologies to function well.

2. Encourage the adoption of a Code of Conduct on the transfer of technology which will fulfil the following aspirations of the developing countries:

(a) To cover all the categories of transactions included in the operations of the transnational corporations;

/(b) To



(b) To consecrate the exercise of the sovereign right of the developing countries to adopt laws, policies and/or norms to govern the operations of the transfer of technology and to take such measures as the appraisal, negotiation, registration and renegotiation of the agreements on transfer of technology;

(c) Specifically to regulate the abolition of those restrictive practices which have or may have adverse effects on the internal economy of the recipient country, or which impose restrictions or limitations on the development of its technological capacity, or whose inclusion in the agreements on technology should be considered contrary to the objectives of the Code.

(d) To include the principle that any agreement on the transfer of technology should be governed by the internal law of the recipient country and the norms and principles of the Code of Conduct.

(e) To contain institutional machinery which will allow and facilitate an adequate implementation of the principles and objectives of the code including the preferential treatment of the developing countries.

That the international agencies

1. Support activities aimed at achieving collective technological collaboration for development by adopting measures which will contribute towards:

(a) Granting the maximum possible support to the regional scientific and technological development programmes undertaken by the developing countries, for which purpose the international agencies should restructure their respective organizations, so as to give them the trans-sectoral consistency needed to give priority attention to development problems.

(b) Seeking the reordering of the United Nations system so as to avoid duplication of effort and omissions. The redefinition of functions required should lead to the clear delimitation and complementation of spheres of responsibility, and the effective application of the machinery for co-ordinating the activities of the United Nations Organization with the permanent supervision of the countries;

/(c) Taking

(c) Taking into account in the technical co-operation programmes of the international agencies the need to strengthen and utilize the administrative and management capacity of the developing countries with regard to the resources arising out of such programmes.

2. Prepare a list of experts and consultative and engineering enterprises in the developing countries and make preferential use of their services in technical and financial co-operation programmes.

3. Ensure that the United Nations University (UNU) consolidates its scientific and technological training and research programmes, and imbues them with selectivity in the light of the interests of the developing countries.

4. Include in the revision of the Paris Convention now in progress within WIPO and in the Conference which will be held to adopt the new provisions of this instrument norms for:

(a) Revising the principle of equality of treatment in patents, so as to establish non-reciprocal preferential treatment in favour of the developing countries;

(b) Establishing efficacious provisions for granting obligatory licenses and for the renovation of patents for lack of adequate use;

(c) Revising in particular the principle of the priority and independence of patents, in the light of the interests of the developing countries;

(d) Requiring the local use of patents, with the special, specific and clear regulation of cancellation for non-use in local production;

(e) Establishing that patents do not confer exclusive rights to import the product or products patented or manufactured using patented procedures. In this context, the importation of the products should not be considered as making use of the patent;

(f) Modifying the majorities required to adopt amendments to the Convention;

(g) Facilitating access by the developing countries to information from the developed countries, and allowing a real exchange of information among the developing countries;

(h) Eliminating all the clauses restricting the development of the innovative capacity of the Third World countries.

## B. RESOLUTIONS

72. The Meeting adopted two resolutions, which appear below. The first concerns the preparation of the final regional document and the region's recommendations for the Programme of Action. The second contains requests submitted to the General Assembly.

### 1. PLAN OF WORK FOR THE PERIOD PRECEDING THE UNITED NATIONS CONFERENCE ON SCIENCE AND TECHNOLOGY FOR DEVELOPMENT

#### The Regional Preparatory Meeting for the United Nations Conference on Science and Technology for Development,

Bearing in mind that the preliminary discussions and recommendations resulting from the meeting and the national and subregional documents and comments of the Governments should serve as a basis for the final version of the regional document and for the document containing the regional recommendations for the Programme of Action.

#### Resolves:

1. To recommend that the following procedure should be followed in drawing up the final version of the Regional Document and the document containing the regional recommendations for the Programme of Action:

(a) The CEPAL secretariat will order and structure the basic elements contributed at this meeting and the comments of the Governments in two documents, to be contained in the Regional Document and the regional recommendations for the Programme of Action, and will send them to the Governments of the region not later than 15 September 1978;

(b) The Governments of the region, after making such bilateral and subregional contacts as they may consider necessary, will make written comments on the above documents, conserving the fundamental concepts on which consensus has been achieved. They will submit them to the secretariat of the Commission not later than 15 October;

(c) The secretariat of the Commission will order and integrate the comments received, and in keeping with a criterion of geographical representativity which will include the subregional and regional integration systems and the countries which do not belong to any of these, will convene

/a technical

a technical group of government experts from Latin America and the Caribbean to meet at the end of October in order to revise and prepare, together with the secretariat of the Commission, a draft regional document and programme of action. The secretariat will finance this meeting in its entirety, including the travel of the experts taking part in it, from the resources which the Secretary-General of the Conference will release for this purpose;

(d) The documents resulting from the meeting of the expert group will be sent to the Governments of the region before 15 November;

(e) The Governments of the region will analyse the documentation and take an active part in a second session of the Regional Preparatory Meeting for the United Nations Conference on Science and Technology for Development to be convened by CEPAL (November/December). This meeting will adopt the final version of the Regional Document and the Regional Recommendations for the Programme of Action for submission by the Secretary-General of the Conference to the third session of the Preparatory Committee of the Conference (January 1979);

(f) Prior to this, a meeting of the Latin American group will be held within SELA, in accordance with resolution 2123 (SLXIII) of the Economic and Social Council.

2. PROGRESS OF WORK, NORMS OF PROCEDURE AND ALLOCATION OF FUNDS FOR THE ACTIVITIES ANTICIPATED FOR THE ORGANIZATION OF THE CONFERENCE

The Regional Preparatory Meeting for the United Nations Conference on Science and Technology for Development,

Recalling the provisions of General Assembly resolution 32/115 of 15 December 1977,

Bearing in mind resolution 2028 (LXI) of the Economic and Social Council, which recommends that an objective of the Conference should be to adopt concrete decisions on ways and means of applying science and technology in establishing a new international economic order,

Considering that the postponement until January 1979 of the Third Session of the Preparatory Committee for the Conference may produce an interruption in the budgetary, financial and administrative activities programmed, which in turn would cause a delay in the preparatory activities for the Conference,

/Considering the

Considering the manifest need to strengthen the role of the Regional Economic Commissions and provide them with human resources from the regions themselves and the necessary financial resources to allow them to carry out their science and technological activities as an essential contribution in the preparatory phase of the Conference,

Requests the General Assembly at its thirty-third session to examine the questions listed below and adopt the pertinent decisions:

(a) The analytic report of the Secretary-General of the Conference on the progress of the preparatory work for the Conference;

(b) The provisional rules and norms of procedure of the Conference, and

(c) The allocation of the funds needed for the full implementation of national, regional and interregional activities anticipated for the organization of the Conference, and especially the regional activities programmed in the Regional Meeting.

#### C. RECOMMENDATIONS

##### 1. SYSTEM OF FINANCING FOR THE TECHNOLOGICAL DEVELOPMENT OF THE DEVELOPING COUNTRIES

73. The meeting recommended the countries of the region to study with interest the proposed machinery for the establishment of the financing system for the technological development of the developing countries which is given in Annex 5, and to examine and explore other machinery.

##### 2. REVISION OF THE PARIS CONVENTION FOR THE PROTECTION OF INDUSTRIAL PROPERTY

74. The meeting urged the countries of the region, in their participation in the revision of the Paris Convention in progress within WIPO and in the Conference to be held to adopt the new provisions of this instrument, to consider the following aspects:

(a) Revision of the principle of equality of treatment with regard to patents, so as to establish non-reciprocal preferential treatment in favour of the developing countries;

/(b) Establishment

(b) Establishment of efficacious provisions for granting obligatory licenses and for the renovation of patents for lack of adequate use;

(c) Revision in particular of the principle of the priority and independence of patents, in the light of the interests of the developing countries;

(d) Requirement of the local use of patents, with the special, specific and clear regulation of cancellation for non-use in local production;

(e) Establishment of the fact that patents do not confer exclusive rights to import the product or products patented, or manufactured using patented procedures. In this context, the importation of the products should not be considered as making use of the patent;

(f) Study of the modification of the voting system, and in particular of the majorities required to introduce amendments into the Convention;

(g) Establishment of special norms to facilitate access by developing countries to information from the developed countries and to achieve a real exchange of information among developing countries;

(h) Elimination of all the clauses restricting the development of the innovative capacity of developing countries.

Also recommends that the developing countries should take an active part in the international meetings, particularly those programmed by WIPO, to revise the Paris Convention for the Protection of Industrial Property.

### 3. CODE OF CONDUCT FOR THE TRANSFER OF TECHNOLOGY

75. The meeting recommended the countries of the region to consider the following aspects in their participation in the negotiations on the code of conduct for the transfer of technology:

(a) Coverage of all categories of transactions including the operations of the transnational corporations;

(b) Consecration of the sovereign right of developing countries to adopt laws, policies and/or norms to regulate operations for the transfer of technology and to take such measures as the appraisal, negotiation, registration and renegotiation of the agreements on transfer of technology;

/(c) Specific

(c) Specific regulation of the abolition of the restrictive practices which have or may have adverse effects on the internal economy of the recipient country, or which impose restrictions or limitations on the development of its technological capacity, inclusion of which in the agreements on technology would be considered contrary to the objectives of the Code;

(d) Inclusion of the principle that any agreement on the transfer of technology should be governed by the internal law of the recipient country and the norms and principles of the Code of Conduct;

(e) Inclusion of institutional machinery which will allow and facilitate an adequate implementation of its principles and objectives, including preferential treatment of developing countries;

(f) Adoption in the form of an international treaty of the final instrument approved by the United Nations Conference on the Code of Conduct for the Transfer of Technology, taking into special consideration the interests of developing countries with absolute respect for their sovereignty.

1. The first part of the document is a letter from the President of the United States to the Congress.

2. The second part is a report from the Secretary of the Treasury on the state of the Union.

3. The third part is a report from the Secretary of the Navy on the state of the Navy.

4. The fourth part is a report from the Secretary of the War on the state of the War.

5. The fifth part is a report from the Secretary of the Interior on the state of the Interior.

6. The sixth part is a report from the Secretary of the Agriculture on the state of the Agriculture.

7. The seventh part is a report from the Secretary of the Commerce on the state of the Commerce.

8. The eighth part is a report from the Secretary of the Education on the state of the Education.

9. The ninth part is a report from the Secretary of the Health on the state of the Health.

10. The tenth part is a report from the Secretary of the Labor on the state of the Labor.

11. The eleventh part is a report from the Secretary of the Finance on the state of the Finance.

12. The twelfth part is a report from the Secretary of the Justice on the state of the Justice.



Annex 1

LIST OF PARTICIPANTS

1. States Members of the Commission

ARGENTINA

Representative: Victorio V. Olguín, Director of International Relations,  
Secretariat for Science and Technology

Member of Delegation: Rubén Nestor Patto

BARBADOS

Representative: John P.W. Jeffers, Deputy Director, Agricultural Bureau

Member of Delegation: Laurence H. Wilkinson

BOLIVIA

Representative: Carlos Aguirre, Director, Chairman, National Council for  
Scientific and Technological Development, Ministry of Planning and  
Co-ordination

Members of Delegation: Ramón Schulczewski, Jaime Torrico

BRAZIL

Representative: Miguel Ozorio de Almeida, Ambassador

Members of Delegation: Jorge d'Escragnolle Taunay, Dourimar Nunes de  
Moura, Mario Grieco, J.A. de Macedo Soares

CANADA

Representative: Arthur Blanchette, Ambassador and Permanent Observer to  
the OAS

Members of Delegation: Yvon Bouthillette, David A.W. Judd

COLOMBIA

Representative: Luis Javier Jaramillo, Chief, Technological Development  
Division, COLCIENCIAS

Members of Delegation: Jaime Gutiérrez, Margarita Sánchez Hurtado

COSTA RICA

Representative: Mariano Ramírez Arias, Executive Secretary, National Council  
for Scientific and Technological Research

Members of Delegation: Victoria Guardia de Hernández, Federico Vargas P.,  
José Martí Solórzano, Manuel Chavarria Grefier

CUBA

Representative: Miguel Llaneras Rodríguez, Vice-Chairman, State Council on Science and Technology

Members of Delegation: Pedro Herrera, Juan Iñurrieta, Mirtha Barquet, Eric Splinter, Emilio García Capotte

CHILE

Representative: Fernando Paredes Pizarro, Ambassador to Panama

Members of Delegation: Carol Pinto, Carlos Applegreen

ECUADOR

Representative: Luis Yepes Calisto, Ambassador to Panama

Members of Delegation: Carlos Andrade, José Villacís, Angel Matovelle

EL SALVADOR

Representative: Alirio Bernal, Chief, Science and Technology Unit, Ministry of Planning and Co-ordination of Economic and Social Development

FRANCE

Representative: Gerard Joubert, Councillor, French Embassy in Venezuela

GUATEMALA

Representative: Rolando Porta España, Co-ordinator, Science and Technology Unit, National Council for Economic Planning

Members of Delegation: Eduardo Martínez, Luis E. Ocaña

HAITI

Representative: Michel Bonnet, Co-ordinator CONADEP

HONDURAS

Representative: J. Héctor López Alvarenga, Chief, Department of Science and Technology, Higher Economic Planning Council

JAMAICA

Representative: Arnoldo K. Ventura, Chairman/Director, Scientific Research Council

MEXICO

Representative: Alfredo Ramírez Araiza, Director of International Affairs, CONACYT

Members of Delegation: Edmundo de Alba, Felipe A. González, Ruth Martínez

NICARAGUA

Representative: Harry E. Brautigam, Chief, Division of Economic and Social Research, National Planning

Members of Delegation: Bayardo F. Rodríguez, Joaquín Argüello Alfaro

PANAMA

Representative: Nicolás Ardito Barletta, Minister of Planning and Economic Policy

Members of Delegation: Main delegates: Gustavo R. González, Vice-Minister of Planning and Economic Policy; Diomedes Concepción, Mayor of the Distrito Capital and Executive Representative of the Governing Council of CEDECANI; Virigina Escala, Chief, Department of Scientific and Technological Policy, Ministry of Planning and Economic Policy; Alfredo Soler, Dean of the Faculty of Sciences of the University of Panama; Diógenes Luna, Adviser, Ministry of Trade and Industry; Orville Goodin, Director of Economic and Social Planning, Ministry of Planning and Economic Policy; Damaris Chea, Director, Institute of Agricultural Research of Panama; Carmelo Ciniglio, Deputy Director of CEDECANI; Roberto Arosemena, Advisor to the Ministry of Finance and the Treasury; Diógenes de la Rosa, Advisor to the Ministry of Foreign Affairs. Advisers: Víctor Levy, Abdiel Adames, Gilberto Ocaña, Juan Jované, Daniel Esquivel, Isaac Castillo, Gabriela Candanedo, Carlos Gómez, Vielka Tufón, Eliecer Lara, Aníbal Herrera, Ana R. de Gómez. Observers: Pedro Rognoni, Vicente Pascual, Vladimir de la Rosa y Samuel Bern.

PERU

Representative: Carlos Cornejo, Councillor, Embassy in Panama

Member of Delegation: Lourdes Hilbck Narvarte

TRINIDAD AND TOBAGO

Representative: Terrence Baden-Semper, Department Chief, Ministry of Foreign Affairs

Members of Delegation: Lenny K. Saith, Vere Mustafa

UNITED KINGDOM

Representative: Richard A. Styche, Second Secretary, Embassy of the United Kingdom of Great Britain to the United Nations

UNITED STATES OF AMERICA

Representative: Jean Wilkowski, Ambassadress

Members of Delegation: Louis Khan, James Pagano

URUGUAY

Representative: Ernesto Rubio, Department of Science and Technology,  
Secretariat of Planning

Member of Delegation: Omar Trujillo

VENEZUELA

Representative: Pedro M. Obregón, Chairman, National Council of Scientific  
and Technological Research

Members of Delegation: Beatriz Rangel, María Cristina García Palacios

2. States not members of the United Nations, attending  
in a consultative capacity

AUSTRIA

Representative: Nikolaus Horn, Ambassador of Austria in Colombia

3. United Nations Secretariat

United Nations Conference on Trade and Development (UNCTAD)

Pedro Roffe, Gloria Verónica Koch, Carlos Contreras

United Nations Industrial Development Organization (UNIDO)

Armin Eric Kobel, Representative of UNIDO in Ecuador

4. United Nations agencies

United Nations Children's Fund (UNICEF)

Francisco J. Sandoval, Programmes Officer

United Nations Development Programme (UNDP)

Eduardo Niño Moreno

United Nations Environment Programme (UNEP)

Héctor Sejenovich, Regional Adviser  
Jorge Morello

5. Specialized Agencies

International Labour Organisation (ILO)

Joseph Ramos, Employment Expert

United Nations Food and Agriculture Organization (FAO)

Berndt Muller-Haye, Officer, International Agricultural Research

United Nations Educational, Scientific and Cultural Organization (UNESCO)

Marcelo Robert, Programme Specialist

World Health Organization (WHO)

Ezequiel Paz, PAHO/WHO Representative in Panama

International Telecommunications Union (ITU)

Pedro Chaher

Intergovernmental Maritime Consultative Organization (IMCO)

Guillermo Cipolla, Shipping Adviser for Latin America

World Intellectual Property Organization (WIPO)

Marino Porzio, Director, Office of the Director-General

6. Intergovernmental organizations

Organization of American States (OAS)

Germán Framiñán, Carlos Urrutia Aparicio

Inter-American Development Bank (IDB)

Simón Teitel, Adviser, Department of Economic and Social Development

Permanent Secretariat of the General Treaty on Central American Economic Integration (SIECA)

Dante Ramírez, Juan Alberto Fuentes

Board of the Cartagena Agreement (JUNAC)

Luis Soto-Krebs, Gustavo Flores

Central American Institute for Research and Technology (ICAITI)

Gabriel Dengo, Director

Latin American Economic System (CELA)

Valentín Treviño

Intergovernmental Committee for European Migrations (CIME)

Roberto Kozak, Chief of Mission in Chile

Arab League Education, Culture and Science Organization (ALECSO)

Adel A. Sabet, Under-Secretary of State, Ministry of Scientific Research

7. Non-governmental organization

Inter-American Council of Commerce and Production (IACCP)

Raúl de la Peña

8. Secretariat

United Nations Conference on Science and Technology for Development (CNUCTD)

Guy B. Gresford, Deputy Secretary-General of the Conference

Omar Aslaoui, Director, Office of the Secretariat of the Conference

Bruno Lobo, Technical Adviser

William R. Watterson, Information Officer for the Conference

Economic Commission for Latin America (CEPAL)

Enrique V. Iglesias, Executive Secretary

Oscar J. Bardeci, Director, Programmes Office

Daniel Blanchard, Deputy Secretary of the Commission

Isaías Flit, Co-ordinator, Science and Technology Unit

Hamid Mohammed, Deputy Director, Port of Spain Office

Aliber Guajardo Cantú, Regional Adviser

Niels Brandt, Economic Expert in Science and Technology

Annex 2

LIST OF DOCUMENTS

Provisional agenda (ST/CEPAL/Conf.66/L.1/Rev.1)

Science, technology, development and co-operation in Latin America  
(ST/CEPAL/Conf.66/L.2/Rev.1)

Information Document N° 1

Canada: Summary of the national report

Information Document N° 2

United States: Summary of the national report

Information Document N° 3

Netherlands: Summary of the national report

Information Document N° 4

Mexico: Summary of the national report

Information Document N° 5

El Salvador: Summary of the national report

Information Document N° 6

Colombia: Summary of the national report

Information Document N° 7

Uruguay: Summary of the national report

Information Document N° 8

Ecuador: Summary of the national report

Information Document N° 9

Bolivia: Summary of the national report

Information Document N° 10

Haiti: Summary of the national report

Information Document N° 11

Guyana: Summary of the national report

Information Document N° 12

Nicaragua: Summary of the national report

Information Document N° 13

Barbados: Summary of the national report

Information Document N° 14

Panama: Summary of the national report

Information Document N° 15

Peru: Summary of the national report

Information Document N° 16

Chile: Summary of the national report

Information Document N° 17

Costa Rica: Summary of the national report

Information Document N° 18

Cuba: Summary of the national report



Annex 3

STATEMENT BY MRS. BEATRIZ RANGEL, MEMBER OF THE DELEGATION  
OF VENEZUELA

Mr. Chairman,

It has been a motive of particular satisfaction for the delegation of Venezuela to take part in this important Latin American and Caribbean forum, held in Panama. Panama is our fatherland too, because it was the fatherland of the great liberator, Simón Bolívar, who chose it to express Latin American unity in making it the headquarters of the Amphictyonic Congress of Panama in 1825. We would also like to express our gratitude for the excellent wisdom with which our discussions have been conducted. We were honoured by the presence of Dr. Enrique Iglesias, Executive Secretary of CEPAL, and of Dr. Guy Gresford, Deputy Secretary-General of the United Nations Conference on Science and Technology for Development.

We regretted the absence of Dr. Joao F. da Costa, Secretary-General of the Conference and wish him a rapid recovery, so as to continue to benefit from his efforts to harmonize the positions of the Conference.

Having reached the end of our work, we should like to share with the group some ideas which have brought our delegation to take part in the preparatory work of this important world forum. Since the beginning of the preparatory work, we have supported the Conference as an appropriate means of initiating the transformation of science and technology and making them pillars of the New International Economic Order, whose fundamental principles we wholly support. For this reason we consider that the Conference and the preparatory period constitute a unique historical moment for beginning the transformation of the present international pattern of distribution of scientific and technological potential. In order to achieve this objective, there must be an open dialogue of participation among the different international agents so as to find means of strengthening the technological capacity of our countries and individually and collectively building up an endogenous structure of production which will satisfy the aspirations of their peoples.

Our region has a special responsibility in this process, as the point of origin of the new philosophies and approaches to development in general and scientific development in particular which have opened up new ways to the world. We cannot forget that it was in this very same forum that, under the leadership of that eminent Latin American Dr. Raúl Prebisch, Latin America vis-à-vis the world substantially called in question the traditional approaches to the development process. This marked a new stage in international economic relations which served our brothers in other regions of the Third World by supporting their vindications. We must now accept this new challenge with pride and spirit and share with them our intellectual inheritance so as to provide the theoretical and conceptual bases needed to place science and technology at the service of mankind.

Mr. Chairman, the delegation of Venezuela hopes that in the forthcoming meetings of the regional preparatory period the intellectual heritage of Latin America will be duly incorporated into the documentation for the Conference, so that Latin America will once again assume the guiding role which has marked it in the transformation of the international economic structure and thus contribute to establishing a new society of nations characterized by international social justice, economic interdependence and peace.

Annex 4

OBSERVATIONS BY THE COUNTRIES ON THE DOCUMENT SCIENCE, TECHNOLOGY,  
DEVELOPMENT AND CO-OPERATION IN LATIN AMERICA  
(ST/CEPAL/Conf.66/L.2/Rev.1)

1. General comments

The following recommendations were made to the secretariat of the Commission with regard to the structure and general presentation of the document:

- (a) The document should be restructured so that the Regional Document will develop along the same lines as the country reports, according to the directives emanating from the first meeting of the Preparatory Committee of UNCSTD. It should also contain the particular features of the region which the meeting in consensus may consider appropriate (see document A/32/43 of the United Nations General Assembly).
- (b) The revision, in accordance with the scheme adopted, should first of all take into account the material contained in the document A/32/43/Rev.1, plus the specific observations emanating from the present meeting in consensus, and the common elements identified in the country reports.
- (c) The revision should also summarize and cut down the material so as to produce a concise easily-read document, possibly about 40 pages long. The new version should reach the members States by 15 September 1978 at latest (see the resolution on the Plan of Work for the period preceding the United Nations Conference on Science and Technology for Development).
- (d) The document should only include those points agreed upon by consensus.

2. Specific comments on the regional document

The following recommendations and comments were made to the secretariat of the Commission in connexion with the different chapters of the document prepared by it.

(a) Comments on the Introduction

The following suggestions were made with regard to this section.

- (i) Modify the order of the three standpoints mentioned at the bottom of page 2 by placing the third first;

(ii) In the second paragraph (page 2), replace the second sentence beginning "As a series" and ending "indicated limitations" by the following: "As common situations linked to historical events and similarity of stages of development exist, pooled technological development programmes could be set up which would contribute to surmounting the above". Replace the sentence beginning "Furthermore" and ending "programme between regions" by:

"Latin America and the Caribbean should in turn strengthen their solidarity with other developing regions, contributing and sharing with them technological co-operation machinery and programmes."

(iii) Directly define the proposal to make a diagnosis of the situation of science and technology in Latin America and the Caribbean and to follow it up with a plan of action which will give a better coverage to these questions in terms of world and regional development, removing or neutralizing the effects which have determined the deterioration of the technological component in trade relations, the increase of technological dependence, the uneven progress of the scientific potential and other cardinal questions.

(iv) Stress aspects detrimental to socio-economic development and scientific and technical progress caused by the negative aspects of the international structures and the transnational corporations.

(v) Link the objectives of the programme of action to the measures proposed by the New International Economic Order.

(vi) The following concepts should be added:

- science and technology are necessary for development, understood in its multiple dimensions - economic, social and cultural.
- science as such is indispensable to development in terms of its potential to open the frontiers of knowledge and progress towards new realities independently of any practical application it has or may have.

(b) General comments on Chapter I

(i) With regard to Chapter I, the following recommendations of a general nature were made for the final version of the document which the secretariat will prepare:

- that an endeavour should be made to deal separately with the aspects of the Conference itself and those relating to the diagnosis of the problems on general and technological development in the countries.

- that special emphasis should be placed on the fact that the Conference should include the concept of a better co-ordination of the attempts of many countries and international organizations to contribute to the scientific and technological development of small developing countries, especially island or landlocked developing countries, and countries with fewer resources. Due to lack of proper co-ordination, there has been much duplication, ill-conceived work, and some good work has not progressed to practical application. Although the United Nations system has endeavour to alleviate this situation, there is need for more rationalization of action and interaction among the various international agencies.

(c) Specific comments on Chapter I

(i) It was recommended that the possibility should be studied of amending or suppressing, as required, the following paragraphs:

- Page 6, paragraph 5: "There is evidence... developing countries".
- Page 7, paragraph 1, third sentence: "In any case... resolves."
- Page 7, paragraph 2: "Regardless of... creating them."
- Page 7, paragraph 3: "These phenomena... only 0.2% to 0.5%."
- Page 9, paragraph 2, the phrase: "which originate... absorbed."
- Page 10, paragraph 2, last sentence: "Latin America... rest of the world."

(ii) With regard to page 5, paragraph 1, a suggestion was made:

- to amend the content of the first paragraph so as to indicate that the two problems which basically require the attention of the United Nations Conference are:
  - (1) Present restrictions on the application of science and technology to meeting development needs especially in the developing countries.
  - (2) How international co-operation can contribute to modifying this situation.

- to bear in mind in the analysis of these restrictions that they are manifested in such facts as:

- (1) Lack of an appropriate use of the stock of useful knowledge - unprecedented in history - available at the present time, which has meant that basic lacks among broad strata of mankind have not been resolved;
- (2) The tendency towards tremendous concentration of research and innovations in specific economic spaces, which are phenomena compromising the viability of the scientifically less developed countries.

- recall with regard to international co-operation that the institutions and mechanisms that form part of the international community - including the United Nations - play only a fragmentary and obviously inadequate role in resolving this situation.

(iii) On page 5 it was suggested that paragraphs 1 and 2 should be reformulated so as to cut down the basic aspects and stress affirmative aspects and eliminate some of the conceptual repetitions.

(iv) With regard to paragraph 1, page 6, it was suggested that the last sentence should be replaced by the following:

"The basic needs for food, clothing, housing and employment have not been met, and in many regions poverty coexists with the accumulation of scientific data."

(v) With regard to paragraphs 3 and 4 on page 6, it was suggested that they should be amended as follows:

"In any case, the paradox of the scientific potential available and the needs observed can apparently be attributed to the relations of dependency between the developing and the developed countries which are typical of the international system of ownership and transfer of know-how and technology. This contrast involves the second key problem of the conference. Reference has been made to the form in which research workers, research and economic innovations tend to be concentrated. Over 90% of the world's researchers work in less than ten countries; the concentration of research projects in leading centres and industrial laboratories is even higher; and technical

economic innovations are absorbed largely by the advanced countries in their trade and production cycles. All of these mean greater possibilities for industrialized countries to control developing countries. The form of dealing with this problem should be examined by the Conference and tackled in its longest-term perspectives. Considering that scientific knowledge should constitute a common possession of mankind and that the fruits of technical progress should benefit all the countries and the peoples of the world, it is necessary to regulate the standards which govern the transfer of technology so that the cost will not have a negative effect on the desired objectives of economic and social development."

(vi) It was suggested that the sentence in paragraph 2 on page 7 beginning "In any case" and ending "in those results", should be replaced by the following:

"In any case, the majority of the countries have not had the internal and external conditions to create the capacity to interpret, absorb and select the tangible expressions of technical progress, which, when they are incorporated through imported equipment or inadequate investment programmes in the socio-economic characteristics of each country, cease to generate positive results in terms of the development which it is aspired to obtain."

(vii) It was suggested that the wording of the sentence in paragraph 4 on page 7 beginning "Their modest" and ending "must be faced", should be amended as follows:

"Their modest scientific potential is seen to be reduced still further by the brain-drain, which is encouraged by the industrialized countries, and as a result of the conditions prevailing in the developing countries owing to their uncertain situation. There is another important problem to which attention must be given; this concerns the precariousness and restrictions that impede definite progress in industrialization and business transactions and the flow of scientific and technological knowledge between developed and developing countries."

(viii) With regard to paragraph 1 on page 8, it was suggested that "multilateral mechanisms" should be replaced by "bilateral mechanisms and mechanisms...".

(ix) With regard to paragraph 2 on page 8, it was suggested that the wording of the last sentence should be amended as follows:

"The Conference should formulate indications which will make it possible to produce the co-ordinated channelling of the action of the international community in order to stimulate scientific and technological development of use to world economic, social and cultural development, making the best possible use of the reorganization of the economic and social sectors of the United Nations system and other elements and agencies which go to make up international co-operation."

(x) With regard to page 9, line 4, it was suggested that the word "potential" should be replaced by "capacity and stocks".

(xi) On page 9, it was suggested that a new paragraph should be inserted between paragraphs 3 and 4 as follows: "The form of dealing with this problem should be examined by the Conference and tackled in its longest-term perspectives. In this task, the Conference should bear in mind the following elements, inter alia:

- (1) The differences in circumstances existing between countries with similar degrees of development;
- (2) The predominance in some country situations of obstacles to scientific and technological development arising out of the lack of national scientific and technological infrastructure.
- (3) In other cases, the predominant lack of connexion between supply and demand in science and technology as a central obstacle.
- (4) In other cases, the preponderant lack of harmony between scientific and technological development efforts and other national development efforts.
- (5) Lastly, in a still different case, the existence of situations basically of an economic nature, which restrict the internal efforts of scientific and technological development.

(xii) With regard to paragraph 3 on page 9, it was suggested that the first sentence should be amended to read: "a number of circumstances conclusively indicate that it would be advisable to make UNCSTD a forum of paramount significance which will engage the political will of the participant countries."



(xiii) It was suggested that the wording of the last sentence of paragraph 3 on page 9, should be amended by replacing the sentence following the words "less developed countries" by "...this is due to the unequal distribution of the world effort in science and technology," which should be linked to the previous phrase by means of a semi-colon.

(xiv) On page 10, it was suggested that after the words "no small number of them" at the end of the first paragraph, the following sentence should be inserted:

"The problem is aggravated by the fact that when the developing countries begin to overcome the inequalities by operating within the interdependent system, policies are generated which place obstacles in the way of this effort."

(xv) With regard to paragraph 2 on page 10, it was suggested that the sentence beginning with the words "Latin America" and ending "rest of the world" should be suppressed.

(xvi) With regard to the last part of paragraph 2 on page 10, it was suggested that the following should be added "stressing the urgency of giving greater depth to the social changes and man's role as the main protagonist and beneficiary, and his technical, scientific and cultural training as a basis for all the rest."

(xvii) With regard to paragraph 1 on page 10, it was suggested that the word "preserving" in line 3 should be replaced by the words "raising the level of".

(xviii) It was suggested that a new paragraph based on the following points should be added before the last paragraph of the chapter:

The full and adequate use of the United Nations system for a real application of science and technology for development should include the following basic aspects:

(a) Redefinition of objectives, policies and criteria, in response to the general desire to integrate science and technology in the establishment of a new international order.

(b) Adjustment of the objectives, policies and programmes of the United Nations system and other international agencies to the development

objectives and the priorities agreed upon by the countries, especially the developing countries, at the national, regional or international levels.

(c) Harmonization in the objectives and policies of the different international agencies and co-ordination in their programmes so that they will converge - each in its own field of action - in a global programme which will avoid repetitions and waste effort.

(d) Adoption of specific programmes which will really contribute to achieving development targets, by means of co-ordinated action which includes both the general and specific interests of the relatively less developed countries.

(d) General comments on Chapter II

(i) It should be made clear that the introduction of intermediate technology can only be taken account of in the less strategic sectors of the economy, while resources are concentrated on the introduction of vanguard technology in priority sectors.

(ii) What should be avoided is that the underdeveloped countries, through inappropriate use of intermediate technology, help to finance the developed countries by paying for obsolete intermediate technologies at new technology prices.

(iii) There is need to make structural changes in the developing countries, e.g., education policies, information, and the capacity to adapt imported technology.

(iv) Specific regional scientific and technical programmes should be elaborated to advance social and economic development. In this connexion, in noting the comparison of the dynamics of development between Latin America with Asia and Africa, care should be taken not to introduce a new international subdivision of labour.

(e) Specific comments on Chapter II

(i) The total or partial suppression of the following paragraphs was suggested:

Page 15, line 9, the following words: "certain minerals and tropical agricultural products. Concerning the former..."

Page 15, line 13, the words: "in certain priority areas".

Page 18, paragraph 2, beginning with the word "Regardless."

Page 19, first three paragraphs.

Page 25, paragraph 2, the sentence beginning "the need" and ending "heterogeneity".

Page 27, the paragraph beginning at the foot of page 26.

(ii) On page 11, paragraph 2, lines 6 onwards, it was suggested that the paragraph should be amended as follows:

"... closely interrelated. Consequently, there is no doubt that the style and strategy of development, and the external factors which characterize international relations with regard to the internal utilization of ownership and transfer of science and technology, have a decisive influence on the type of technology policies that should be fostered. In each case..."

(iii) It was suggested that the Secretariat should revise the wording of the second sentence of paragraph 2 on page 13.

(iv) Comments were made on the figures quoted on page 13 paragraph 4, and they will be checked by the secretariat.

(v) With regard to the drafting of pages 16 and 17, it was observed that the comment that Latin America has achieved a high level of industrialization could give a false general picture of the regional situation. The secretariat undertook to revise the wording of the relevant paragraphs.

(vi) With regard to paragraph 2 on page 21, it was suggested that the first sentence should be suppressed, and that the rest of the paragraph should read as follows: "It appeared that in Latin America technical change was considered an exogenous variable independent of economic policy while at the same time it was assumed that the processes of accumulation and industrialization were capable of spontaneously generating the local ability to absorb, disseminate, and create technical knowledge at the right moment".

(vii) It was suggested that the first sentence of paragraph 2 on page 21, should be replaced by the following: "the results did not fully live up to expectations".

(viii) The following wording was suggested for the last sentence of paragraph 1 on page 24: "taken jointly, they offered valid explanations as

to the nature and limitations of the region's technological progress, but it should be pointed out that for different situations, some are more determinant than others".

(ix) With regard to paragraph 2 on page 26, it was suggested that the list of integration movements should be completed with the mention of the Andean Group, with express reference to Decisions 24, 84 and 85, and the Central American and Caribbean systems.

(f) General comments on Chapter III

(i) It was observed that the institutionalization of science and technology policies should be in keeping with the social and economic development of the countries. For example, the social changes stemming from technological changes should be taken into account. Stress should be laid on the institutional measures (for example, code of conduct, legal and financial conditions) which would stimulate the technological self-determination of the countries instead of technological dependence.

(ii) Although methods have been evolved for making an economic and social appraisal of the positive results of science and technology, the effects of the preponderant uncertainty of this activity often constitute a restriction on its financing in developing countries. National and international financial machinery frequently use this excuse for not accepting projects with a large pure and applied research factor, even when they can clearly be seen to be feasible. It is very necessary to make changes in the classical financing systems and gain support for the pure and applied scientific research and technological efforts made at the national, regional and international levels.

(iii) It was pointed out that it would be appropriate to add a new paragraph to Chapter III, defining the basic characteristics and elements of a scientific and technological development policy in keeping with the guidelines laid down at the Fifth Meeting of the Standing Conference of leaders of the national scientific and research policy councils of the member States of Latin and the Caribbean, held in Quito from 13 to 18 March 1978, where reference was made to resolution 87(IV) of the United Nations Conference on Trade and Development (UNCTAD) on the scientific and technological capacity of the developing countries.

(iv) It was observed that Chapter III should indicate more accurately the common objectives which the developing countries should set in their science and technology policies, which would serve as orientation for preparing national scientific and technological development plans, taking into account the conceptual elements arising out of the UNESCO meeting held in Quito.

(g) Specific comments on Chapter III

(i) With regard to page 28, paragraph 2, it was suggested that the last line should be replaced by the following phrase: "of the importance of the development and stimulation of the creative capacity".

(ii) With regard to page 35, paragraph 2, it was suggested that the reference to Uruguay should be suppressed.

(iii) With regard to page 36, paragraph 1, it was suggested that the following sentence should be added to the end of the paragraph: "It cannot, however, be ignored, that in some circumstances these small groups, of less than the critical mass, constitute nuclei of 'cultural catalysis' which are essential for initiating subsequent advancement".

(iv) With regard to page 37, the last paragraph, it was observed that it would be a good idea to give other examples of national science and technology plans.

(v) With regard to page 38, paragraph 1, it was suggested that the following should be added to the end of the paragraph:

"It is of particular importance to the developing countries to have their own scientifically and technically trained personnel in order to be able to benefit to the maximum from the transfer and adaptation of imported technology, and the progressive development and utilization of national technologies.

In the developing countries, the efforts and resources aimed at the training of this personnel are adversely affected, and their scientific and technological stocks diminished, as a result of the brain-drain. The phenomenon of the drain of trained personnel from the Latin American countries towards developed nations in fact constitutes a reverse transfer of scientific and technological know-how and human capital."

(vi) With regard to page 40, paragraph 4, it was pointed out that the correct name of INTI of Argentina is the National Institute of Industrial Technology.

(vii) With regard to page 44, the last paragraph, it was suggested that the second sentence should be amended as follows: "There can be no doubt that scientific and technological research will find full maturity in an atmosphere of justice and social peace and the affirmation of human rights".

(h) General comments on Chapter IV

It was decided to suppress this chapter, and it was agreed to request the secretariat to extract the most important elements for use in other parts of the document.

Annex 5

SYSTEM OF FINANCING FOR THE TECHNOLOGICAL DEVELOPMENT OF  
THE DEVELOPING COUNTRIES

1. Bases

There is a clear consensus that one of the most significant limitations on the developing countries in undertaking the process of generating their own technological capacity is the lack of financial resources, which prevents any continuing development of scientific and technological activities and the creation and expansion of research and development institutes, organized nationally, subregionally and regionally.

To date, the attempts at international collaboration to strengthen the technological capacities of the developing countries have also suffered from a lack of continuity in the supply of funds; similarly, a large part of economic and financial assistance contains ties which often transform it into an instrument which benefits the suppliers of aid rather than the recipients.

This makes it necessary to propose new systems of financing which will make it possible to overcome the obstacles mentioned and make a real and effective transfer to the developing countries of the capacity to take decisions on the creation, adaptation and selection of technologies required to meet their needs in social and economic matters. It is therefore necessary to create machinery for financing which will be adequate in terms of quality and continuity and will allow the developing countries to make their own decisions.

The result of the different degrees of technological advances of industrialized and developing countries may be measured in terms of the differences existing in their trade in manufactures, which shows very objectively the influence of the technological variable on international trade. Products manufactured in the industrialized countries use raw materials which generally come from developing countries, which it has not been possible to process owing to the lack of the know-how for producing such goods. The proposed machinery for financing is therefore based on

the transfer of a percentage of the imbalance of trade in manufactures between the developed and the Third World countries.

The system would also have the advantage of being automatically adjustable in the course of time; this means that if the differences of a technological nature were accentuated in the course of time, the quantities would be larger and the amounts to be transferred from developed to underdeveloped countries would increase. Similarly, if the technological differences are less, the quantities become smaller and finally disappear, if the distortions are in fact really corrected.

There are also differences, however, of scientific and technological development among the developing countries which it is necessary and desirable to correct, so that situations like those existing between the developed and the developing countries are not created.

If the contribution of each developed to each developing country is proportional, the distribution will tend to accentuate the technological underdevelopment of the relatively less developed countries.

A distortion would also occur in favour of the countries possessing more foreign currency (oil-exporting countries) which for this reason have a greater capacity for making imports, frequently of luxury products, from the developed countries.

In order to correct this phenomenon, a regional compensation mechanism is proposed (for Asia, Africa, and Latin America and the Caribbean), which will make it possible to increase the contributions towards developing countries with fewer resources, by obtaining part of the contributions due from the countries with the greatest economic capacity.

It must also be recognized that solidarity and co-operation among the developing countries will be one of the most important bases for their development. One way of giving practical expression to this co-operation is the development of joint technological projects among such countries.

Those developing countries which have begun integration processes as a form of improving their bargaining capacity vis-à-vis the developed countries and with a view to making joint efforts aimed at solving common problems constitute a special case. Within these integration processes, each of the countries taking part contributes such resources as it can;



this is why it is considered necessary for each country, through the financial system proposed, to contribute a percentage of the real contribution it will receive to the joint technological development programmes.

On this basis, and taking into account the necessary redistribution of the world effort in scientific and technological development, a system of financing is proposed below for the technological development of the developing countries, with reference to the contributions which the industrialized countries should make for this purpose.

## 2. Objectives of the system

The developing countries which receive financial resources from the developed countries for the implementation of scientific and technological activities should channel them through their national institutions or through the subregional, regional and interregional co-operation machinery for the implementation of individual or joint programmes oriented towards:

(a) the acquisition of the basic and applied knowledge required for the assimilation of the technological processes need to solve socio-economic problems,

(b) the development of the capacity to engineer, design and construct the processes, equipment and instruments for technological innovation,

(c) the development of local capacity for the utilization of the technologies generated internally or imported, and

(d) the technical and administrative training required for the successful operation of the technologies selected.

## 3. Constitution of the system

### (a) Financial resources of the system

The system will consist of annual transfers of funds from the developed to the developing countries, calculated on the basis of a percentage of the average deficit of the trade balance of manufactures of the developing compared with the developed countries, during the five-year period preceding the year in which the contribution will be made.

These percentages will increase progressively, so that the transfers made in the first few years will not be too large, since this would cause

the failure of the system from lack of an adequate management capacity and use of financial resources by the developing countries. At the same time, the percentages will have to be such that the resulting amounts will be significant compared with the amounts which the developing countries are at present investing in pure and applied research.

Since the annual deficit may introduce conjunctural distortions, stemming from domestic economic measures, it is proposed to obviate this difficulty by calculating the average quinquennial deficit of the period immediately preceding the year corresponding to the contribution. The contribution would thus be a percentage of this average, calculated as shown in the following example:

If A is a developed country and S a developing country:

$$X_{A-S} - X_{S-A} = D$$

where:  $X_{A-S}$  = exports of manufactures from country A to country S

$X_{S-A}$  = exports of manufactures from country S to country A

D = imbalance in the trade balance of manufactures between countries A and S

$$\text{Then: } N_{A-S} = X \frac{D_1 + D_2 + D_3 + D_4 + D_5}{5}$$

where:  $N_{A-S}$  = theoretical contribution for technological development from country A to country S

X = variable percentage to be defined

$D_1 \dots D_5$  = annual imbalances over a five-year period

Each developed country will calculate the theoretical contribution which it should make to the technological development of each developing country with which it maintains a permanent trade in manufactures. The sum of all the theoretical contributions calculated in this form will constitute the total financial resources of the system.

#### (b) Compensation mechanisms between developing countries

The compensation mechanism would be applied to the contributions from each individual developed country to developing countries, as shown in the following example:

$$N_{AP} = \frac{N_{A-S} + N_{A-T} + \dots + N_{A-Z}}{S-Z} = \frac{N_{AT}}{S-Z} \quad (1)$$

where:  $N_{AP}$  = Average theoretical contribution of country A

$N_{A-S}$  = Theoretical contribution of A to S

$N_{A-Z}$  = Theoretical contribution of A to Z

$S-Z$  = Number of countries of the region

$N_{AT}$  = Total contribution of country A to the region

The factor of redistribution of the contributions to each developing country will be calculated as follows:

$$K_{A-S} = \frac{N_{AP}}{N_{AP} + N_{A-S}} \quad (2)$$

where:  $K_{A-S}$  = Factor of redistribution for each country

$N_{AP}$  = Average theoretical contribution of country A

$N_{A-S}$  = Theoretical contribution of A to S

The real contribution which each developing country will receive from the industrialized country A will be:

$$N_S = \frac{K_{A-S}}{K_{A-S} + K_{A-T} + \dots + K_{A-Z}} N_{AT} = \frac{K_{A-S}}{K_A} N_{AT} \quad (3)$$

$$N_S = \frac{K_{A-S}}{K_A} N_{AT} \quad (4)$$

where:  $N_S$  = Real contribution of country A to S

$K_{A-S}$  = Factor of redistribution calculated according to (2)

$K_A$  = Sum of the factors of redistribution according to the demonstration made in (3)

$N_{AT}$  = Total contribution of country A to the region

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