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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 REGIONAL MEETING FOR ASIA AND THE PACIFIC

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I. ORGANIZATION OF THE MEETING

1. The second regional preparatory meeting for the United Nations Conference on Science and Technology for Development organized by the Economic and Social Commission for Asia and the Pacific (ESCAP) took place at Bangkok from 17 to 21 July 1978.

Attendance

2. The meeting was attended by the representatives of the following member and associate member countries of ESCAP: Afghanistan, Australia, China, Fiji, France, India, Indonesia, Japan, Malaysia, the Netherlands, New Zealand, Pakistan, Papua New Guinea, the Philippines, the Republic of Korea, Singapore, Sri Lanka, Thailand, the Union of Soviet Socialist Republics, the United Kingdom of Great Britain and Northern Ireland and the United States of America. Representatives of Austria and Romania also attended the meeting in a consultative capacity under paragraph 9 of the terms of reference of the Commission.

3. The following organizations of the United Nations Secretariat were represented: the United Nations Conference on Science and Technology for Development, the United Nations Conference on Trade and Development (UNCTAD) and the United Nations Industrial Development Organization (UNIDO). Also represented were the following United Nations bodies: the United Nations Development Programme (UNDP) and the United Nations Environment Programme (UNEP). The following specialized agencies were represented: the International Labour Organisation (ILO), the Food and Agriculture Organization of the United Nations (FAO), the United Nations Educational, Scientific and Cultural Organization (UNESCO), the International Civil Aviation Organization (ICAO), the World Health Organization (WHO), the International Telecommunication Union (ITU) and the World Intellectual Property Organization (WIPO). Representatives of the Asian Development Bank (ADB), the Asian Institute of Technology (AIT), the Asian Productivity Organization (APO), the International Council of Scientific Unions (ICSU), the International Standards Organization (ISO), the Pacific Science Association (PSA) and the World Federation of Scientific Workers (WFSW) also attended the meeting.

Opening addresses

4. His Excellency Lieutenant-General Boonruen Buacharoon, Minister attached to the Prime Minister's Office of the Royal Government of Thailand, inaugurated the meeting. In his address he referred to the main tasks of the meeting, namely, to review the national papers and the regional paper and to formulate a programme of action. Pointing out that the member and associate member countries of ESCAP were at different stages of development and growth of science and technology, he felt that the meeting would, perhaps, have to devote its attention to the majority of the countries which were in the intermediate range. These countries had some science and technology infrastructures, but they were inadequate to serve the purposes of national development. The problems derived from two related factors, namely, lack of support for science and technology and lack of appreciation of the role of science and technology in the development process.

5. The Minister also referred to the preparation of the national paper of Thailand and indicated its broad objectives, which included the understanding of the existing pattern of science and technology in the country, developing solutions to the problems, providing a foundation for national science and technology policy and expediting fundamental changes.

6. The Minister expressed his confidence that the meeting would have successful deliberations and achieve its objectives.

7. The Officer-in-Charge of ESCAP read out the message of the Executive Secretary, who could not attend the meeting, being away from Bangkok on an official tour. In his message the Executive Secretary welcomed the participants and thanked His Excellency Lieutenant-General Boonruen Buacharoon for his inaugural address. He expressed the confidence that the personal presence of the Secretary-General of the United Nations Conference on Science and Technology for Development, whose leadership of the Conference had imparted to the preparatory process a sense of dynamism and purpose, would assist the meeting in sharpening and crystallizing the issues which would emerge out of consideration of the national and regional papers and in prescribing the lines for future action.

8. The Executive Secretary expressed his great appreciation of the preparatory work done by the countries in the region. They had distilled their draft papers through a wide spectrum of opinion in the science and technology community as well as through those involved at the suppliers' and the users' ends. The papers provided a wealth of information on the status of science and technology, brought out the impediments preventing the countries from using science and technology for a much faster growth, identified the institutional measures needed, discussed the issues involved in breaking up their technological dependence etc. The papers reflected the understanding that science and technology could be conceived of only in relation to a whole complex of socio-economic and cultural factors essential for the achievement of growth.

9. The Executive Secretary emphasized that science and technology had succeeded in contributing to growth and welfare to the extent that the production and user systems had been energized. He urged that the restraints that stifled these systems should be identified and eliminated.

10. The Executive Secretary expressed his appreciation of the valuable assistance provided by international organizations to the countries in the preparation of their national papers and of their help in formulating the draft regional paper.

11. Referring to the contents of the draft regional paper, he stated that it sought to bring into focus the main problems of the developing countries in the subject areas chosen at the first regional preparatory meeting. It revealed some areas of special concern to the region (cultivation in dry areas, water management, tropical diseases etc.), discussed the role that science and technology could play in a basic needs oriented development strategy, reflected on the criteria and mechanisms for the choice of appropriate technology, laid emphasis on the need for the creation of adequate scientific and technological capacity in the developing countries and brought out some aspects of the socio-economic set up which stood as barriers to the progress of science and technology.

12. The Executive Secretary also referred to some initiatives taken by ESCAP in regard to the problems indicated in the regional and the national papers. These included the Regional Network for Agricultural Machinery and the Regional Centre for Technology Transfer, which had already become operational.

13. Emphasizing the role of the developed countries, he urged that the access of the developing countries to sources of technology should be improved and that the existing structural inequities in the transfer process should be eliminated. He called for an examination of the mechanisms of transfer of technology and a review of the nature of aid and trade so as to make the contribution of the developed countries more purposeful. He stressed that there must evolve a real mutuality of interests between the developed and the developing countries. He endorsed the suggestion made at the subregional meeting sponsored by UNESCO and the Conference, which had been held from 10 to 13 June 1978 at Islamabad to provide the opportunity for a dialogue between the developed and the developing countries to consider matters of mutual concern in the field of science and technology.

14. He also looked forward to greater co-operation between the developing countries of the region through joint research programmes, exchange of expertise and personnel, utilization of excess capacity, interlinkages through networks and subnetworks etc.

15. He emphasized that the 1979 Conference and its preparatory process was the beginning of a movement in the application of science and technology for development, and that its momentum must be continuously stimulated. He suggested that the meeting might consider the specific activities that the countries and the regional organizations should undertake during the period up to the Conference.

16. The Secretary-General of the Conference complimented ESCAP on having prepared the draft regional paper and having held the meeting in accordance with the schedule laid down. He briefly described the progress of the preparatory process all over the world. So far 131 national focal points had been established, about 60 countries were working with the assistance of experts provided by the Conference secretariat, 70 seminars had been held and more than 70 national papers had been officially submitted to the secretariat. The Secretary-General then referred to a number of important points on which, judging from contacts undertaken with the member States, there existed a certain measure of consensus.

17. He stated that in the preparatory process the aspect of technology relating to its being regarded as property (excessive royalties, monopolistic contracts, incomplete transfers, restrictive practices or clauses etc.) had received the most attention. The second aspect, arising out of technology being regarded as the outgrowth and an integral part of specific economic, social, political and cultural systems, called for somewhat more detailed analysis.

18. Emphasizing the need for science and technology to be applied in a voluntary and conscious manner and not for political domination, the Secretary-General urged that a social debate should be held with regard to the process of making the necessary choices for achieving the desired social, political, cultural and ethical objectives. He felt that the preparatory process of the Conference should make clear the need for confrontation and interaction between knowledge and power,

always taking place in the light of each society's conception of its own present and future.

19. He emphasized that the process of finding international solutions to scientific and technological problems should remain on the foundation of common interest and not wander into the honourable but politically dangerous field of philanthropy and charity. He elaborated on how the current situation, involving a scientific and technological monopoly of the developed countries and perpetuating the dependence of the developing countries, was adverse to the long-term interests of the developed countries. He explained that the technological development of the third world would dispel the very real risks of disruption or explosion.

20. Regarding the need for a new type of negotiation he suggested the following features: (a) negotiations on scientific and technological matters held within the United Nations should start at the centre and not at opposite ends; (b) there should be no attempt at global bargaining; (c) there should be a sufficient time-frame for discussion of the subject; (d) an effort should be made to combine "diplomatic" and "substantive" negotiations.

21. He stated that science and technology transcended the economic sphere and belonged in the context of national and international life as a whole. New development approaches were no longer confined to mere economic growth but called for an over-all view of factors such as utilization of cultural structures, preservation of human values, participation by the people in the work of shaping their own destiny, ability to set goals and take decisions, and peace. Science and technology also represented a phenomenon of immense political importance (both nationally and internationally).

22. Regarding the national activities to be planned before the Conference took place in August 1979, he suggested that the national focal points should continue to serve a useful purpose at least until the Conference and must, in addition to activities directly connected with the Conference, maintain and expand their contacts with other relevant national organizations in the field of science and technology.

23. In conclusion, he suggested that the main product of the meeting should be a programme of action on which a consensus should be reached. The purpose of the regional paper was to provide an input for the Conference secretariat in the preparation of its documents and also to serve as a background document for the Conference. It would not constitute a regional submission for the Conference and might, therefore, not be regarded as having any binding effect on the Governments of the member countries of ESCAP.

Election of officers

24. The meeting elected Mr. Pradisth Cheosakul (Thailand) Chairman. Ms. Jean Kekedo (Papua New Guinea), Mr. P. F. Peters (Australia) and Mr. Manuel Alba (Philippines) were elected Vice-Chairmen. Mr. Stanley Kalpage (Sri Lanka) was elected Rapporteur. The meeting appointed a Technical and Drafting Committee with Mr. R. D. Deshpande (India) as Chairman.

Adoption of the agenda

25. The meeting adopted the following agenda:

1. Opening addresses
2. Election of officers
3. Adoption of the agenda
4. Review of
 - (a) National papers
 - (b) Draft regional paper
5. Outline of the programme of action
6. Any other business
7. Adoption of the report.

II. REVIEW OF NATIONAL PAPERS

26. The representatives of the various countries indicated the progress that had been made in the preparation of their national papers. In the majority of cases, the papers had been drafted and sent to the secretariats of the Conference and of ESCAP. In the remaining cases, the papers were in the final stages of drafting and were expected to be sent by the due date of 1 August 1978. It was indicated that the countries were keeping the draft papers under continuous review; their endeavour was to reflect further on the important issues in the light of ongoing discussions in the regional and other forums.

27. The representatives stated that the Conference and its preparatory stage had provided an excellent opportunity for the countries to review their state of progress in the field of science and technology, identify the critical problems and reflect on their future plans. The preparation of the national papers had involved wide-ranging discussions, involving the science and technology communities and other sections interested in the generation or application of science and technology. The discussions had been frank and sincere and an attempt had been made to present accurately countries' experiences and viewpoints. The representatives of some developed countries expressed the view that the preparatory stage had been used by them largely to examine the role of science and technology in the establishment of the new international economic order. Their analyses had provided them with a fresh approach to the perception of the problems, the utilization of science and technology in solving them and the requirements of the developing countries. More than ever before, the developed countries had become aware of their responsibilities, in their own enlightened self-interest, to assist the developing countries in harnessing science and technology for their progress.

28. The meeting observed that, in undertaking the preparation of national papers, the countries had not confined themselves to a mere fragmented examination of either the subject areas or science and technology per se, but had gone into the objective conditions which prepared societies to absorb science and technology for development. The country papers had focused on the goals of development, the socio-economic frameworks in which development had to be achieved and the place of science and technology in them. The papers had referred to the cultural environment and the systems of education, which had a bearing on the promotion of scientific consciousness and inventiveness. The meeting recognized the pervasive role of science and technology in development. Several countries had acquired technological capabilities in varying degrees and had set up research and development institutions. Significant successes had also been achieved in some areas by some countries. The papers had brought out the impediments that inhibited wider application of science and technology, especially in areas of relevance to the common man. They had also considered the various dimensions of their technological dependence and the factors that prevented the growth of indigenous technologies. The papers reflected on the new lines of action that needed to be pursued, and called for energetic action at the national, regional and international levels.

29. The meeting felt not only that the analyses undertaken for the preparation of the national papers had been a useful exercise in examining national policies, but that the results of the analyses would be extremely instructive to the different countries in learning from experiences of success and failure.

30. The meeting emphasized that there were differences in the countries' situations; their socio-economic context also showed wide variations. It was emphasized therefore that each country had to chart out its approach in the context of its own specific requirements. However, the meeting also appreciated the considerable similarity in the problems of the various countries. The representatives of two countries in the South Pacific explained the peculiar problems of their subregion, which the common paper prepared for the South Pacific subregion had attempted to bring out.

31. Some delegations noted that political détente and effective disarmament and the establishment of a new international economic order were prerequisites for the effective application of science and technology for development.

III. REVIEW OF THE REGIONAL PAPER

32. The meeting considered the draft of the regional paper that had been circulated by the ESCAP secretariat. The Secretary-General of the Conference stated that it was for the meeting to decide whether the regional paper should be treated as a secretariat document or as an ESCAP document, with the full approval of the member Governments. After discussion, it was decided that the paper would be submitted as a document of the ESCAP secretariat. However, it would seek to reflect the consensus of opinions expressed on the various issues in the national papers and at this meeting. It was also clarified that the regional paper would not be considered binding on the Governments of member countries, but would be an important input for the documentation of the Conference.

33. The main points of the draft regional paper were explained by the regional adviser who had assisted in its preparation. The draft regional paper sought to bring into focus the main problems of the developing countries of the region and the manner in which the application of science and technology could be directed to increasing the pace of development and reducing inequalities between and within countries. In doing so, the paper examined some of the obstacles that had so far prevented the effective application of science and technology to development, especially in the five subject areas identified by the first regional preparatory meeting. The paper reviewed the status of science and technology policies and capabilities in different countries in the regional context and made specific recommendations to strengthen them.

34. The paper had drawn on the national papers and summaries received from some of the countries. Its first draft had been widely circulated among various organizations, individuals and United Nations bodies and specialized agencies. It had also been discussed in detail at the fourteenth session of the Regional Group for Asia and the Pacific of the Advisory Committee on the Application of Science and Technology to Development. The draft had benefited from the Group's comments and observations.

35. The meeting considered the draft as a cohesive document, reflecting fairly the consensus of the member countries of the region. Its content and quality were considered to be of a high order. It had succeeded in pulling together significant strands of opinion from the various relevant sources. However, representatives of some countries had suggestions to make in regard to the general tone of the paper, the relative emphasis attached to certain aspects and on other details.

36. One delegation felt that the paper could devote greater attention to matters relating to research. In that connexion, specific mention was made of the requirements of research and development in respect to traditional technologies and those relevant to small and rural industries.

37. Many delegations referred to the importance of people's participation in the field of science and technology. They laid stress on activities relating to the popularization of science and technology and the involvement of masses in technological programmes. The meeting felt that to instil scientific temper and to stimulate creativity, education and mass media could play a basic role. Instances of such activities from the region should form part of the document.

38. The meeting considered some of the priority areas of development in the countries of the region which were in urgent need of the application of science and technology. While the meeting appreciated that most of the priority areas had been dealt with in the draft paper, greater attention should be given to integrated rural development, water management, problems of tropical agriculture and communications for both land-locked and island countries.

39. Some delegations pointed out that, while the draft paper had rightly devoted considerable attention to the application of science and technology to the production sectors, it ought to have provided equally detailed treatment to the areas of welfare.

40. Several delegations, referring to their country experiences, stressed the critical importance of human resource development and felt that the regional paper should have quoted from some of these experiences and highlighted the value of education and training of manpower. Without minimizing the value of the higher academic personnel, the meeting pointed out that personnel at the operative level were of crucial importance in the successful utilization of science and technology in the field of production. Concern was expressed regarding the brain drain. It was felt that training oriented to specific needs of developing countries could help to reduce it.
41. It was observed that the elaboration of national science and technology policy as an integral part of the over-all development plan, the introduction of planning in science and technology and the advancement and organization of a nation-wide scientific and technological infrastructure were looked upon as vital prerequisites for the successful application of science and technology for development. The roles of the State and the private sector in that process were underlined. Equal attention should be paid to the integration of the scientific and technological infrastructure with production systems. The delivery mechanisms for technology needed to be made more efficient.
42. The meeting stressed the importance of selecting appropriate technologies and expressed the desire that that should be further emphasized in the paper.
43. It felt that the draft paper had devoted itself adequately to possibilities of co-operation between developed and developing countries and had indicated several areas of co-operation between the two. It was pointed out that enormous possibilities of co-operation existed if only innovative and pragmatic approaches could be evolved. Also there were immense possibilities of regional and subregional co-operation which ought to be considered in some depth and reflected in the regional paper.
44. The role of transnational corporations was discussed. It was felt that they were often useful instruments in providing technology, though one delegation did not fully share that feeling. However, the need was felt to keep their practices under review, to ensure that their functioning was in conformity with the national priorities and objectives of host countries for economic and social development.
45. Delegations of two countries in the South Pacific region hoped that the special problems and needs of the South Pacific region, as had been reflected in the subregional paper would find a place in the regional paper.
46. The meeting felt that the regional paper should bring out more clearly the role of ESCAP in matters relating to science and technology and should suggest the specific manner in which the institutions of ESCAP could be strengthened to shoulder their large responsibilities. In doing so, care must be taken to avoid an overlapping and duplication of activities being undertaken by other United Nations organizations and agencies. The meeting noted with interest the activities described by representatives of those organizations. The need for a better co-ordination mechanism at the regional level between the agencies of the United Nations system was emphasized.

47. The meeting also reflected on the political dimensions of technological change which needed to be included in the paper, particularly the need for disarmament. Several delegations emphasized that a reduction in wasteful expenditure on the arms race could release substantial resources for the application of science and technology for development. One delegation felt that some of the presentations in paragraph 137 of the draft regional paper did not reflect the factual state of the arms race. The meeting thought that the paper should reflect the interrelation between science and technology for development and the establishment of a new international economic order.

48. It was decided that the secretariat should finalize the paper in the light of the above comments and such other comments as had been furnished in writing by the various delegations and representatives of the United Nations and other international organizations.

49. Brief summaries of statements made by representatives of various United Nations bodies as well as the Asian Development Bank are contained in annex I.

IV. PROGRAMME OF ACTION

50. The meeting appointed an open-ended working group to formulate a programme of action. The programme of action formulated by the working group and later adopted by the meeting is contained in annex II.

V. OTHER BUSINESS

51. During discussion in the final plenary session, the following further recommendations were made.

52. The meeting was of the view that immediate steps should be taken to evolve specific programmes aimed at securing a greater involvement of women in science and technology. It recommended that the national and regional focal points should undertake vigorous preparatory work in that direction.

53. The meeting was anxious that the momentum generated by the preparatory activities at the national and regional levels should not be permitted to dissipate. The focal points established at the national level had an important continuing role. Apart from finalizing the national papers, some of which were still to be completed, and keeping them under review in the light of ongoing discussions, it was felt that they could be instrumental in stimulating further debate within the countries with the object of securing wider participation and further refining and sharpening national viewpoints on important issues. The meeting recommended that the national focal points should continue to be active in the period preceding the Conference.

54. The meeting considered it important that the ESCAP secretariat should continue to maintain a dynamic contact with the national focal points and provide such assistance as might be sought from time to time. It was recommended that the ESCAP secretariat should attempt, with the assistance of the Conference secretariat and

in close collaboration with other United Nations organizations, to encourage interaction between countries both on a regional and subregional basis.

VI. ADOPTION OF THE REPORT

55. The report was adopted unanimously.

Annex I

BRIEF SUMMARIES OF STATEMENTS MADE BY REPRESENTATIVES OF
VARIOUS UNITED NATIONS BODIES, SPECIALIZED AGENCIES, ASIAN
DEVELOPMENT BANK, ASIAN PRODUCTIVITY ORGANIZATION AND
NON-GOVERNMENTAL ORGANIZATIONS

International Labour Organisation

The interest of the ILO in the field of science and technology was directed towards the attainment of two of its overriding concerns: the creation of employment and the satisfaction of the basic needs of the poor. The ILO had prepared for the Conference an overview paper entitled "Technology, employment and basic needs". It was gratified that the revised regional paper had given sufficient attention to the issue of appropriate technology and to the issue of the human resources needed to select, apply, adapt and generate technologies. However, it had the following reservations to make: the paper overlooked the question of technologies for self-reliance; the word "adaptation" did not seem to have been used in the text; the paper needed to treat more explicitly and systematically those aspects of the creation of a "technological capability" that were concerned with the selection and application of technologies.

Food and Agriculture Organization of the United Nations

The regional paper recognized the importance of agriculture and post-harvest technology. If meaningful and appropriate technologies were to be created, a careful and deliberate effort must be made to bring about adequate interaction between science and society in developing countries to create technologies and to build competence to adapt and absorb technologies to accelerate development. The representative of FAO defined what was meant by appropriate technologies. The value of the research and development component of FAO-supported projects in 1976 was about \$US 56 million.

There could be no new international economic order if food requirements were not met. FAO had therefore given special attention to the use of science and technology to increase agricultural production and to prevent post-harvest losses. FAO was an active participant in the Consultative Group on International Agricultural Research, for which it provided the secretariat. In order to collect and disseminate information FAO published regularly current information on agriculture and provided an agricultural information service. In addition, it ran several training programmes at institutes in developing countries and provided them with assistance. Recognizing the importance of science and technology to development, FAO had decided to participate actively in the secretariat of the Conference on the preparatory work and to assist the Secretary-General of the Conference.

It was making special efforts through its programme of technical co-operation among developing countries (TCDC) to organize technical consultations and workshops

for transfer of technologies in different fields of food and agricultural science. A TCDC meeting on the transfer of technology to develop agro-industries was to be held at Mysore from 7 to 15 August 1978. A consultation on grain legume processing had been held in November 1977.

In its programme of developing science and technology for development FAO co-operated closely with all other agencies at global and regional levels and had developed several joint activities with them.

United Nations Educational, Scientific and Cultural Organization

The UNESCO representative noted that the proposed programme of action was in close harmony with the UNESCO programme in areas such as science policy, education and training in science and technology and development of the scientific infrastructure including standards and metrology and science information systems. Specific reference was made to the UNESCO programmes for the development of information systems on the national, regional and international levels, and to the planned Asian Workshop on Science and Technology Policies, which would deal with methodologies for the determination of priorities for regional co-operative programmes. Recognizing that there was a need for improved co-ordination, monitoring and evaluation within the United Nations system, UNESCO welcomed any steps that could be taken to improve programmes and services to Member States through better co-ordination and evaluation.

International Telecommunication Union

The development of telecommunication and its newer applications made feasible by the latest technological advances in areas such as solid-state electronics, satellite communication capabilities and computer applications needed to be considered as a major input to economic and social development, and as such should be reflected in the regional paper while dealing with problems of common interest, the application of technology and institutional arrangements. The role and technical co-operation activities of ITU had not been reflected in the regional paper, nor had the relevance of telecommunication as a contribution of technology to development. The technical co-operation activities of ITU relating both to the development of telecommunication infrastructure, including both domestic and regional networks in the ESCAP region, and equally important, to the development of technical managerial, research and planning capability must all be seen in the context of the promotion, application and transfer of technology. ITU would be happy if the regional paper when revised reflected the extreme importance of the telecommunication sector to the acceleration and enhancement of economic activity, co-operation among countries and social and cultural development. ITU stood firmly committed to co-operate with and to assist all Governments and agencies in every possible way in the development of telecommunications and its various applications in the service of economic and social development. ITU would be happy to co-operate and participate not only in the evolution of action programmes at the national, regional and global levels, but in any collective consideration of the implementation of such programmes.

United Nations Industrial Development Organization

In a realistic and effective application of industrial technology three major elements had been identified by UNIDO. These were: (a) the linkage of technology to industrial development and, through industrial development, to over-all development goals would be useful only in the context of the formulation of relevant policy measures by national Governments - technology policy and planning had therefore become important elements; (b) the development of technological capabilities in each country was a prerequisite for the selection, acquisition, adaptation, absorption or development of technology, and that involved, among other things, a building of institutions and training of manpower; (c) the third element was the appropriate choice of technology, since an inappropriate choice would not only be expensive but would distort the pattern of development. To complement the three elements a greater flow of information and increased technological advisory services were needed.

Brief reference was made to the recent deliberations of the twelfth session (June 1978) of the Industrial Development Board, at which it was said that efforts would be made at the International Forum in India to relate industrial strategy to basic needs and the choice of appropriate technology in selected areas and to establish a policy framework within which to extend the benefits of industrialization to rural areas and provide the basis for meeting the target established in the Lima Declaration and Plan of Action on Industrial Development and Co-operation. The aim was qualitative as well as quantitative. The work of the Forum would form an important contribution to the United Nations Conference on Science and Technology for Development and to the Third General Conference of UNIDO.

United Nations Conference on Trade and Development

The representative of UNCTAD outlined the broad framework against which his organization was preparing for the consideration of technological questions in the period ahead, particularly for the fifth session of UNCTAD to be held at Manila in May 1979. The technological transformation of developing countries was a corner-stone for achieving the Lima target of raising the share of developing countries to 25 per cent of the world's industrial output. Such a transformation would require, in the first place, a restructuring of the legal and juridical environment, including the revision of the industrial property system as legitimized by the Paris Convention for the Protection of Industrial Property, the establishment of a Code of Conduct on the International Transfer of Technology and reflection of those two in national laws, regulations and policies. Secondly, it would need for its achievement the adoption of technology planning as an integral part of national development plans, and the establishment of national, regional and subregional centres. The UNCTAD Advisory Service on Transfer of Technology had been assisting several developing countries in the formulation of new policies on technology and the establishment of appropriate institutional structures to implement them.

World Industrial Property Organization

The action programme called for the establishment of information services in the region. WIPO would contribute to its implementation through the utilization of patent documents, which constituted a vast storehouse of technological information. They contained public disclosures, in considerable detail, of solutions to technical problems; about 1 million were published each year, in a number of languages and in a reasonably standardized form; access to their technological content was available through the International Patent Classification, which subdivided technology into more than 1,000 groups or subgroups, and through a computerized bibliographic data service (INPADOC). In co-operation with ESCAP and the Secretary-General of the Conference, WIPO would organize in January 1979 a meeting at Bangkok for the countries of the ESCAP region on the subject of technological information maintained in patent documents. Three similar meetings devoted to the Conference had already been held - in Mexico for the Latin American countries, at Cairo for the Arab countries and at Yaoundé for the African countries.

Asian Development Bank

The representative suggested that either paragraph 70 (c) of the regional paper be deleted entirely or its amendment take cognizance of the following points:

(a) ADB did not insist on the preparation of project feasibility reports by panels of approved engineering consultants, mostly from the advanced countries. The consultants were selected from a variety of developing and advanced countries on the basis of their suitability to carry out the relevant tasks;

(b) The reference to the higher costs incurred as a result of the feasibility studies was misleading. The feasibility studies in fact were an important sine qua non in the developmental process, in the sense that they separated the viable from the non-viable projects and thus prevented considerable wastage of resources;

(c) Additionally, an important unit of the Economic Office, which was answerable to the President, was engaged in post-evaluation studies, which involved detailed and critical analyses of projects in their various stages of completion so that valuable lessons might be learned and any past pitfalls or mistakes might be avoided in the future with obvious consequences in the form of reduced costs;

(d) The ADB staff and consultants concerned were instructed to consider, in the project formulation stage, the inclusion of appropriate local resources, personnel and technology;

(e) An indication of the importance that ADB attached to the smooth transfer of technology to the developing member countries might be seen in the ADB funding of a study entitled "Traditional socio-cultural systems and modern economic growth in developing countries in Asia and the Pacific" with a view to exploring ways and means by which modern technology might be adopted, adapted, blended and improved

upon in conjunction with given traditional institutions and socio-cultural systems. Currently in the process of implementation was the first phase of the study, which involved a bibliographical search, a data resources survey and a conceptual paper on two countries that might serve as illustrations for further detailed in-depth studies of other member countries in the region.

Asian Productivity Organization

APO was an intergovernmental organization consisting of 14 member countries, which addressed itself to accelerating productivity levels in industry, agriculture and services through mutual co-operation among and between member countries. Towards that end APO undertook various projects and activities related to science and technology, particularly that of transferring and generating technologies among member countries. For example, APO had organized at New Delhi in February 1978 a symposium on technology transfer; an APO symposium on product design technology would be organized at Pattaya in August 1978.

World Federation of Scientific Workers

WFSW and scientists, technologists and related workers were very eager to participate in the preparation of the Conference, and its affiliated organizations had contributed their best for the success of the Conference. Contributions by non-governmental organizations and all other interested persons were vital for the fulfilment of the tasks of the Conference. One of the aims of WFSW was to improve the professional and socio-economic status of scientific workers all over the world. WFSW expected all Governments in the region to contribute towards the adoption of the recommendations on the Status of Scientific Researchers by UNESCO. WFSW intended to hold at Algiers in September 1978 a Symposium on the Role of Science and Technology in Development and its Relation to the Establishment of the New International Economic Order. The Symposium was being organized in collaboration with UNESCO and the Union of Algerian Engineers and would be complementary to the United Nations Conference in a number of important aspects.

Annex II

REVISED PROGRAMME OF ACTION

The second regional preparatory meeting for the United Nations Conference on Science and Technology for Development of the countries of the ESCAP region,

Bearing in mind that the most urgent problems facing the countries in the region are:

(a) To bridge the gap between the developing and developed nations in the levels of economic and social development,

(b) To eradicate any internal economic and social disparities in the structures of the countries,

(c) To attain self-reliance, and

(d) To attain full employment and to increase the level of material and cultural well-being of the masses, particularly in the rural areas,

Aware of the crucial and progressive role that science and technology can play in solving the above problems, in accelerating development and also in bringing about the restructuring of world economic relations for the benefit of all nations, particularly the developing nations,

Noting that the strengthening of international co-operation is a vital precondition for the successful development and application of science and technology to development,

Aware of the importance of promoting an amicable environment for development in accordance with the generally recognized principles guiding international co-operation, and recognizing the importance of reducing the human and financial resources devoted to military research and development of armaments,

Suggests the following measures to constitute a programme of action.

At the national level

1. A firm political commitment should be made in respect of the application of science and technology for development. This should be done at the highest level by the Governments of the countries. As an earnest demonstration of this commitment, Governments should:

(a) Initiate action to improve planning for the formulation of a comprehensive unified national science and technology policy, including policies for specific sectors such as agriculture, industry, family planning transport and

communications, social services (education, health, housing), natural resources, energy and ecology. The science and technology policy and plan should be an integral part of the national development plan, drawn up with the full participation of the scientific community;

(b) Set up institutional structures to implement the science and technology policy, plan and programmes;

(c) Provide adequate financial resources to fulfil the programmes;

(d) Create appropriate socio-economic conditions for better application of science and technology to development.

2. Action should be undertaken to create a climate for the application of science and technology for development and to make science and technology part of the national culture, through:

(a) Rural transformation, literacy, rural sanitation, electrification, communications, agro-rural industries etc.;

(b) The promotion of scientific and technological consciousness and discipline in the life and culture of the people at all levels of society, particularly among the socially disadvantaged sections.

3. The educational and training systems for science and technology should be reviewed to ensure:

(a) The training of adequate numbers of qualified scientific and technical personnel, especially technicians, in various disciplines of science and technology oriented to solution of their problems;

(b) A practical and vocational bias, particularly in relation to needs in rural areas, agricultural extension, the health needs of the poorer sections and the shop-floor needs of industry;

(c) That science and technology are imparted at all levels of education so as to inculcate the attitude for innovation and creativity, emphasis being given to the subprofessional and operative manpower.

4. Steps should be taken to train and establish engineering design consultancy and extension services and other delivery systems.

5. The training of technicians and the setting up of centres should be organized for the repair, maintenance and development of instruments and scientific equipment.

6. Assistance should be provided in building a fully effective indigenous science and technology infrastructure and capability by setting up infrastructural arrangements for science and technology by research, design and development institutes to meet identified needs in agriculture, industry, health and

engineering etc. and the management of research and development. Linkages with the users should be ensured through their participation in programme formulation and management; facilities and incentives should be provided to production units (public or private) to set up their own research and development departments and those already in existence strengthened through the provision of facilities (library, workshop, instrumentation etc.), staff and adequate financial resources.

7. Steps should be taken to ensure: (a) the identification of specific time-bound programmes for development of indigenous scientific and technological capabilities and commitment to its utilization; and (b) the linkage of imported technologies with indigenous research and development infrastructure for adaptation, absorption and improvement.

8. Institutional structures should be set up for decision-making in respect of the selection on the basis of appropriateness, the transfer and the development of technology. These structures should provide for the collection of information on the availability of technology from different sources and other legal and techno-economic procedures with a view to improving the terms and conditions of contracts and agreements, also allowing for the progressive use of local inputs. Positive steps should be taken to ensure an environment in which there is greater opportunity to strengthen the individual and collective bargaining power of the developing countries in this respect; to ensure co-ordination between organizations responsible for technology assessment, equipment supply and progressive indigenization of the imported technology; and to ensure that suppliers of technology provide for the training of adequate numbers of personnel, imparting a complete know-how and know-why of technology, including research and development capability.

9. An organization should be set up to establish and maintain national standards and quality control.

10. A list of technologies should be drawn up, comprising: (a) those available at the commercial level (including appropriate small-scale technologies within the country; and (b) those required by the country.

11. Specific items should be identified on which co-operation and support may be needed:

(a) From other developing countries;

(b) From developed countries;

(c) From United Nations agencies and bodies and from international organizations for (i) specific programmes for the training of personnel and strengthening of research, scientific literature, instrumentation facilities and science and technology infrastructure; (ii) co-operation in programmes of basic research, applied research and development; and (iii) education and training.

12. A systematic study should be instituted of traditional technologies as well as of related social systems in such areas as food and agriculture, industry,

irrigation and water management, architecture, health, medicine and family planning, identifying those that could be incorporated into modern systems.

13. A systematic study should be made of the country's technological dependence in areas of national importance to development and ways of overcoming it in order to become progressively self-reliant.

14. Initiative should be encouraged and support provided for the setting up of autonomous academies and for foundations of the scientific community at academic and professional levels, which should be invited to participate in the formulation of policies, plans and programmes of science and technology. They should be invited also to make an assessment of the social impact of science and technology programmes, particularly on the poorer sections.

15. Arrangements should be made for: (a) the systematic collection and maintenance of scientific data, information and statistics on science and technology, such as expenditure on science and technology, science and technology personnel and research and development institutes; and (b) an information system for science and technology to serve: (i) research organizations; (ii) decision-makers in science and technology; (iii) industrial companies; and (iv) the rural community.

16. Appropriate linkages should be established between education and training, research and development, and users in agriculture and industry etc., so that there may be fruitful interaction and development.

17. Managerial skills in research, development and production systems in agriculture and industry should be developed and strengthened so as to improve capabilities for technology innovation and pass on the benefits to the people of the region in a pragmatic way.

At the regional level

18. Scientific and technological capability should be strengthened at the regional level, commensurate with the requirements for:

(a) Functioning as a forum for the exchange of information and experience by the countries of the region;

(b) Catalysing developments in the transfer, development and application of technology;

(c) Providing advisory, consultative and training services;

(d) Serving as a focal point for co-operation, assistance and joint efforts between developing countries, developed and developing countries and international organizations.

19. A forum should be provided for the identification of areas where support in science and technology is needed by the developing countries and the location of sources in developing and developed countries from which this support could be provided. Help should be given in working out suitable arrangements between developed and developing countries.
20. Network arrangements should be identified and organized to strengthen the scientific and technological capacity in developing countries in subject areas identified as being of importance to regional development, namely food and agriculture, health and medicine, natural resources, energy and industrialization. A network of institutes should be developed and the most competent one, which could be responsible for co-ordination, identified.
21. A roster should be maintained of engineering design consultancy services, their capacity and specialization in the region. Arrangements should be made to provide such assistance, on request, to national Governments or industries in the developing countries.
22. Regional and subregional co-operation in agricultural, industrial and economic development should be encouraged.
23. Data should be maintained on experts, research and development institutes and technologies available and/or required in different developing and developed countries. Advisory assistance should be rendered, on request, for the assessment, selection and transfer of technology.
24. Recognizing the geographical and economic diversity and heterogeneity of the region, the activities of subregional organizations should be strengthened and co-ordinated.
25. Developing countries should be helped by arranging for:
 - (a) The provision of advisory services for the formulation of science and technology policies;
 - (b) The training of science and technology personnel in existing institutions in developing countries;
 - (c) The strengthening of research and development capabilities and the setting up, where appropriate, of national institutes;
 - (d) Contacts and arrangements with other developing and developed countries for assistance, training and joint research and development projects;
 - (e) Help in setting up standards, metrology, calibration and instrumentation organizations;
 - (f) The setting up of joint ventures;

(g) The exchange of experience in rural development and the promotion of scientific temper among the people;

(h) The setting up of national information systems for science and technology, and the strengthening of capability in scientific and technical writing and editing.

26. The more developed countries should be encouraged to:

(a) Expand the training programmes for students of developing countries in scientific and technological disciplines;

(b) Promote arrangements for scientific and technological co-operation;

(c) Establish closer collaboration between their research and development institutions and those of developing countries in disciplines of mutual interest;

(d) Encourage enterprises in both the public and private sectors through appropriate incentives, wherever possible, to stimulate the flow of technology;

(e) Promote joint venture operations on mutually satisfactory terms to facilitate the flow of technology;

(f) Generally increase as much as possible information exchanges likely to assist developing countries to improve their technological capabilities.

27. Advisory assistance should be given in setting up national and sectoral centres and structures for the transfer of technology, in co-operation with other concerned United Nations agencies or bodies.

28. Up-to-date information should be maintained on machinery, equipment and instruments manufactured in the developing countries.

29. Appropriate and adequate arrangements should be made to improve the capacities and capabilities of the region in the areas of science and technology, avoiding at the same time undue proliferation of institutions and using as far as possible those that already exist at the regional level (e.g., the Regional Centre for Technology Transfer and the Regional Network for Agricultural Machinery).

30. The role of the regional commission should be strengthened to co-ordinate the national activities at the regional level relevant to the application of science and technology to development, and to seek appropriate financial resources to implement the recommendations in the preceding paragraphs.

At the international level

31. An important objective of international co-operation in science and technology is to facilitate the solution of global problems including those associated with the establishment of a new international economic order.

32. For the implementation of projects which require an integrated interdisciplinary approach, a harmonized science and technology policy should be framed for the United Nations to ensure the co-ordinated functioning of a number of United Nations agencies/bodies.

33. The United Nations should strengthen its structure for co-ordination and co-operation among agencies and bodies by using existing institutions rather than creating new ones. For the purpose of effective co-ordination and promotion of interagency co-operation, the necessity of setting up of a mechanism might be considered. In this connexion, consideration could possibly be given to the setting up of a United Nations Foundation for Science and Technology, with multiple functions such as formulating a harmonized science and technology policy, promoting interagency co-operation, implementing recommendations of United Nations conferences pertaining to science and technology subjects in consultation with national Governments, acting as a "think tank" to bring together developed and developing countries, and obtaining financial support from international financial institutions.

34. The United Nations Development Programme should be encouraged, within its available resources, to catalyse the development of science and technology and its application in the developing countries.

35. An important role of the United Nations system in relation to developing countries should be to provide resources and expertise to strengthen their scientific and technological capacity, and provide training for building up a stock of scientific and technical personnel. The United Nations system should promote greater exchanges of information on science and technology, particularly for decision-making in the selection and transfer of technology.

36. International financial institutions like the World Bank and the Asian Development Bank should continue to encourage maximum utilization of engineering design consultancy organizations, machinery and equipment available in the developing countries.

37. Rather than setting up new regional and international research institutes, consideration should be given to upgrading some of the existing ones in the developing countries with requisite standards and capability to serve regional and international needs.

38. Some of the developing countries are losing a substantial number of scientists, technologists, engineers and technicians to some of the advanced as well as the developing countries. These countries should contribute to the strengthening of training and educational institutes in the affected developing countries to prevent damage to their own development.

39. While transnational corporations account for a major proportion of agreements for the setting up of production systems and transfer of technology to developing countries, many of them have been criticized for maintaining undue control of technology, secrecy, overpricing imports and being reluctant to associate nationals

with critical technological operations. To set these criticisms at rest, the United Nations and its agencies concerned should expedite negotiations relating to: (a) the Code of Conduct for Transnational Corporations; (b) the Code of Conduct on the International Transfer of Technology; and (c) the Paris Convention for the Protection of Industrial Property.

40. The United Nations should take action through appropriate forums to facilitate access to technology on reasonable terms and conditions to the developing countries, particularly in such areas as agriculture, livestock, energy, environment, and health and medicine.

41. A number of subregions, including the South Pacific, require aid for more local development. There is a general reluctance on the part of aid donors to finance associated and locally controlled research which should be related to the development undertaken. Continued effort should be made to develop and employ local consultants in aid activities.

42. There is a need to evaluate effective contribution to the developing countries through the activities of the United Nations specialized agencies, commissions and bodies in the form of seminars, workshops, conferences, advisory and expert services and training courses, intergovernmental meetings and projects etc. The United Nations system should strengthen appropriate monitoring and evaluation mechanisms to effect improvements in the vertical and horizontal compatibilities of its various components.

43. The momentum built up through the preparatory process for the United Nations Conference on Science and Technology for Development should not be allowed to dissipate. Linkages between national focal points, regional commissions and the appropriate United Nations bodies in the field of science and technology should be maintained. The United Nations should ensure mechanisms for implementation of the "programme of action" as approved by the Conference.
