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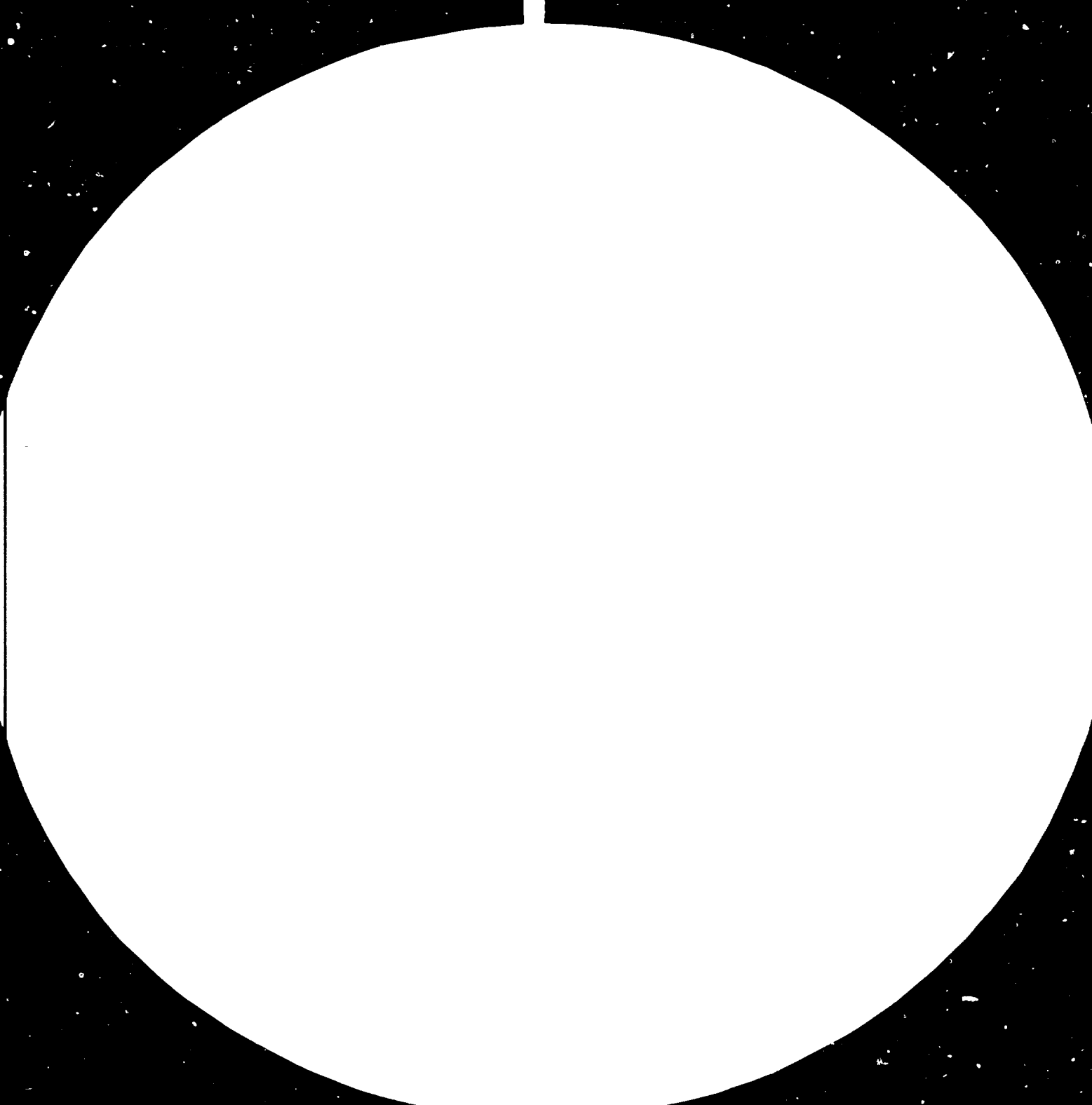
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Resolution (cycles/mm)

Technical Meeting of Experts of the
Group of 77 on Technology and
Industrialization in Preparation
for the High-Level Conference on
Economic Co-operation Among Developing
Countries to be held in Caracas, in
May 1981

Vienna, 16-20 March 1981

10489

REPORT

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The Technical Meeting of Experts considered the experience of economic co-operation among developing countries in technology and industrialization and the concrete possibilities of increasing such co-operation. It did so on the basis of the report of the Ad Hoc Intergovernmental Group of June 1980 and the terms of reference assigned to it on 26 February 1981. The experts made the following recommendations:

TECHNOLOGY

- A. Strengthening and establishing when necessary, national, sub-regional, regional and inter-regional technology institutions and agencies covering different sectors as focal points providing specialised services to other developing countries

Objective:

To provide information on engineering and technological capacities available and required and to develop programmes of co-operation among developing countries.

Action:

- (a) Establish an up-to-date inventory of the existing capabilities in the national, sub-regional, regional and inter-regional technology institutions and agencies in the developing countries. For this purpose a detailed questionnaire may be circulated to all developing countries in which each country would indicate the available R and D facilities, engineering capacities, etc.
- (b) Based on this information, co-operative arrangements among technological R and D institutions could be formulated in specific areas. In this connection, it is proposed that specific expert groups be organised to identify problems of common interest and select projects for joint and co-operative action.
- (c) Strengthen technological information among developing countries using existing international information systems such as RITLA in Latin America, UNIDO and UNESCO at the international level (and other such systems that may be created), for the collection, analysis and dissemination of information on the engineering and technological capabilities available in the institutions and which could be made available for other countries.
- (d) The existing initiatives on the part of developing countries for twinning arrangements between such institutions need to be encouraged and promoted.

3. Facilitating available technology on favourable terms

Objective:

To make available to all developing countries specific technologies and capacities (engineering, consulting, design, etc.) acquired by some developing countries.

Action:

- (a) Each developing country should compile available information on a broad range of technologies covering both hardware and software, the latter being embodied in the form of institutional knowledge, experience of pilot plant or semi-commercial plant operation, technological know-how and availability of facilities for training purposes.
- (b) A systematic compilation of information should be made available to countries and institutions that will be responsible for specific sectors, as well as to international organisations, regional organisations such as transfer of technology centres and interested economic commissions.
- (c) Visits of experts from governmental organisations, technical institutions in specific industrial sectors to other developing countries should be organised so as to promote and develop specific co-operation projects on bilateral and multi-lateral basis.
- (d) International organisations are requested to promote, organise and provide support for such inter-country facilities and exchange of information, including projects agreed upon on such visits. Depending on the level of co-operation they could also facilitate obtaining favourable terms and conditions including granting of preferential treatment in technology transfers.

C. Joint efforts to solve specific technological problems in sector-specific areas and creation of networks of scientific and technological institutions

Objective:

To develop joint programmes between those countries that have specific experience and expertise in specified sectors of industry and to assist others in regard to testing of raw materials, providing them with know-how and designs where necessary on products and processes and also to develop joint programmes in R and D efforts, including harmonisation of policies.

Action:

- (a) Establish action committees in the selected sectors to act as promoters and catalysts of technological development, conveners of meetings of interested institutions, agencies and countries and to generally serve as points of reference for technological problems in these sectors for other developing countries
- (b) The promoters in each of the sectors should initiate consultations with governments, and request international organisations such as UNIDO and the appropriate regional organisations to provide the necessary organisational, secretariat and substantive assistance to promote technological co-operation among developing countries.
- (c) Establish a network of scientific and technological institutions for mutual benefits and to facilitate harmonisation of strategies and policies.

D. Monitoring the use of technology in developing countries to promote the development of endogenous scientific and technological bases in developing countries

Objective:

To make available to other developing countries information and experience gathered by some through in-depth monitoring of technological problems related to absorption, adaptation and innovation of technology.

Action:

- (a) The relevant UN bodies and regional, sub-regional and inter-regional technological institutions should give priority in their work programmes to monitoring experiences in regard to absorption, adaptation and innovation and report to their governing bodies for further action.
- (b) Encourage the exchange of technical personnel in these areas.
- (c) Convene expert meetings to exchange experience obtained in this phase of monitoring in specific sectors, highlighting in particular the investigations made.
- (d) Encourage the use of relevant experience to enhance endogenous technical capacities of developing countries.

E. Co-operation in the areas of technological innovation and research in advanced technologies

Sub-programme (i): Monitoring Facility in Research and Development in Advanced Technologies

Objective:

To create a mechanism for monitoring and analysing the potentialities and implications of technological advances and breakthroughs such as genetic engineering and bio-technology, micro-processors, etc. in order to alert the developing countries to take appropriate measures and for preparing national level actions to cope with the problem of technology choice, technology use, in accordance with the basic development objectives.

Action:

- (a) UNIDO and other international organisations are requested to continuously monitor, analyse and assess the potentialities and implications of advanced technologies.
- (b) Experts from developing countries should review such potentialities and implications of advanced technologies for the benefit of developing countries and prepare the plan of action to develop required technological capacities.
- (c) Developing countries which have a certain technological capacity in these areas are requested to assist other developing countries in providing facilities developed by them in regard to training of skills, advisory services and pertinent information.
- (d) International organisations such as UNIDO, UNESCO and CSTD should co-operate in promoting and developing R and D facilities and institutional mechanisms whereby the necessary technical skills could be acquired by the developing countries through securing expertise from developed countries.

Sub-programme (ii): Technological Forecasting and Technological Requirements of Developing Countries

Objective:

To assist in determining well in advance the type and extent of the technological capacities that would be required in the future by developing countries.

Action:

- (a) The technological forecasting exercise by the developing countries should initially take into account the possible options that would be available, the technological obsolescence of those in use and the inputs that could arise from the monitoring of advanced technological research and progress.
- (b) Facilities for making an assessment of such technological requirements to developing countries would be made available through a co-operative system involving the services of experts from developing countries supplemented with those from international organisations.

F. Co-operative efforts for enhancing negotiating power of the developing countries in regard to technology suppliers

Objectives:

To develop negotiating capacities in the developing countries based on the experience of other developing countries to secure favourable terms and conditions in the acquisition of technologies.

Action :

- (a) The collection and dissemination of information to interested governments on terms and conditions, prices, restrictive practices, guarantees and warranties etc.;
- (b) Organisation of training programmes;
- (c) Expert meetings of interested national organisations to review the experience in dealing with the problems of negotiation for the acquisition of technologies etc.;
- (d) Compilation and analysis of laws and regulations dealing with import of technologies, their absorption and use in the developing countries;

- (e) The technological information exchange system (TIES), under the auspices of UNIDO, should be strengthened and enlarged to include other developing countries;
- (f) The existing association of national technology registries in the developing countries should be encouraged;
- (g) UNIDO and other appropriate organisations should be requested to provide the necessary secretariat facilities, organise technical meetings of the developing countries and prepare necessary studies on the experience of the developing countries in this area.

G. Steps to overcome constraints and barriers to transfer of technology among developing countries

Objective:

To formulate remedial measures to overcome the barriers and constraints which hamper technology transfer transactions among developing countries leading to a greater flow of technology among the developing countries.

Action :

- (a) Developing countries should prepare technology profiles for products and processes which will be of interest to other developing countries.
- (b) Developing countries and the international organisations should be requested to provide assistance in comparing experiences to identify their respective comparative advantages.
- (c) Evolve a mechanism for the better use of factors such as facilities for financial investment, supply of capital goods, need of supply of critical raw materials, availability of training facilities, possibilities of buy-back arrangements, offering new markets for export etc. in order to develop complementarity and to strengthen collective self reliance of the developing countries.

H. Co-operation in research and development for new technology in Energy

Objective:

To organise and promote co-operation in research and development efforts in developing new technologies for energy, including alternative technologies in energy intensive applications for rapid economic development of developing countries: to promote co-operation among developing countries in the use of applications of such development into their technological infrastructure.

Action:

- (a) Developing countries should jointly undertake R and D efforts, organise programmes for efficient utilisation of energy and exchange of technical experts.
- (b) International organisations should collect and compile information on such innovations and industrial practices in conserving energy and energy related technologies, etc. and make them available for the benefit of developing countries.
- (c) The developing countries should make the maximum use of the forthcoming international Conference on New and Renewable Sources of Energy in formulating recommendations suited for their rapid economic development.
- (d) Following the conclusion of the international Conference on New and Renewable Sources of Energy a high level meeting should be organised to agree on a plan of action for co-operation among developing countries in utilising new and renewable sources of energy in the fields of biomass, hydro-power, solar, wind and tidal energy, etc.

INDUSTRIALIZATION

A. Collation and dissemination of information

Objective:

To facilitate technological flows and industrial co-operation between developing countries in specific sectors and projects by correlating mutual capabilities and capacities with requirements.

Action:

- (a) Publish periodically, with the assistance of a competent international organization or agency, an industrial bulletin which would contain, inter alia, the following information:
 - (i) details of new industrial capacity and the type of assistance or co-operation required;
 - (ii) details of requirements for modernization and strengthening of existing industrial units (goods, services, technology, etc.):
 - (iii) sources of technology, industrial equipment and other inputs:
- (b) Consider the desirability of creating an association of national chambers of commerce and/or industry, or equivalent national bodies, as a means of increasing the flow of information and co-operation in the construction of new industrial projects and modernization of existing units;
- (c) Establish a system for the exchange of information on:
 - (i) national policies relating to industrialization including priorities, targets, manpower training and appropriate financing;
 - (ii) the activities of transnational corporations operating in developing countries, especially those involved in the production of industrial manufactures;
 - (iii) technical and financial specifications relating to contracts with the developed countries so as to reduce costs and strengthen the negotiating capacity of developing countries.

B. Co-operation in the construction of new industrial projects and modernization of existing units

Objective:

To help create favourable conditions conducive to joint ventures, multi-national production enterprises or another practical way of co-operation as may be decided by interested developing countries in a particular industrial sector.

Action:

- (a) Establish projects of industrial co-operation involving transfer of technology and setting up of joint ventures aimed at promoting self-reliance by utilising complementarities in skills, capabilities and markets, and with due reference to the priority sectors, such as:
 - agriculture and agro-industries
 - mining and mineral processing
 - petrochemicals, chemicals and pharmaceuticals
 - intermediate and capital goods industries
 - textiles
 - forest based industries
 - building materials
 - power generation;
- (b) Application of technology directed towards increasing the energy-efficiency of industrial processes and equipment;
- (c) Promotion and encouragement of joint ventures and agreements to increase the potential of energy resources of developing countries on a bilateral, sub-regional and regional basis;
- (d) Establishment of an appropriate mechanism to encourage the interchange of experience and information on projects executed in a developing country for the construction of similar units in other developing countries.
- (e) Promotion of trade fairs and industrial exhibitions to propagate the capabilities of developing countries particularly in the priority sectors. In order to achieve this purpose, the following is recommended:

- (i) a developing country with an established national fair specializing in one or more branches of industry, particularly the capital goods industry should consider the possibility of opening such an exposition to other countries from the Group of 77.
- (ii) the announcement of such an initiative will be made utilizing diplomatic or other channels at least 18 months in advance;
- (iii) the host country will advise any existing national R and D institutions dealing with the industrial fields concerned to organise, as appropriate, seminars or symposia in collaboration with the counterpart institutions in the developing countries to be held during the fair;
- (iv) other developing countries wishing to participate in such fairs will be awarded the usual facilities of international expositions;
- (v) developing countries should be so represented as to facilitate exploratory negotiations concerning joint ventures.

C. Enhancement of industrial capacities through joint efforts

Objective:

To join efforts in all fields of industrialization particularly in those areas where individual national resources are inadequate or where joint efforts are more likely to promote the overall development of developing countries.

Action:

- (a) Harmonizing the potential of existing national, sub-regional, regional and interregional institutions dealing with project preparation, including training, for promoting economic co-operation amongst developing countries. A co-ordinating mechanism among such institutions would allow:
 - (i) a better integration of the work of the national organizations responsible for the pre-investment activities;
 - (ii) the improvement of the pre-investment process in the developing countries through the exchange of information and experiences in this field;
 - (iii) the strengthening of the negotiating capacity of developing countries in all aspects related to industrial projects;
 - (iv) the improvement of the knowledge about alternative technological options in order to achieve a better utilization of resources;
 - (v) the harmonization of pre-investment policies so as to facilitate joint ventures among developing countries;

- (vi) the achievement of a higher efficiency of the organisations responsible for the financing of industrial studies by improving its human resources, and administrative and operational capabilities;
- (b) Establishment of a system of co-operation and co-ordination among developing countries on specific industrial sectors, at the regional, sub-regional and interregional levels. These meetings will bring together, by industrial sector, those involved in production. The meetings, which should be held periodically, will assist developing countries to:
- become aware of the current situation in the different branches of industry;
 - get to know the capacities and requirements of each country.
- Such meetings should result in:
- the drawing up of agreements on exchange of manufactured and semi-manufactured goods;
 - feasibility studies for joint projects;
- (c) Assist requesting developing countries, particularly the LDCs in specific tasks concerning identification, preparation or evaluation of industrial projects through the utilization of existing expertise in other developing countries. To this end
- (i) interested developing countries could directly approach other members of the Group of 77 in New York indicating their requirement for consultancy or other services for identification of industrial opportunities, preparation, evaluation etc. of specific projects;
 - (ii) other developing countries in a position to do so would submit names of national experts or organisations through their missions in New York to the requesting country who will make appropriate selections;

The Technical Meeting of Experts recommended the setting up of task forces of national experts or organisations for assistance in specific industrial projects. The functioning of such a mechanism would be reviewed after two years of its operation;

- (d) Compilation by the developing countries of a directory aimed at facilitating industrial co-operation among themselves in specific industrial sectors correlating mutual co-operation and capacities with their requirements;
- (e) Discussion and co-ordination of matters of mutual interest among developing countries prior to their attending the meetings organised within the UNIDO System of Consultations;

- (f) Co-ordination by focal points with international financial institutions in undertaking feasibility studies and financing new industrial infrastructures.

D. Co-operation in the development of human resources for industrialization

Objective:

Co-operation in the development of human resources for industrial development.

Action:

- (a) The co-operation of UNIDO and other relevant international organisations be sought in the publication of information on training facilities that developing countries can provide from 1982 onwards as well as their immediate requirements for training in industrial skills that cannot be met locally.
- (b) A high-level meeting be held early in 1982 of officials responsible for industrial manpower training to identify specific areas of co-operation which could lead to:
 - (i) the conclusion of arrangements/agreements at the subregional, regional and interregional levels in developing human resources;
 - (ii) the preparation of long-term programmes of co-operation for the exchange of experience and skills, and to improve and co-ordinate national centres of excellence for industrial training and management;
 - (iii) the strengthening of existing institutions and establishing of new ones in priority areas, for which financing will be sought from UNDP as well as regional and interregional financial institutions;
- (c) Other action oriented measures be undertaken at national and international levels for the:
 - (i) establishment of a machinery, preferably through the co-operation of regional economic commissions or other relevant regional organisations, UNIDO as well as UNESCO, to facilitate placement in appropriate institutions between interested countries;
 - (ii) encouragement of free movement of surplus trained manpower among developing countries through mutually beneficial arrangements between interested countries;

- (iii) establishment of scholarships and financial grants to pay the cost of counterpart training;
- (iv) consolidation and integration of fellowship and scholarship programmes for technical manpower training;
- (v) encouragement of regional or multinational specialised training and research institutions;
- (vi) Organization of courses, seminars and other training facilities designed to improve the technical and managerial capacity of developing countries in dealing with problems inherent to industrial development. To this purpose, arrangements should be made with national, sub-regional, regional and interregional institutions.

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In order to carry out the above recommendations, the Technical Meeting of Experts stressed again the importance of establishing and/or strengthening the national focal points of developing countries in the field of technology and industrialization for the dissemination of adequate and up-to-date information regarding industrial capacities and requirements of individual developing countries on specific sectors.

The Technical Meeting of Experts drew the attention of the meeting of senior officials to the need to ensure the levels of implementation, mechanisms for follow-up action and co-ordination, monitoring, and evaluation and also all the appropriate inputs necessary for the implementation of the above recommendations on technology and industrialization.



