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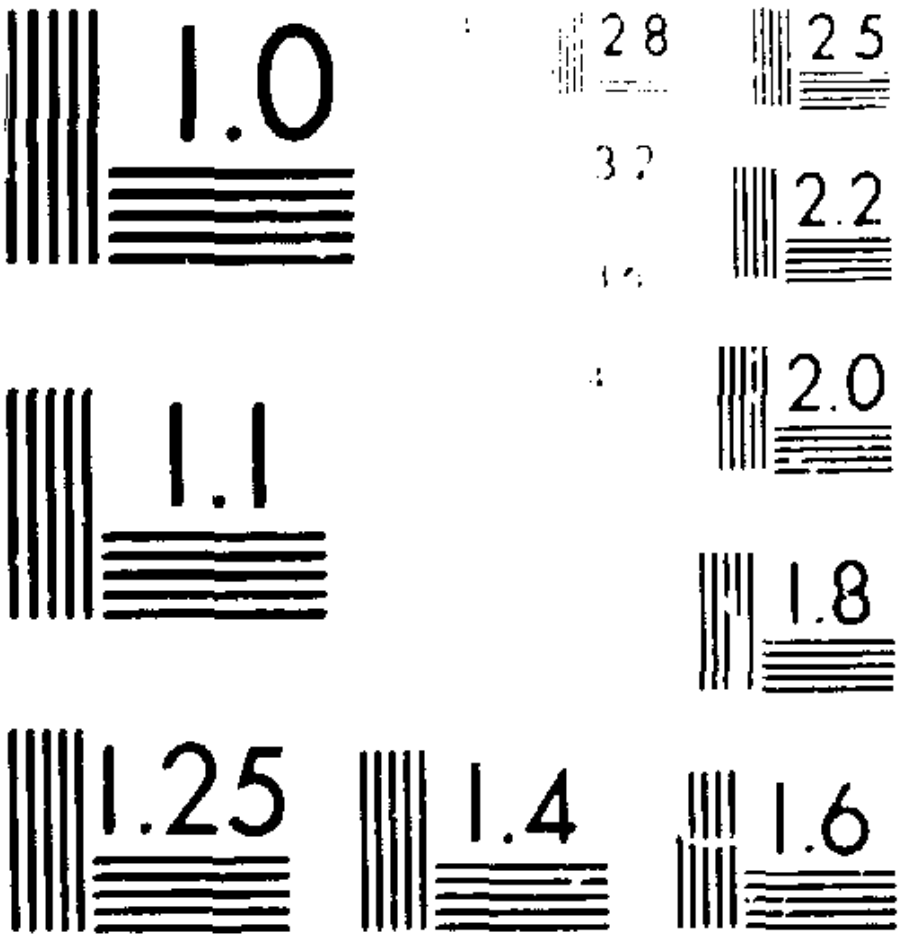
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UNITED NATIONS INDUSTRIAL
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Technical Congress held in conjunction
with the International Fair
"Technology for the People",
15-19 September 1980
Geneva, Switzerland

Report *

prepared by the Secretariat of UNIDO

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INTRODUCTION

The Geneva-based non-profit organization "Technology for the People" (TFTP) organized at the Palais des Expositions, Geneva, from 16-21 September 1980, an international fair entitled "Technology for the People". As a result of discussions between and among the TFTP Fair Director, UNDP and UNIDO, it was agreed to hold a Technical Congress in conjunction with the TFTP Fair, in order to take advantage of the presence of many international experts and practitioners from industrialized and developing countries who were directly concerned with the development, transfer and application of appropriate industrial technologies for the national development of developing countries. It was further agreed that UNIDO, as co-sponsor of the Technical Congress, would provide assistance to enable the participation of representatives from developing countries, in particular from the least developed countries, to exchange information and experiences in this field.

As part of its activities in the field of development and transfer of industrial technology, UNIDO has been playing a catalytic role to promote the improvement of a flow of more appropriate technologies to developing countries, the exchange of development experience and greater co-operation among the developing countries in the utilization of their own technological capacities with a view to collectively strengthening those capacities. These actions have been taken by UNIDO bearing in mind the Buenos Aires Plan of Action, the Istanbul Declaration, the Vienna Programme of Action and the New Delhi Plan of Action adopted by the Third General Conference of UNIDO.

ORGANIZATION OF THE MEETING

The Technical Congress was organized in the Conference Salle of the Palais des Expositions from 15-19 September 1980. It was attended by over 150 senior and middle-level executives from 41 developing and developed countries, representing government, public and private sectors corporations, R + D institutes and organizations. A list of those participants that registered at the Congress is given in Annex I.

In explaining the aims and objectives of the International Fair, Mr. Dichter, Fair Director, explained his belief that the TFTP was a Fair in the traditional sense: a market place and meeting place where people not only exchanged goods but knowledge and experience and ultimately established bonds of co-operation and friendship that would cut across national boundaries and all other barriers that still divided our world. He felt that the Technical Congress would help to streamline and perhaps even accelerate the process where the developing countries would be able to acquire those products, technical processes and support services needed to increase production and also improve the living standards of their people.

Mr. W.H. Tanaka, representing UNIDO, referred to the activities of the organization in the field of technology development and transfer which included, inter alia the catalytic and promotional roles of promoting the exchange of experience and knowledge and thus assisting in the strengthening of technological capacities and capabilities in the developing countries, promoting international co-operation between developing and developed countries as well as among the developing countries themselves, and supporting the acceleration of such efforts towards achieving technological self-reliance. In this context, he referred to the outcome of the UN Conference of Science and Technology for Development held in Vienna in August 1979, i.e. the Vienna Programme of Action which focussed precisely on the needs of strengthening the technological capabilities of the developing countries.

He then referred to the ultimate goal of technology transfer and development, which was to stimulate the industrialization process in the developing countries through the improvement and upgrading of existing industries as well as the establishment of new industries. It was therefore important to look into the problems in a practical and realistic way, including also the need to make appropriate choices of the technology most suitable to satisfy the objectives, from the widest possible range of alternatives that could be made available.

From this viewpoint, while the International Fair TFTP provided an excellent opportunity to examine available alternatives of technologies and to meet and discuss with potential partners of future co-operation, the Technical Congress was so conceived as to provide insight into the various key elements of technological capabilities in a systematic manner, on the basis of practical experience and knowledge of leading persons engaged in this field. The fact was emphasized that each of the eight panel themes were important stepping stones that had to be crossed, be it at the government, public or private sector levels.

In conclusion, Mr. Tanaka stressed the need for closely interlinking the Technical Congress debates with the TFTP Fair activities, and most importantly, to utilize the occasion to establish valuable contacts for future co-operation since such contacts would be the basis for mutual respect and understanding and subsequently the foundation for a long lasting and successful relationship.

The meeting then proceeded to elect the following officers:

Chairman, Dr. Naseer Ahmad Malik (Pakistan),
Rapporteurs, Dr. Yusef Mazhar (Egypt) and
Dr. Mohamed Sidahmed Goreish (Sudan)

Dr. Malik thanked the participants for electing him as Chairman of the meeting and hoped that co-operation and support would be available from all to make the meeting a success.

The proposed Agenda was agreed upon as per Annex II and was divided into nine panel sessions; one session devoted to discussions of country experiences and eight sessions covering the following subject areas:

I. Technology policy and plans;

II. Technology transfer: licensing techniques applicable to developing countries;

III. Decision-making processes in selecting appropriate technologies (establishing new industrial process technologies);

IV. Commercializing prototype technology in the developing countries;

V. New approaches to subcontracting, joint ventures and industrial co-operation among business firms;

VI. Role of finance institutions in assisting small and medium-scale enterprises in the developing countries;

VII. The selection of products, technical processes and support services in meeting various developing country objectives (equipment procurement); and

VIII. Future framework of co-operation among developing countries.

PRESENTATION OF COUNTRY EXPERIENCES

In order to provide a practical basis for the discussions, representatives from 17 selected developing countries - Bangladesh, Benin, Bhutan, Dominican Republic, Ethiopia, Haiti, Lesotho, Nepal, Pakistan, Somalia, Sudan, the United Republic of Tanzania, Thailand, Western Samoa, Yemen Arab Republic, Yugoslavia and Zambia - made presentations of their country papers, as listed in Annex III.

PANEL DISCUSSIONS

Each panel session began with a principal speaker making a keynote speech, followed by short referral presentations by senior, well known experts and specialists in the respective subject areas under the guidance of a moderator. A list of panel members is given in Annex IV.

Panel I: TECHNOLOGY POLICY AND PLANS

The role of technology policy and national plans for the development and transfer of technologies relating to achieving national goals was discussed. In this context, the principal speaker emphasized the need for government initiatives in establishing policies and structures for implementing national plans. It was stressed that appropriate technology did not necessarily mean small-scale, rural, primitive and local technologies only but should encompass all technologies deemed necessary for achieving national development. In this connexion, the concept evolved at the UNIDO ministerial level meeting of the International Forum on Appropriate Industrial Technology, held in 1979, was cited as a reasonable approach to this problem. This included the need for an appropriate institutional infrastructure, development of qualified manpower, a system of incentives, a mechanism of constant monitoring, a methodology of technical assessment, and institutions for implementation integrated within a framework of national policies. Such technology policies should be derived from the national industrial development plans, while the technology plans should be the basis of developing a practical and realistic programme of action. One panalist discussed the actions taken at a national level in developing a technology policy and plan which started from a survey of six sectors consisting of priority areas in the country concerned. This survey was expected to be used to formulate policies and plans which would be in harmony with the national development of the country. In order to complement these efforts, the National Fund for Science and Technology was created.

Another panelist emphasized the need for realistic and practical plans of action in the developing countries, particularly since many feasibility studies, reports and recommendations were available, but little had actually happened. He also stressed the importance of sensitization to the scope and dimension of the problem of technology policies and planning and suggested that a core group be established which could provide practical advice, particularly to the government. It could be a useful form of promoting, in an effective and efficient manner, the development and transfer of technology in the country.

The important role which private enterprises could play in the development of technology was also recognized.

Panel II: TECHNOLOGY TRANSFER: LICENSING TECHNIQUES APPLICABLE TO DEVELOPING COUNTRIES

The principal speaker stressed the problems faced by developing countries in trying to reach equitable arrangements with technology suppliers from industrialized countries.

In this context, the past experience of developing countries was reviewed. In his experience, he felt there were a number of instances where contract clauses were harmful to the national interests of developing countries. He went on to elaborate on the various pitfalls developing countries should avoid in dealing with foreign companies. One of the questions he discussed was the cost of technology. Normally this was minimal or even did not cost anything to the owner of the technology since it was essentially developed for local use, with profits in the country of origin. Therefore it became difficult to fix the price of technology. In the past this cost tended to be what the market could bear. Therefore the need for developing legal, commercial and negotiating capabilities in developing countries was stressed. Also the need to develop simultaneously technological capabilities was regarded as very important.

The transfer of technology was significant not only for individual entrepreneurs from developing countries but also of a much broader concern because it usually involved large-scale investment and the development of whole branches of industry. Thus the acquisition of inadequate technology or the non-existence of internal conditions for the successful utilization of the acquired technology might result in major losses and a slowdown, not only in the development of the particular enterprise but also of the entire branch, if not the economy of the developing country as a whole.

The participants agreed that the further improvement of the legal techniques should strongly foster the inclusion of developing countries, on an equal footing, in the international division of labour, the advancement of their production processes, the development of indigenous R and D, the increasing of business efficiency, the improvement of the utilization of indigenous capacities, raw materials and energy.

Finally it was strongly stressed that improvement of licensing techniques was a major task of policy-makers in the developing countries because they were not only relevant to the protection of interests of technology recipients but they were also one of the touchstones for the viability of a new and more equitable system of international economic relations.

Panel III: DECISION-MAKING PROCESSES IN SELECTING APPROPRIATE TECHNOLOGIES (ESTABLISHING NEW INDUSTRIAL PROCESS TECHNOLOGIES)

In order to have a clearer focus on the very broad subject of appropriate technologies, the principal speaker confined his remarks to small-scale industrial process technology, and especially those which are essentially privately owned. He illustrated the major difficulties met by the private entrepreneur when trying to set up only a small-scale industry. He outlined two major problem areas: the number of people involved in the decision-making process, and the fact that decision-makers were frequently not aware of the choices open to them. The entrepreneur, one of the chief decision-makers, was frequently severely limited in choosing appropriate technology due to lack of information, language barriers and geographical location. The other principal decision-makers included local financial institutions, government departments and public authorities, expert consultants and equipment suppliers. For various reasons, there was generally a built-in bias in favour of large-scale technologies, although these might not be suitable to the needs of the entrepreneur. At the same time there was definitely a real lack of modern small-scale technologies which were technically and economically viable and whose products were of high quality. There was, therefore, an urgent need to mobilize the efforts of companies and research organizations with relevant resources, know-how and willingness to develop such technologies that were needed as well as appropriate for application in developing countries. This would then broaden the alternatives available for an appropriate choice of the technology.

Other panel members added a number of comments. The importance of marketing appropriate technologies to make them successful was emphasized. Stress was placed on the need for the government to take the initiative in clearly defining national development objectives and strategies in the form of technological policies as well as in providing a national framework of conditions to ensure the creation of an appropriate institutional infrastructure and the development of manpower resources, thereby ensuring a greater flow of industrial and technological information and encouraging international co-operation. It was pointed out that there was a greater need to look into the problems of the great majority

of business people in developing countries -- the artisans and the people living at a subsistance level. These groups needed an entirely different form of assistance from that given to small and medium-scale industries.

It was felt that in the industrialized countries, there were not sufficient attempts to analyse the real needs of the developing countries and, in many cases, the developing countries themselves had not clearly articulated their needs either. Also it was suggested that there was a need for an intermediate institution to facilitate the transfer of technology between large companies and individual entrepreneurs.

Panel IV: COMMERCIALIZING PROTOTYPE TECHNOLOGY IN THE DEVELOPING COUNTRIES

The principal speaker noted that if appropriate technologies were not successfully commercialized and put into practical use, they could be of only limited use. Appropriate technologies must be commercialized at the grass-roots level to achieve economic development. The programme of the International Rice Research Institute (IRRI) in developing countries was given as an example: IRRI designed, developed and commercialized small-scale agricultural machinery through a 4-point programme which included market research and product planning; product design, testing and evaluation of prototypes, both in the laboratory and in the field and industrial extension including test marketing. Among the items that IRRI had successfully implemented were a small tractor, a rice transplanter, a wheat thresher and a rice machine. They were currently working on a machine to handle both multi-crop rice and wheat. The importance of working with the users of the technologies in the geographical areas where they would be used was emphasized.

One of the panelists who headed an institute, SISCOMA in Senegal which was established under assistance of IRRI, also stressed the necessity of working at the grass-roots level, and stated that the prototype must fit in with the existing environment and respond to well-defined needs. The sharing of information among developing countries with regard to such technologies that were or had been developed was also of great importance, and appropriate activities should be initiated to fill this need. He also commented that when a technology was transferred from an industrialized to a developing country, the necessary marketing information and training were frequently not included.

The last panelist, the Director of the Engineering and Industrial Design Development Centre (EIDDC) in Egypt pointed out the necessity of developing prototypes jointly with the users. His own experience was that the designs developed in-house at the earlier stage of his work could not be put into work successfully in all cases, due to the lack of involvement of the users. The importance of an integrated approach involving design, technology, training, technical assistance and documentation were cited by illustrating numerous examples of successful designs and prototypes for consumer goods, building materials equipment, transportation and agricultural equipment.

Panel V: NEW APPROACHES TO SUBCONTRACTING, JOINT VENTURES AND INDUSTRIAL CO-OPERATION AMONG BUSINESS FIRMS

The main speaker discussed several forms of international subcontracting including "cross-borders" and "within borders" approaches. In the cross-borders instance, a firm in a developed country subcontracted to a firm in a developing country to assemble parts given by the contractor. The finished product was returned to the developed country for sale. The subcontractor could be a local firm, an independent foreign firm or a branch of a transnational corporation. The partners could be of the same or of different nationalities. In the case of within borders subcontracting, the principal firm and the subcontractor might not necessarily be of the same nationality, but international and national firms within the same country. An example of this would be where a branch of a transnational subcontracted to a local firm for products that would be sold within the country. Another instance of within borders subcontracting was a joint venture where a firm in a developed country and a firm in developing country set up a new firm in a developing country which manufactured products locally.

Other types of subcontracting included "commercial" and"industrial" forms. In the commercial form, the subcontractor either assembled or made parts and assembled products for reimportation to the developed country. In some cases, the parent company sent only the design to the subcontractor. In industrial subcontracting, the subcontractor only manufactured the parts of a product and then sent the parts to the developed country for assembly. Subcontracting could also be "spontaneous", i.e. arising from an agreement between the parent company and the sub-contractor, or "government-sponsored", where the government of a developing country initiated a contract. More and more governments in developing countries were demanding that transnational corporations subcontract to local firms.

Subcontracting led to technology transfer on different levels. In cross-border commercial subcontracting, most of the technology was not complex, as for example a simple assembly operation. In this instance, there was not much technology transfer. However, in industrial subcontracting that was government-sponsored, technology transfer was more important.

The panel members also added comments, and it was stated that subcontracting had two objectives: transfer of knowledge to the developing country and employment generation. The need for technology transfer over a longer period of time was stressed so that the effect was more permanent. There was a need for a mechanism to allow the subcontractor a longer association for constant transfer and to ensure a permanent source of employment.

Panel VI: ROLE OF FINANCE INSTITUTIONS IN ASSISTING SMALL AND MEDIUM-SCALE ENTERPRISES IN THE DEVELOPING COUNTRIES

The principal speaker cited two crucial aspects of medium and small-scale enterprise development: the need to identify a class of entrepreneurs, whether they be individuals, communities, co-operatives etc., and the need to assist these entrepreneurs both technically and financially. Many forms of financial assistance were currently available including international, regional, Common Market, national public institutions, Arab development groups and local institutions. The problem was not to create more financial mechanisms but to identify more entrepreneurs and to promote more projects.

The investment criteria currently used by financial institutions, which included sponsors, both local and foreign industrial partners, were proper technical concepts, well prepared market studies, financial structure and profitability. While these were standard criteria, some of them often constituted real obstacles to new ventures. In the view of the principal speaker, the first need was for a good local partner, the second a responsible technical counterpart and the third a good project concept. Many good projects failed because of the gap between the pre-investment stage and the investment decision itself. Financial institutions must search out good investment opportunities. They should also identify and educate entrepreneurs and promote good international industrial communications to identify technical partners for small and medium-scale enterprises.

The programmes of the World Bank in this area, as described by one panelist, attempted to assist local entrepreneurs by channelling the assistance through local institutions. Another member of the panel reviewed the programmes of the Interamerican Development Bank (IADB) and identified two types of assistance. For those enterprises that were funded by IADB, the IADB provided money until the business was ready for commercial loans. The bank also had a programme providing capital, technical assistance, equipment etc. with low-interest loans over a payback period of 40 years, with a 10-year grace period.

Panel VII: THE SELECTION OF PRODUCTS, TECHNICAL PROCESSES AND SUPPORT SERVICES IN MEETING VARIOUS DEVELOPING COUNTRY OBJECTIVES (EQUIPMENT PROCUREMENT)

The principal speaker, the Procurement Advisor of the World Bank, provided a "look behind the scenes" of international tendering and contracting. The various types of tendering and contracting possible within the context of the World Bank were mentioned. The speaker urged the need of "bringing the game out into the open" by spelling out in the bidding documents just what criteria would be used by the procurement agency in evaluating the proposals (for instance, price, delivery time, operating efficiency, performance quality, availability of spare parts etc.). A rating scale should be used to make it clear how important each item was to the purchasers, as this in turn would stimulate the supplier to furnish a proposal of maximum responsiveness. Both sellers and buyers should guard against cumbersome procurement documents, built up over the years, which placed such sellers in positions of "inordinate risk" in order to satisfy every possible contingency of the buyer. A minimization of needless red tape and a contract "fair to both parties" was needed.

Another panelist, Senior Adviser on Water Supplies and Sanitation for UNICEF, provided information about how developing country suppliers could increase their participation in UNICEF's procurement programme in the future and about the activities of UNICEF (largest single procurement arm of the United Nations) which had purchased over $150 million worth from 1,600 suppliers in 6 countries of which 30 per cent came from developing countries.

Another panelist representing the principal Catholic purchasing agency for third world projects, described the experience of his organization in buying equipment from developing countries, chiefly in the case of technical schools and hospitals, as a slow and cautious start which, with

the willingness to assume reasonable risks and with some courage resulted in "positive results" in terms of satisfied customers. He also urged procurement of processing plants with a minimum of mechanization, in order to provide maximum employment, citing the example of a palm fruit plant which was completely mechanized and provided very few jobs.

A speaker from the USAID Office of Engineering in Washington described four specific projects.

Panel VIII: FUTURE FRAMEWORK OF CO-OPERATION AMONG DEVELOPING COUNTRIES

A review of developments in the area of technical co-operation among developing countries (TCDC) was made. The importance of industrial and technological co-operation among developing countries was considered as a vital instrument for the establishment of a new international economic order. While developing countries were aware of the great potential of TCDC for their own advancement, it was felt that an acceleration of the implementation of programmes was necessary. Factors impeding progress were discussed. Among the points which needed attention were the following:

(a) Decision-makers in developing countries should consider the possibility of acquiring technology from other developing countries before they turned to developed countries;

(b) Sources of information on technologies available from developing countries and their dissemination should be systematically developed;

(c) There was a need for personal contacts to be established amongst decision-makers and technologists of developing countries. Study tours, seminar-workshops and meetings were some of the activities suggested in this connection;

(d) Developing countries should maximize utilization of the expertise available in the developing countries, especially in the fields of consulting and engineering services, testing facilities, R + D institutes etc.;

(e) Promotion of joint and co-operative R + D projects;

(f) The support of regional institutions, where they existed and the establishment of new ones, as needed;

(g) In turn, the regional institutes should provide guidelines and initiate action to support and accelerate relevant activities by public agencies and organizations at the national level;

(h) The utilization of training and testing facilities available in developing countries.

CONCLUSIONS AND RECOMMENDATIONS

1. It was recommended that countries should strengthen their national capabilities for the development and transfer of technology and the promotion of their industrialization process. For this purpose, assistance could be sought from UNIDO and other UN organizations as well as other bilateral and international aid-giving agencies and organizations.

2. Developing countries could draw upon the experiences of other developing countries in the establishment and strengthening of their national capabilities and capacities for the formulation of technological policies, plans and their implementation.

3. Developing countries should strengthen their legal, negotiating and institutional capabilities and capacities to enable them to conclude fair and equitable licensing agreements with developed countries.

4. Greater attention should be devoted to technologies suitable for application in small and medium-scale industries, with particular reference to the development of modern technologies for these sectors of industry.

5. Developing countries should promote the implementation of joint and co-operative projects for developing appropriate technologies suitable for the small and medium-scale sectors of industry.

6. Developing countries should share information and experience among themselves with regard to prototype development and commercialization of R + D results.

7. Developing countries should promote the conclusion of joint ventures and subcontracting arrangements in order to maximize the deployment of indigenous manpower skills as well as market and natural resources on a continuous basis.

8. Developing countries should pay greater attention to making available adequate financing arrangements to promote technology development and transfer. They could maximize the utilization of existing international financial mechanisms.

9. Developing countries should, on a preferential basis, consider procuring equipment from other developing countries, where available.

10. The meeting agreed to include the eight points identified by Panel VIII as additional recommendations of action.

11. To expedite the process of development, it was recommended to strive for new methods and/or channels that could better motivate the developing countries to implement collective measures and international aid institutions and developed countries to help more positively.

12. All the participants were strongly recommended to pass on these recommendations to their respective institutions and/or governments for follow-up action i.e. practical implementation.

13. It was felt that the First International Fair, Technology for the People and the Technical Congress held in conjunction with it, offered the participants from developing as well as developed countries not only a convenient forum for personal contacts but also afforded an excellent opportunity for reviewing various types of products, technical processes and support services. Such activities should be encouraged in the future.

Acknowledgment of thanks

The participants thanked the organizers of the technology for the People Fair, UNIDO and UNDP for making it possible to hold the important congress and providing an opportunity for participants from developed and developing countries to meet and exchange experiences.

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Annex II

AGENDA

14 September 1980	Registration of participants
15 September 1980	
9.00-9.30	Opening of the Technical Congress
9.30-10-30	Aims and objectives of the Congress
10.30-12.30	Country experiences (short statements given by representatives of a selected group of developing countries)
14.00-15.30	Technology policies and plans
15.30-17.00	Technology Transfer: Licensing techniques applicable to developing countries
16 September 1980	
9.00-10.45	Decision-making processes in selecting appropriate technology. (Establishing new industrial process technologies.)
10.45-12.30	Commercializing prototype technology among the developing countries
14.00-18.00	Tour of the Technology of the People Fair Special tours
17 September 1980	
9.00-10-45	New approaches to subcontracting, joint ventures and industrial co-operation among business firms
10.45-12.30	Role of finance institutions in assisting small- and medium-scale enterprises in the developing countries
14.00-18.00	Business contact negotiating sessions among the participants
18 September 1980	
9.00-10.45	The selection of products, technical processes and support services in meeting various developing country objectives. (Equipment procurement.)
11.00-12.30	Future framework of co-operation among developing countries
14.00-15.30	---------- contd. ---------
14.00-18.00	Business contact and negotiating sessions among the participants
19 September 1980	
9.30-12.00	**Closing session**
	General conclusions and recommendations adopted of the report

19 September 1980

9.30-12.00	Closing session General conclusions and recommendations Adoption of the report

Annex III

List of documents

Background paper for Panel I	
Appropriate technology - policy, plans and criteria for selection	Dr. C. V. S. Ratnam Expert in Technology Transfer and Counterpart Administrator Regional Centre for Technology Transfer, Bangalore, India
Towards a two-tier technology	Dr. M. Sidahmed Goreish Director National Centre for Technology Sudan
Background paper for Panel II	
Licencing techniques applicable to developing countries	Mr. K. Gueblaoui Office of the Prime Minister Government of Tunisia
Background paper for Panel III	
Decision-making processes in selecting appropriate technologies	Mr. David L. Wright General Manager, Industrial Services Unit, ITDG, United Kingdom
Background paper for Panel IV	
Commercializing prototype technology among developing countries	Dr. Amir U. Khan Project Director IRRI-PAK Agricultural Machinery Programme, Pakistan
Commercialisation des prototypes et des techniques d'avant garde dans les pays en developpement	Mr. Birame N. Fall, Commercial Director, SISCOMA, Dakar, Senegal
Background paper for Panel V	
The role of EIDDC in Egypt(product design and prototype commercialization)	Dr. Yusef K. Mezhar Under-secretary/Director, EIDDC, Egypt
Innovations en matiere d'accords de sous-traitance et de cooperation industrielle entre entreprises commerciales dans les pays industrialises et en developpement	Ms. Anne Hanaut Faculté de Droit et des Sciences Economiques Université de Nice, Nice, France
Background paper for Panel VI	
The role of finance institutions in assisting small and medium-scale enterprises in the developing world	Mr. Philippe Séchaud Managing Director, SIFIDA Investment Company Geneva, Switzerland Mr. Cattani, Deputy Manager, SIFIDA Investment Company Geneva, Switzerland

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Appropriate technology in the choice of machinery and equipment	Dr. Yusef K. Mazhar Under-secretary/Director, EIDDC, Egypt
The role of UN agencies in procuring equipment and services for the developing nations	Mr. Martin G. Beyer Senior Adviser, Drinking Water Programmes, UNICEF
Participants papers	
Development and transfer of industrial technology in Bangladesh	Mr. M.I. Shariff Deputy Director-General Dept. of Industries Bangladesh
Problèmes de la Technologie Importée et Neccesité d'une Technologie Appropriée	Mr. E. Godonou Engineering Chemist Ministry of Industry, Mines and Energy, Benin
Technology Transfer in Bhutan	Mr. Uttam Chettri Joint Director State Trading Corporation of Bhutan
Dominican Republic, country paper	Ing. Ada Florentino de Llinas Director, Science and Technology Department Secretariado Tecnico de la Presidencia, Dominican Republic
The Role of Technology Transfer in the Industrialization of Ethiopia	Mr. Woldu G. Michael Head, Planning, Ministry of Industry, Ethiopia
Transfer of Technology in Central America	Mr. Elias C. Hill Regional Co-ordinator, Transfer of Technology Programmes, ICAITI Guatemala
Problems du transfert et du développement de la technologie en Guinea-Bissau	Mr. R. Coutinho General Director SOCOTRAM Ministry of Trade Guinea-Bissau
Country paper, Haiti	Mr. Max Antoine, Ministry of Planning, Haiti Mr. P. R. Gabriel, Ministry of Commerce and Industry, Haiti
Country paper, Lesotho	Mr. Yohannes Mesfin Adviser, Appropriate Technology Unit Basotho Enterprise Development Corporation Maseru, Lesotho

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Technology Development in Nepal	Dr. Durga Bahadur Shrestha Sectional Head, UNIDO Section Department of Industries Nepal
Country paper, Pakistan	Dr. Naseer A. Malik Director General National Centre for Transfer of Technology Ministry of Science and Technology, Pakistan
Country paper, Western Samoa	Mr. Hans Kruse Director of Economic Development Western Samoa
Report of the Foundry and Mechanical Workshop Mogadishu	Mr. Mohamed Ali Dahir General Manager Foundry and Technical Workshop Mogadishu, Somalia
The Latter-day Labours of Aquisition: Can the LDCs carry off?	Mr. M. Sidahmed Goreish Director National Centre for Technology Sudan
An appraisal of technology development in the United Republic of Tanzania	Mr. S. J. Asman Mr. H. Y. Kayumbo Tanzania National Scientific Research Council United Republic of Tanzania
Appropriate technology for Thailand	Mr. Charmroon Malaigrong Acting Chief. Technology Transfer Centre, Ministry of Science, Technology and Energy, Thailand
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Transfer of Technology, Yugoslav Experiences and Options	Mr. Darko Bekić Chief Centre for Energy Studies Institute for Developing Countries Zagreb, Yugoslavia
Country paper, Zambia	Mr. G.C.L. Mubango Economist Ministry of Commerce and Industry Zambia

Annex IV

LIST OF PRINCIPAL SPEAKERS AND PANEL MEMBERS IN THE TECHNICAL CONGRESS

PANEL No. 1 - TECHNOLOGY POLICY AND PLANS

Monday - 15 September 1980

Moderator - Dr.C.V.S. Ratnam
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PANEL No. 2 - LICENSING TECHNIQUES APPLICABLE TO DEVELOPING COUNTRIES

Moderator - Mr. Roger Harben
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Panelists - Mr. K. Gueblaoui
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Tuesday - 16 September

PANEL No. 3 - DECISION-MAKING PROCESSES IN SELECTING APPROPRIATE TECHNOLOGIES

Moderator - A.S. Bhalla
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PANEL No. 4 - COMMERCIALISING PROTOTYPE TECHNOLOGY IN THE DEVELOPING COUNTRIES

Moderator - Mr. David Wright
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Panelists - Dr. Amir U. Khan
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Dr. Yusef K. Mazhar
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PANEL No. 5 - NEW APPROACHES TO SUBCONTRACTING, JOINT VENTURES AND INDUSTRIAL CO-OPERATION AMONG BUSINESS FIRMS

Moderator Mr. A. Chiappi, Buitoni Cooperation Technique, Lausanne

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Mr. Delfino Bondad, Economic Counsellor, Government of thePhilippines

Dr. R. Uberoi, Managing Director, Technology Transfer Consult GmbH, Federal Republic of Germany

PANEL No. 6 - ROLE OF FINANCE INSTITUTIONS IN ASSISTING SMALL AND MEDIUM-SCALE ENTERPRISES IN DEVELOPING COUNTRIES

Moderator Mr. George Kanawatty, Chief, Management Development Branch/Training Dept., ILO

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Mr. Richard Fletcher, Deputy Manager for Integration, Inter-American Development Bank

Dr. Vijay Jolly, Faculty Member, Centre d'Etudes Industrielles, Geneva

PANEL No. 7 - THE SELECTION OF PRODUCTS TECHNICAL PROCESSES AND SUPPORT SERVICES IN MEETING VARIOUS DEVELOPING COUNTRY OBJECTIVES (Equipment procurement)

Moderator Mr. Harold La Sieur, USAID

Panelists Mr. Charles Morse, Procurement Advisor, The World Bank

Mr. Martin Beyer, Senior Advisor, UNICEF

Mr. Horst Neckenig, BEGECA, Aachen, Federal Republic of Germany

PANEL No. 8 - FUTURE FRAMEWORK OF CO-OPERATION AMONG DEVELOPING COUNTRIES

Moderator Mr. W. H. Tanaka , Head, Development and Transfer of Technology Branch, UNIDO

Panelists Mr. K. Hasson, Industrial Development Officer, Ecnomic Co-operation among Developing countries

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