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PREPARATORY COMMITTEE FOR THE UNITED NATIONS CONFERENCE ON SCIENCE AND TECHNOLOGY FOR DEVELOPMENT
Third session
22 January to 2 February 1979
Item 2 of the provisional agenda.
Preparations for the United Nations Conference on Science and Technology for Development: (a) Progress report of the Secretary-General of the Conference: (i) Assessment of work at the national and regional levels

REPORT OF THE LATIN AMERICAN REGIONAL PREPARATORY MEETING

CONTENTS

I. ORGANIZATION OF WORK

1. The Latin American Regional Preparatory Meeting for the United Nations Conference on Science and Technology for Development, second session, convened by the Executive Secretary of the Economic Commission for Latin America (ECLA), was held at Montevideo from 29 November to 1 December 1978, in accordance with resolution 1 of the Regional Preparatory Meeting, first session, 1/ in which ECLA was directed to convene a second session of the Regional Preparatory Meeting to adopt the final version of the regional report and the recommendations for the action programme to be submitted to the Preparatory Committee of the United Nations Conference on Science and Technology for Development (UNCSTD) at its third session.

Attendance

2. The Meeting was attended by representatives of the following States members of the Commission: Argentina, Bolivia, Brazil, Canada, Colombia, Costa Rica, Cuba, Chile, the Dominican Republic, Ecuador, France, Guatemala, Honduras, Mexico, the Netherlands, Nicaragua, Paraguay, Peru, Trinidad and Tobago, the United Kingdom of Great Britain and Northern Ireland, the United States of America, Uruguay and Venezuela.

3. The following United Nations bodies and specialized agencies were represented: United Nations Industrial Development Organization (UNIDO), United Nations Development Programme (UNDP), International Labour Organisation (ILO), Food and Agriculture Organization of the United Nations (FAO), United Nations Educational, Scientific and Cultural Organization (UNESCO) and World Health Organization/Pan American Health Organization (WHO/PAHO).

4. Also represented were the Organization of American States (OAS), the Latin American Free Trade Association (LAFTA), Board of the Cartagena Agreement (JUNAC), the Latin American Energy Organization (OLADE), the Latin American Economic System (SELA) and the Intergovernmental Committee for European Migrations (CIME).

5. The full list of participants appears in annex II of the present report.

Election of officers

6. During the opening session, in accordance with the proposal adopted at the meeting of Heads of Delegations which preceded the session, the following officers were elected:

1/ Held at Panama City from 16 to 21 August 1978. For the report on that meeting, see document ST/CEPAL/CONF.66/L.3/Rev.2.

Chairman:	Elías Pérez Fernández (Uruguay)
First Vice-Chairman:	Frank Sealy (Trinidad and Tobago)
Second Vice-Chairman:	Guillermo de la Plaza (Argentina)
Third Vice-Chairman:	José Rodas (Guatemala)
Fourth Vice-Chairman:	Enrique Martín-del-Campo (Mexico)
Rapporteur:	Carlos Aguirre (Bolivia)

Agenda

7. The Meeting endorsed the following agenda, previously adopted at the meeting of Heads of Delegations:

1. Opening speeches
2. Election of officers
3. Adoption of the agenda
4. Recommendations for an action programme for the use of science and technology in the development process
5. Consideration of the regional document E/CEPAL/L.183/Rev.2
6. Work programme of the ECLA secretariat during the period from 1 December 1978 until the World Conference
7. Adoption of the report

8. The Meeting had before it the following documents:

"Report of the Latin American Regional Preparatory Meeting for the United Nations Conference on Science and Technology for Development" (ST/CEPAL/CONF.66/L.3/Rev.2);

"Science and technology in Latin America: regional diagnosis and action programme" (E/CEPAL/L.183/Rev.2).

Opening addresses

9. The opening meeting was held on the morning of 29 November. Addresses were delivered by the Secretary for Planning, Co-ordination and Diffusion of Uruguay, Colonel (Ret.) Luis W. Cicalese, the Executive Secretary of ECLA,

Mr. Enrique V. Iglesias, and the Secretary-General of the United Nations Conference on Science and Technology for Development, Mr. João Frank Da Costa.

10. The Secretary for Planning, Co-ordination and Diffusion of Uruguay welcomed the delegates to the meeting in the name of the Government and people of Uruguay. He stressed that science and technology should play a more direct and important role in the integral development of the Latin American countries and should be in keeping with the individual economic, social, political and cultural characteristics of each country. At the Panama meeting the countries had studied the regional document and made recommendations, and the purpose of the present meeting was to put forward practical recommendations at all levels which could make a real contribution to the scientific and technical progress of the developing countries in a spirit of genuine international co-operation, while respecting the independence and sovereignty of each country.

11. The Executive Secretary of ECLA stressed the fact that the second session of the Regional Meeting was the result of the political and technical reflection of a series of meetings held in Latin America in preparation for the World Conference. He said that the Conference would have far-reaching repercussions not only on science and technology but in the wide field of human welfare which the latter affect, and on styles and the very quality of life.

12. He pointed out that decisions on science and technology involved various types of considerations, including the specific conditions of development of countries, their internal socio-economic and political modalities, and their ideologies, cultural features and other elements.

13. He went on to say that there was an ever-increasing scientific and technological gap between the developed and developing countries and that in Latin America, which was a semi-industrialized region, a definite split was to be observed between conceptions and reality. Although the region had areas both of modern and of primitive production, it was continuing to make progress, although without an integrated approach to the challenges of development and the patterns of scientific and technological progress which best accompany them.

14. Latin America was now facing three major challenges: the dynamic development of the forces of production, the solution of social ambivalances in the form of poverty and unemployment, and the transfer of technology in the international context.

15. He observed that the action programme which the Meeting would consider involved action at three levels: at the national level, the deliberate presence of the State, with a clear awareness of its goals and the need to foster national creativity; at the regional level, the possibilities for joint action; and at the international level, the constant potential for co-operation.

16. The Secretary-General of the United Nations Conference on Science and Technology for Development recapitulated the guiding principles of the Conference, stressing in particular that concern for science and technology was an integral

aspect of the effort to create the New International Economic Order, in which the Conference represented a new and potentially more fruitful form of dialogue to discover and broaden the areas of agreement between the developed and the developing countries. He also emphasized that the preparatory work for the Conference had begun with no a priori positions but rather had attempted to discover the actual needs and concerns of the countries and regions. In this respect, an encouraging number of reports had been submitted by individual countries, many regional and subregional seminars had been held, and the series of regional reports would be rounded-off with the submission of the report of the Latin American Meeting. What remained to be done was the preparation of a plan of action, which would have a genuine basis because of the form in which it had been prepared, and a reasonable and negotiable agenda for submission to the Preparatory Committee of the Conference.

17. With regard to the work of the Meeting, he emphasized that the regional document represented background material for the World Conference and was thus of less importance than the recommendations which the participants were called upon to consider, and he drew attention to the imminent deadline for the submission of the Latin American regional report containing those recommendations.

Adoption of the report

18. At its final working meeting the Meeting adopted the Rapporteur's report.

II. ACCOUNT OF PROCEEDINGS

Recommendations for an action programme for the use of science and technology in the development process (agenda item 4)

19. At the first working meeting, the ECLA secretariat presented the regional document and recommendations for an action programme, contained in document E/CEPAL/L.183/Rev.2. This document had been submitted to the Latin American Regional Preparatory Meeting for the United Nations Conference on Science and Technology for Development at its first session. It had subsequently been revised taking into account the suggestions of the States participating in that Meeting, and then examined by a group of experts convened by ECLA 2/ in accordance with the wishes expressed by member States at the first session of the Preparatory Meeting.

20. The participants decided to consider first the more important part of the document, namely, the recommendations for an action programme for the use of science and technology in the development process.

21. After an exhaustive analysis, which gave rise to many amendments, the Meeting adopted the recommendations which constitute the action programme in the form in which they appear in document A/33/303/Add.20.

2/ Meeting held at Mexico City, 30 October-2 November 1978.

22. Among the many points which were discussed, the problem of financing received particular attention. In view of the importance of the question, the delegation of Bolivia pointed out that the countries belonging to the Andean Group had studied and decided to submit to the Meeting for consideration a definite proposal for a financing mechanism entitled "System of financing for the technological development of the third world", which appears in annex III of the present report. The Board of the Cartagena Agreement presented the proposal.

23. The Chairman formed a working group comprising the delegations of Argentina, Bolivia, Cuba, Mexico and Peru and open to all delegations that submitted a text on financial machinery for scientific and technological development in the developing countries, which was subsequently adopted by the Meeting as part of the recommendations for the action programme set forth in document A/33/303/Add.2.

24. The working group also submitted a draft resolution on this question which was adopted by the Meeting. 3/

Consideration of the regional document contained in part one of document E/CEPAL/L.183/Rev.2 (agenda item 5)

25. The Meeting made a careful study of the regional document prepared by the secretariat and revised at the first session of the Latin American Regional Meeting and by the group of government experts convened by ECLA.

26. The secretariat took note of the changes which the participants decided to introduce in the document, with instructions to incorporate them in the final text, which should be distributed to Governments and participants as rapidly as possible.

27. The delegations of Canada, France, the Netherlands, the United Kingdom and the United States of America declared that their Governments had reservations with regard to certain aspects of document E/CEPAL/L.183/Rev.2 and that they would make them known in due course in future stages of UNCSTD and in other appropriate forums.

28. In addition, the delegation of the United States of America recalled, with application to the Meeting and report, reservations previously expressed at the first session of the Regional Preparatory Meeting in Panama and contained in paragraphs 66-69 of the report of that Meeting (ST/CEPAL/CONF.66/L.3/Rev.2). On the subject of disarmament in relation to the UNCSTD, the United States delegation stated that the position of its Government had been more accurately reflected in the regional report of the Preparatory Meeting held by the Economic Commission for Europe than in the treatment of the subject contained in the present report.

3/ See resolution 1 in sect. III of the present report.

Work programme of the ECLA secretariat in the field of science and technology prior to the World Conference (item 6 of the agenda)

29. The Executive Secretary of ECLA submitted to the delegations for their consideration the work programme in science and technology which ECLA could carry out through its relevant unit, part of its Mexico Office, during the period from December 1978 to August 1979.

30. Among the activities and initiatives described, the Executive Secretary stressed the support given to national efforts, within the scope of the resources associated with national programmes, seminars or symposia in connexion with the world Conference in particular, and the subject in general.

31. Among possible activities at the regional level, the Executive Secretary singled out the following:

(a) With the collaboration of the Latin American Institute for Economic and Social Planning, co-operation with the planning agencies in work on the conceptual aspects of the technology variable in development planning systems. In this respect, it was envisaged that a meeting would be held in Mexico with the participation of the Colegio de México;

(b) Dialogue with the secretariat of the Board of the Cartagena Agreement, with a view to a possible seminar at the headquarters of JUNAC which could give rise to a fruitful exchange of experience;

(c) Continued support from the ECLA Office in Buenos Aires for the UNDP/IDB/ECLA project under which an interesting study is being made of concrete experience in technological innovation in certain industrial branches, and for the activities of the working group studying the links between science and technology and education and the training of human resources.

32. The work programme submitted by the Executive Secretary was adopted by the Meeting in resolution 2. 4/

33. The representative of JUNAC referred to the experience of the countries of the Andean Group in technological policy. He mentioned, inter alia, that JUNAC was working on a project for the breakdown of the technological package and an inventory of capacities for the production of capital goods, and several Andean technological development projects in copper, tropical forestry resources and food, while other projects were in preparation in coal and rural technologies.

34. This experience could be of value in defining and implementing machinery for joint work in Latin America, and such efforts were fundamental in the search for the essential solidarity between the countries of Latin America and those of the developing world in general.

4/ See resolution 2 in sect. III of this report.

35. He ended by saying that the Board of the Cartagena Agreement would be pleased to receive representatives of the Latin American countries at a meeting which could be held in the first half of March, and could be considered as part of the regional activities preparatory to the Conference.

36. A representative of the ECLA/UNDP/UNESCO Programme of Research on High-Level Human Resources and Scientific and Technological Development said that currently progress was being made in research on highly trained human resources and their participation in scientific development processes in general and technological innovation in particular. The programme stemmed from the need to overhaul the traditional analysis of the training of high-level human resources and proposed a new analytical methodology taking into account both the scientific and the entrepreneurial perspectives.

37. The representative of UNESCO then outlined the programme on science and technology being carried out by the organization's regional office in Montevideo.

38. The representative of Mexico, speaking as Chairman of the Permanent Executive Committee of the Inter-American Council for Education, Science and Culture, referred to the science and technology programme being carried out by OAS and the need for adequate co-ordination between this programme and the ECLA work programme in this respect.

39. A delegation asked the secretariat whether the recommendations adopted at the first session of the Latin American Regional Preparatory Meeting for UNCSTD were still in force or would have to be endorsed by the Meeting. The secretariat replied that the two resolutions on the plan of work for the period preceding the World Conference and on progress of work, rules of procedure and allocation of funds for the activities anticipated for the organization of the Conference, adopted at the first session, had already been carried out. The three recommendations, adopted at the Panama session, on the financing of the technological development of the developing countries, the revision of the Paris Convention for the Protection of Industrial Property and a code of conduct for the transfer of technology 5/ remained in force and therefore did not need to be readopted. The text of the recommendations appears in annex I of the present report.

5/ See document ST/CEPAL/CONF.66/L.3/Rev.2.

III. RESOLUTIONS

40. The Meeting adopted the following resolutions:

1. FINANCIAL MACHINERY FOR THE SPEEDING UP OF SCIENTIFIC AND TECHNOLOGICAL PROGRESS IN THE DEVELOPING COUNTRIES

The second session of the Latin American Regional Preparatory Meeting for the United Nations Conference on Science and Technology for Development,

Bearing in mind that suitable financial machinery should be available to secure more rapid scientific and technological progress in the developing countries, and that the Meeting took note of the document entitled "System of financing for the technological development of the developing countries", submitted by the member countries of the Andean Pact,

1. Decides to forward to the Executive Secretary of ECLA the document entitled "System of financing for the technological development of the developing countries", submitted by the Andean Group, for circulation among the member countries of the region;

2. Requests the Executive Secretary of ECLA to transmit that document to the Secretary-General of the Conference, with the suggestion that it should be distributed to the States Members of the United Nations for information, bearing in mind that its contents are under consideration in the region;

3. Decides to convene an ad hoc working group, co-ordinated by the Executive Secretary of ECLA, in conjunction with SELA, in which interested countries may participate, to consider before 1 April 1979 the possibilities and limitations of the existing machinery for the financing of scientific and technological development and the new proposals in this respect, and forward its conclusions and recommendations to the Commission at its eighteenth session;

4. Recommends that the countries of the region should submit as rapidly as possible their proposals concerning financing machinery to the Executive Secretary of ECLA for consideration by the working group;

5. Recommends that the secretariat of ECLA inform Governments in good time of the calendar of activities of the ad hoc working group and of the proposals the secretariat has received.

2. ECLA WORK PROGRAMME IN THE FIELD OF SCIENCE AND TECHNOLOGY PRIOR TO THE WORLD CONFERENCE

The second session of the Latin American Regional Preparatory Meeting for the United Nations Conference on Science and Technology for Development,

Noting with satisfaction the statement made by the Executive Secretary of ECLA concerning the programme of work of the secretariat for the remaining period until

the world Conference is held, aimed at strengthening the interest and presence of the region in the Conference,

Considering in particular the interest in this regard of the secretariat's current activities in support of national efforts prior to the world Conference,

Also considering the interest of the technical meetings programmed in connexion with the inclusion of such aspects in development plans, the training of human resources and the analysis and dissemination of experience in the context of regional action, and in particular those held by the Board of the Cartagena Agreement,

Likewise considering the observations of the Secretary-General of the Conference with regard to taking all possible action immediately to implement regional and world co-operation agreements,

1. Expresses its support for the current work programme of the secretariat of ECLA;

2. Requests the Secretary-General of the United Nations to allocate the resources required for its implementation.

Annex I

RECOMMENDATIONS ADOPTED AT THE FIRST SESSION OF THE LATIN AMERICAN REGIONAL PREPARATION MEETING FOR THE UNITED NATIONS CONFERENCE ON SCIENCE AND TECHNOLOGY FOR DEVELOPMENT

(Panama, 16-21 August 1978)

1. System of financing for the technological development of the developing countries

The Meeting recommended that the countries of the region study with interest the proposed machinery for the establishment of the financing system for the technological development of the developing countries, which is presented in annex III of the present report, and to examine and explore other machinery.

2. Revision of the Paris Convention for the protection of industrial property

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:

(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 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.

It also recommended 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

The Meeting recommended that the countries of the region consider the following 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 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.

Annex II

LIST OF PARTICIPANTS

States members of the Commission

ARGENTINA

Representative: Guillermo De la Plaza, Ambassador

Members of Delegation: Marcelo Camusso
Jorge Devoto
Roberto Devoto
Susana Grané
Victorio Olguín
Daniel Olmos

BOLIVIA

Representative: Carlos Aguirre, Director of Science and Technology, Ministry of Planning and Co-ordination

BRAZIL

Representative: Maury Gurgol Valente, Ambassador

Member of Delegation: Luis Emery Trindade

CANADA

Representative: Ronald Willson, Second Secretary, Embassy of Canada

COLOMBIA

Representative: Jaime Paris, Councillor, Delegation of Colombia to LAFTA

COSTA RICA

Representative: Mariano Ramírez Arias, Executive Secretary of CONICYT

Members of Delegation: Raúl Pijuán-Bazet
Ana Ramos de Piguán

CUBA

Representative: Ramiro León Torres, Chief, Department of International Organizations

Members of Delegation: Even Fontaine Ortiz
Pedro Herrera Molina

CHILE

Representative: Gustavo Alvarez Aguila, Ambassador

Member of Delegation: César A. Ravazzano

DOMINICAN REPUBLIC

Representative: Fabio Herrera Cabal, Ambassador

ECUADOR

Representative: José Najera, Ambassador

Members of Delegation: Angel Matovelle
José Vicente Villacís

FRANCE

Representative: Germán Contard, Councillor, Embassy of France

Member of Delegation: Gérard Faroux

GUATEMALA

Representative: José Rodas Martínez, Ambassador

Members of Delegation: Ramiro Asturias Zamora
Juan Alberto Hernández

HONDURAS

Representative: Aníbal Enrique Quiñonez, Chargé d'Affaires, a.i.

MEXICO

Representative: Enrique Martín-del-Campo, Science Councillor, Embassy of Mexico to the United States

Members of Delegation: Asdrúbal Flores
Francisco González de Cossio
Carmen Lugo
José Represas

NETHERLANDS

Representative: W. Van Pallandt, Ambassador

Member of Delegation: Gertrud H. van Egmold

NICARAGUA

Representative: Alberto Quintana, Ambassador

PARAGUAY

Representative: Tomás Duarte Cantero, Administrator, National Institute of Technology and Standardization

PERU

Representative: Alberto Maclean, Ambassador

Member of Delegation: Gonzalo Bedoya

TRINIDAD AND TOBAGO

Representative: Frank Sealy, Secretary, Working Group on Science and Technology

UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND

Representative: Richard A. Styche, United Kingdom Permanent Mission to the United Nations

UNITED STATES OF AMERICA

Representative: Louis Kahn, Science Policy Officer

Members of Delegation: Janet Henneke
Clifton Metzner

URUGUAY

Representative: Elías Pérez, Undersecretary of Industry and Energy

Member of Delegation: José Austt
Alfredo Dovat
Héctor Ibarlucea
Félix Martí
Santiago Michaus
Graciela Reyes de Prieto
Ernesto Rubio
Omar Trujillo

VENEZUELA

Representative: Francisco Astudillo, Co-ordinator of International Affairs, CONICYT

United Nations Secretariat

United Nations Industrial Development Organization (UNIDO)

Roberto Martínez Ordoñez, Chief Industrial Development Councillor

United Nations Conference on Science and Technology for Development

Joao da Costa, Secretary-General
Omar Aslaoui, Chief, Office of the Secretary-General

United Nations bodies

United Nations Development Programme (UNDP)

Roberto Martínez Ordoñez a/
Renán Fuentealba

Specialized agencies

International Labour Organisation (ILO)

Jorge Ferreiro, Consultant

Food and Agriculture Organization of the United Nations (FAO)

Enrique Torrejón Straube, Representative

United Nations Educational, Scientific and Cultural Organization (UNESCO)

Gustavo Malek, Director, Regional Office for Science and Technology
Marcelo Robert

World Health Organization/Pan-American Health Organization (WHO/PAHO)

Luis Vera Ocampo

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a/ Mr. Martínez Ordoñez also represents the United Nations Industrial Development Organization.

Intergovernmental organizations

Organization of American States (OAS)

Germán Framiñán, Principal Specialist, Department of Scientific Affairs

Latin American Free Trade Association

Pedro Liscano Lobo, Ambassador
Helder Fernández Motta

Intergovernmental Committee for European Migrations (CIME)

Roberto Kozak, Chief of Mission
Guillermo Cruz Duque

Board of the Cartagena Agreement (JUNAC)

Luis Soto Krebs, Chief, Department of Technology
Gustavo Flores Guevara

Latin American Energy Organization (OLADE)

Napoleón Arregui Solano

Latin American Economic System (SELA)

Valentín O. Treviño, Permanent Secretary

Secretariat of ECLA

Enrique V. Iglesias, Executive Secretary of ECLA
Oscar J. Bardeci, Director, Programme Office
Daniel Bitrán, Technical Co-ordinator
Daniel Blanchard, Deputy Secretary of the Commission
Isaías Flit, Science and Technology Unit (Mexico Office)
Niels Brandt, Science and Technology Unit (Mexico Office)

Annex III

FINANCING SYSTEM FOR THE TECHNOLOGICAL DEVELOPMENT OF THE THIRD WORLD

A. Bases

There is a clear consensus that one of the most significant restrictions faced by the countries of the third world in the generation of their own technological capacity is the shortage of financial resources, which makes it impossible to carry out permanent scientific and technological activities and establish and expand research and development institutes, organized on a national, subregional and regional basis.

To date, attempts at international collaboration to strengthen the technological capacity of the countries of the third world have also suffered from a lack of continuity in the supply of funds; in addition, much of the economic and financial assistance possesses ties which often convert it into an instrument benefiting its suppliers rather than its recipients.

New systems of financing must therefore be found which will make it possible to obviate these obstacles and genuinely and effectively transfer to the third world countries the decision-making relating to the creation, adaptation and selection of technologies required to meet their social and economic needs. Financing machinery of adequate quality and continuity must be set up to enable the countries of the third world to make their own decisions.

The result of the different degrees of technological development of the industrialized and the third world countries may be measured by the difference existing in the trade of manufactures, which reveals very objectively the influence of the technological variable on international trade. Manufactures in the industrialized countries generally use raw materials supplied by the countries of the third world, which have not been able to process them owing to the lack of appropriate technical know-how.

It is therefore proposed that a financing machinery be set up based on the transfer of a percentage of the surplus of the developed countries with third world countries in the trade of manufactures.

The system would also have the advantage of being self-regulating in time - that is, if the technological gap widens over time, the quantities will be greater and the amounts to be transferred from the developed to the underdeveloped countries larger. Similarly, if the technological gap shrinks, the quantities become smaller and finally disappear, if the distortions are really corrected.

Among the third world countries, however, there are also differences of scientific and technological development which it is both necessary and desirable

to correct, in order to ensure that situations like those existing between the developed and the third world countries are not generated.

If the contribution of each developed country to each third world country were proportional, this distribution would tend to accentuate the technological underdevelopment of the relatively less developed countries. Similarly, a distortion would occur in favour of the countries with a greater supply of foreign currency (oil-exporting countries), which gives them a greater capacity for importing products, often luxuries, from the developed countries.

In order to rectify this situation, a compensatory mechanism is proposed at the level of the regions (Asia, Africa and Latin America and the Caribbean), which would allow for larger contributions to the third world countries with fewer resources by shifting to them part of the resources that would otherwise fall to the countries with stronger economies.

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

A particular case is that of third world countries that have embarked upon integration processes as a form of improving their bargaining power vis-à-vis the developed countries and with the object of making joint efforts to solve common problems. As part of these integration processes, each of the participating countries makes a contribution in proportion to its available resources, and thus it is considered necessary that each country should contribute, through the proposed financing system, a percentage of the real contribution that it will receive to joint technological development programmes.

On the basis of the foregoing and bearing in mind the necessary redistribution of the world effort in scientific and technological development, a financing scheme for the technological development of the third world, dealing with the question of the contributions that the industrialized countries should make for this purpose, is proposed below.

B. Objectives of the system

The third world countries that receive financial resources from the developed countries to carry out scientific and technological activities, should channel them through their national institutions or through subregional, regional and interregional co-operation machinery in order to implement individual or joint programmes aimed at:

(a) The mastery of the basic and applied knowledge required to assimilate the technological processes needed 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 to use the technologies generated locally or imported; and

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

C. Constitution of the system

1. Financial resources of the system

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

These percentages will increase progressively; very high transfers will therefore not be made in the first years, which might cause the system to fail for lack of an adequate ability on the part of the third world countries to administer and use the financial resources. At the same time, these percentages must be large enough for the resulting amounts to be significant in relation to current investment by third world countries in research and development.

Since the annual deficit may involve short-term distortions stemming from internal economic measures, it is proposed to overcome this difficulty by calculating the average deficit over the five years immediately preceding the year in which the contribution falls due. The contributions would thus be a percentage of this average quinquennial deficit, calculated as in the following example:

If A is a developed country and S a third world country, then:

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

where:

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

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

D = deficit on the trade balance in manufactures between country A and country S

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

$D_1 \ldots D_5$ = annual deficits over a five-year period

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

2. Compensatory mechanism among third world countries

The compensatory mechanism would be applied to the individual contributions from each developed country to the third world countries, as in the following example:

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

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 in the region

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

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

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

where:

K_{A-S} = redistribution factor 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 third world country will receive from industrialized country A will be:

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

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

where:

N_S = real contribution of country A to S

K_{A-S} = redistribution factor calculated according to (2)

K_A = sum of the redistribution factors as shown in (3)

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

Appendix

ESTIMATED CALCULATION OF THE FINANCING SYSTEM

In order to demonstrate the application of this system of calculation of the financing machinery for the technological development of the third world, an example is given below using the figures corresponding to the balance of trade in manufactures of the countries of Latin America and the Caribbean for the period 1969-1973.

Owing to the limitations of the statistics, the sums obtained for each country include imports from and exports to all the countries of the world, which means that it cannot be said that the total value would correspond to the contributions which the developed countries would have made to the third world countries; however, it is considered that the example shows that the redistribution machinery considerably increases the contributions which the relatively less developed countries would receive.

Table 1 shows the contribution that each country would receive if the financing system were calculated exclusively as a percentage of the deficit on the trade balance in manufactures of each country and gives the amount that would correspond to each country after applying the proposed redistribution mechanism.

In the case of the example, the average annual amount of the deficit on the balance of trade in manufactures for Latin America and the Caribbean amounts to $11,141 million for the period 1969-1973. On the assumption that the proposed contribution would have been 2 per cent of the deficit, the countries of the region would have received $222.8 million. To give an idea of the deficit on the balance of trade in manufactures between developed and third world countries, table 2 gives the data for 1975. Comparing the sum of $27,220 million with that of the period used in the example, it may be seen that in the case of Latin America and the Caribbean a rapid deterioration is apparently taking place in the balance of trade in manufactures.

The same table shows the amounts of the deficits of other third world regions for which a similar exercise could be carried out.

Lastly, table 3 gives the figures for the expenditure on research and development for 1971 in some countries of the region. From this it may be deduced that the amounts calculated on the basis of 2 per cent of the deficit on the trade balance in manufactures constitutes in the majority of cases a sum that can perfectly well be administered by the countries of the region.

Table 1

Contribution to the financing system with and without the introduction of a mechanism of redistribution among the countries of the third world, 1969-1973

(Thousands of US dollars)

	Country	Average annual deficit	Theoretical annual contribution (2 per cent)	Redis-tribution factor	Real contribution (US dollars)	Observations
1.	Argentina	1 044 214	20 884	5 762	16 127	
2.	Bahamas	136 455	2 729	2 032	5 687	
3.	Barbados	59 260	1 185	1 031	2 886	Average 1969 to 1971
4.	Belize	18 722	374	357	999	Average 1969 and 1970
5.	Bolivia	31 161	623	578	1 618	Average 1969 and 1972
6.	Brazil	2 355 082	47 102	6 808	19 055	
7.	Chile	598 472	11 969	4 780	13 379	
8.	Colombia	586 411	11 728	4 741	13 269	
9.	Costa Rica	220 608	4 412	2 838	7 943	Average 1969 to 1972
10.	Dominican Republic	182 039	3 641	2 498	6 992	Average 1969 to 1971
11.	Ecuador	236 364	4 727	2 966	8 302	Average 1969, 1972 and 1973
12.	El Salvador	116 973	2 339	1 808	5 060	Average 1969 to 1972
13.	Guatemala	165 780	3 316	2 341	6 552	Average 1969 to 1972
14.	Guyana	95 023	1 900	1 534	4 293	
15.	Haiti	26 734	535	501	1 402	
16.	Honduras	147 348	2 947	2 151	6 021	Average 1969 to 1972
17.	Jamaica	359 741	7 195	3 779	10 577	
18.	Mexico	1 523 951	30 479	6 310	17 661	
19.	Netherlands Antilles	155 838	3 117	2 240	6 269	
20.	Nicaragua	151 101	3 022	2 190	6 129	
21.	Panama	257 252	5 145	3 125	8 747	Average 1969 to 1972
22.	Paraguay	44 063	881	793	2 220	Average 1969
23.	Peru	198 296	3 966	2 647	7 409	Average 1969 to 1971
24.	Suriname	57 387	1 148	1 003	2 807	Average 1969 to 1972
25.	Trinidad and Tobago	172 251	3 445	2 404	6 728	
26.	Uruguay	88 614	1 772	1 449	4 056	Average 1969 to 1972
27.	Venezuela	1 567 323	31 346	6 347	17 765	
28.	Cuba	544 876	10 898	4 599	12 872	Average 1969 to 1972
	Total	11 141 339	222 825	79 612	222 825	

Source: Yearbook of International Trade Statistics, 1969, 1970-1971 and 1972-1973 (United Nations publication, Sales No. E.71.XVII.5, E.73.XVII.12 and E.74.XVII.6, respectively).

Table 2

Balance of trade in manufactures (X's - M's), 1975

(Millions of US dollars)

With regard to / Of	Europe	South Africa	Canada	United States	Japan	Australia, New Zealand	Union of Soviet Socialist Republics	Total
America a/	-10 745	33	-835	-10 570	-4 303	-142	-658	-27 220
Middle East	-16 227	2	-245	-5 151	-5 280	-75	-681	-27 657
Others, Asia b/	-2 625	94	234	456	-9 745	162	-26	-11 450
Oceania	-79	-	-3	-44	-126	-192	-	-444
Africa	-17 439	11	-147	-2 122	-4 343	-53	-51	-24 144
Total developing countries	-47 115	140	-996	-17 431	-23 797	-300	-1 416	-90 915

Source: Statistical Yearbook, 1976 (United Nations publication, Sales No. E.77.XVII.1), pp. 450-461.

a/ Excluding United States of America and Canada.

b/ Excluding the countries with planned economies.

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Table 3

Expenditure on research and development, 1971

Country	Thousands of US dollars
Argentina	33 200
Bolivia	33 129
Colombia	7 280
Costa Rica	2 187
Ecuador	3 332
El Salvador	4 472
Guatemala	3 990
Honduras	1 338
Mexico a/	82 729
Nicaragua	1 187
Paraguay	173
Peru	8 200
Trinidad and Tobago a/	5 171
Venezuela a/	23 866

Source: Organization of American States, Estadísticas Científico-Technológicas de América Latina.

a/ Data supplied by UNESCO.
