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07771

Distr.
RESTRICTED
UNIDO/IOD.113
30 June 1977
ENGLISH

UNITED NATIONS INDUSTRIAL
DEVELOPMENT ORGANIZATION

Report to the
Working Group on the Joint Programme for International
Co-operation in the Instruments, Electronics and
Telecommunication Industries for the Benefit
of Developing Countries

on the

Consultative Meeting on Telecommunication Equipment
and Related Industries

Budapest, 7-11 March 1977

Explanatory notes

Reference to "dollars" (\$) are to United States dollars, unless otherwise stated.

The term "billion" signifies a thousand million.

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INTRODUCTION

Within the framework of its programme to stimulate industrial co-operation between developed and developing countries, the United Nations Industrial Development Organization (UNIDO) signed a Memorandum of Understanding with the Government of the Hungarian People's Republic concerning the establishment of a Joint Programme for International Co-operation in the Instruments, Electronic and Telecommunication Industries for the Benefit of Developing Countries.

A Working Group on the Joint Programme was established to review on-going projects and new proposals. At its first meeting in February 1977, it concluded that the findings of the consultative meeting scheduled to take place the following month could serve as a basis for defining in detail the continuing programme.

That meeting, the Consultative Meeting on Telecommunication Equipment and Related Industries, was organized jointly by UNIDO and the Hungarian Chamber of Commerce and held at Budapest from 7 to 11 March 1977. It was financed by UNIDO through a voluntary contribution from the Hungarian Government.

The Meeting was to review possibilities for establishing the industry in selected developing countries based on the express requirements, priorities and resources in the developing countries concerned and on the experience of the industry in Hungary and in particular:

- (a) To highlight the role of the telecommunication equipment industry in development;
- (b) To review the conditions for, and obstacles to, establishing this industry in developing countries, where it can serve not only as an import-substitution but also as an export-oriented industry;
- (c) To review conditions for the redeployment of this industry from the industrialized countries to the developing countries through an examination of the forms and terms of resource transfer, including that of technology and skills;
- (d) To promote technical and financial co-operation in establishing and developing the telecommunication equipment industry.

It was to focus on the following specific topics:

The telecommunication equipment industry in Hungary: its past, present and future development

Technology available in Hungary for transfer to developing countries

Resources sought by the participating countries

The significance of the Meeting can be seen from a brief review of production and trade in the telecommunication equipment industry.

A statistical review of production of telecommunication equipment in the various regions and countries of the world shows that the developing countries have a negligible share in total world production: it hardly reaches 2 per cent. Moreover, of the developing countries or areas only a few account for the bulk of production - in particular, Hong Kong, Republic of Korea, Singapore and some Latin American countries. Hong Kong alone accounts for nearly one third of the developing countries' total production. Only the more advanced of the developing countries would appear to have significant growth potential, based either on the availability of cheap, skilled and productive labour and of export orientation, or on a large and rapidly growing domestic demand.

The heavy dependency of developing countries on supplies of telecommunication equipment from the industrialized countries can be seen from a review of trade.

Total imports of all developing countries in 1970 amounted to over \$2 billion, while their exports reached only \$400 million. In other words, the value of exports was only 19 per cent of that of imports.

The largest exporters among the developing countries are Brazil, Hong Kong, Mexico, Republic of Korea and Singapore. The largest importers are (besides the above-mentioned exporting countries) Argentina, Indonesia, Iran, Malaysia and Venezuela.

The quota of telecommunication equipment imports can also be calculated as a percentage of the gross national product of individual countries in order to see the significance of the goods. It is about 1 per cent. It showed a tendency to increase during the period 1968-1974.

From these data it is quite obvious that the developing countries can expect a large and increasing domestic demand for telecommunication equipment and that they also have a potential for exports. In the future, manufacturing capacities could thus be located increasingly in the developing countries.

The choice of production lines and technologies will, however, pose serious problems for the developing countries, especially since the choice means a long-term commitment and the technological development is dramatic. The question arises as to what level of technological sophistication should be chosen, since the development of international technology seems to be geared primarily to the needs of the affluent societies.

I. ORGANIZATION OF THE MEETING

Eleven representatives (three in an observer capacity) from eight developing countries participated in the Meeting. All participants (listed in annex I) were of high professional calibre and attended in their personal capacity.

From Hungary, 23 high-ranking officials from Government, associations, research institutes and industry took an active part in the Meeting and made themselves available for individual discussions with participants from the developing countries.

II. PROGRAMME

The programme was composed of lectures, visits to plants and research institutions, and consultations (see annex II). The lectures - supported by film projections - provided a detailed picture of various lines of production in the Hungarian telecommunication industry.

The participants were provided with the following papers, prepared by the Hungarian telecommunication industry in collaboration with UNIDO:

- ID/WG.245/3 The Hungarian telecommunication industry: selected branches
- ID/WG.245/1 The Hungarian telecommunication industry: past, present and future
- ID/WG.245/2 The Hungarian telecommunication industry: technologies offered to developing countries

In addition, a large number of documents and brochures on various Hungarian industries were available.

The discussions after the lectures dealt with technological matters and on possibilities for industrial co-operation. During the visits to plants and institutes and in other individual meetings, these discussions continued, focusing on specific issues. In addition, on various occasions throughout the Meeting, participants from the developing countries met among themselves to review possibilities for co-operation. In this way, various tentative agreements for industrial co-operation were concluded between Hungary and some of the developing countries represented and among a number of the developing countries themselves.

The following examples illustrate the range of issues taken up in the discussions:

- Sources of supply and components and materials
- Subcontracting possibilities for production of cables
- Questions related to the increase of capacity for light-bulb production
- Technological requirements for tape recorders for use in railway systems
- Possibilities for co-operation in technological research
- Licences for manufacture of telephone and pulse-code modulation (PCM) equipment
- Possibilities for co-operation on relay assembly lines between two developing countries

III. OBSERVATIONS

The following observations are primarily those of the UNIDO staff member concerned with the organization of the Meeting, but they also reflect the comments of many of the participants. An attempt is made to assess frankly some essential aspects and to draw constructive conclusions that may be of benefit to those organizing subsequent meetings in the same or related fields.

Results of Meeting

The Consultive Meeting can be considered to have been a successful attempt to initiate industrial co-operation between one developed country and several developing countries in a particular industrial subsector. The Meeting brought together interested representatives from developing countries and high-ranking government officials, industrialists, and representatives from industrial associations. A first exchange of information and views took place, and some tentative agreements for co-operation were reached. The representatives from the developing countries were able to exchange experience and identify areas of possible co-operation among themselves.

Participation

Although 16 Governments were invited to nominate one participant each, only 7 countries were finally represented at the Meeting. Indeed, by the deadline set for the nomination (25 January 1977), only four Governments had responded positively. A brief review of the invitation process may help to explain why.

On 24 November 1976, a letter of invitation, with an aide-memoire, was sent to UNDP resident representatives in 16 developing countries. In view of the limited response, reminder cables were sent out: on 7 January 1977 to all countries; on 11 February to nine countries; and on 24 February to seven countries. Several nominations were received only a few days before the beginning of the Meeting. UNIDO, the Hungarian Chamber of Commerce and Malév (Hungarian Airways) provide information to the participants, authorize and arrange travel, issue visas etc. in undue haste and with great difficulty. One nomination could not even be attended to, since it reached UNIDO on 9 March and the responsible Section some six days later. Another nomination late to arrive was mislaid and could not therefore be processed in time. It might also be mentioned that one participant learned about the meeting only by coincidence and then forwarded his application to the Hungarian Government.

The following conclusions can be drawn from this:

(a) The time allocated for receiving nominations was too short. Four months would probably have been a more appropriate length of time between the dispatch of the invitations and the deadline;

(b) The communication channels used proved to be very cumbersome (UNIDO-UNDP - resident representative - Foreign Affairs Ministry - Ministry of Industry or Telecommunication - industry or agency - and back). In several cases, the invitation did not even reach the relevant authority. It should be investigated if other, more direct channels of communication could be used in addition to, or instead of, the ones used for this Meeting.

Presentation of Hungarian offers for industrial co-operation

The Meeting helped the participants to become well informed about the technological aspects of the Hungarian telecommunication industry. This was achieved through the background papers, the concise illustrated lectures by competent representatives from industry and government authorities, and the visits to plants and research institutes arranged according to the wishes of individual participants. The background documents could not, unfortunately, be sent in advance to the participants, but had to be distributed upon their arrival, owing to late processing of the documents and - above all - the late arrival of the nomination forms. The time available for lectures and plant visits was rather limited, but it was well used. On the other hand, it was felt that the lectures could have laid more emphasis on commercial rather than technological aspects of the industry, and that the Hungarian industry might have presented more precise possibilities for industrial co-operation to the participants. Admittedly, in personal discussions (during plant visits etc.) the question of co-operation was taken up between the parties concerned, but more discussions might have been generated if the issue had been brought out more clearly in the lectures.

Participants appreciated the fact that Hungary's telecommunication industry had gone through a very long process of building up, and that it had gained vast experience in developing technologies, in concluding licence agreements with foreign suppliers of technology and in overcoming various commercial and technical problems. Developing countries could benefit substantially from this experience. It was felt, however, that the Meeting focused too much on the presentation of actual products and did not review the development constraints, trade obstacles etc. in sufficient depth.

Presentation of pertinent issues by the participants

The aide-mémoire specifically stated that participants would be expected to present background papers reviewing the development of the telecommunication equipment and related industries in their countries and describing plans and specific investment project proposals. Participants from developing countries were asked, in addition, to outline the policies, regulations and priorities of their countries with respect to foreign industrial collaboration.

To facilitate the preparation of the consultations and plant visits envisaged in connection with the Meeting, and to ensure a proper focus for the discussions, the participants were expected to submit in advance a short description of relevant development projects and the resources sought for their implementation. Mainly because of the late nominations, however, only two of the participants presented some advance information concerning their particular fields of interest. Further, the agenda of the Meeting did not allow sufficient time for presentations by the participants.

Although participants were given the opportunity to discuss individually with representatives of the Hungarian industry those issues of specific concern to them, not enough attention was paid to this essential aspect of the Meeting. In future, more thorough presentation of the prospects and problems of the development of the telecommunication industry in the various countries participating will ensure that subsequent discussions with the Hungarian industry, and among the participants, shall receive the desired focus.

IV. CONCLUSIONS AND RECOMMENDATIONS FOR FUTURE ACTIVITIES
WITHIN THE FRAMEWORK OF THE JOINT PROGRAMME

1. Training. UNIDO, in consultation with either the Hungarian Chamber of Commerce or the Hungarian Union of Telecommunication Industries, should organize a training programme to enable developing countries to send telecommunication industry staff for both individual and group training in Hungary. The training should be available to technical staff at various levels in manufacturing establishments. The programme would be financed primarily through the Hungarian voluntary contribution to UNIDO.
2. Co-operation in research. In view of the significant Hungarian experience in technological research in telecommunications, developing countries should be offered assistance and advice from Hungary. A programme should be organized to include:
 - (a) The training of researchers from developing countries in a Hungarian research institute;
 - (b) Assistance to developing countries in establishing developing research capacity in this field;
 - (c) The exchange of research results between the Hungarian institutes and institutes and industry in developing countries;
 - (d) The provision of an inquiry service in specified areas of research in the Hungarian institutes.
3. Industrial co-operation. UNIDO should consider preparing a programme for the systematic dissemination to developing countries of resources offered by the Hungarian telecommunication industry. These offers would include technology for manufacturing, subcontracting etc.
4. Hungarian experts. To facilitate the provision by UNIDO of field experts to developing countries, the Hungarian authorities and industry should consider making specialists in the telecommunication equipment industry available for field assignments, and consider compiling a list of specialists who would be available. This list would be incorporated in the UNIDO roster of field experts.
5. Second Consultative Meeting. Since only a few developing countries could participate in the Meeting, it would be useful to organize a second one, with wider attendance, including participants from some of the developing countries not represented at the first one. Countries that were represented at the first meeting should, however, be invited to send participants again to enable others to acquaint themselves with Hungarian technology or to provide the participants

in the first meeting with the possibility of follow-up discussions. Two participants should be invited from each country - one from a government agency and one from industry. Additional interested representatives from developing countries should be permitted to attend the meeting as observers.

The lectures should focus on the resources Hungary can offer and which developing countries require to establish and foster their own manufacturing capacities. The presentation by the Hungarian telecommunication industry should thus cover all commercial aspects of production and international trade and highlight specific offers of industrial co-operation. Each participant from a developing country should present the specific requirements for the development of his country's telecommunication industry. Due provision will need to be made for subsequent consultations between the Hungarian industry and the participants, and among the participants themselves.

The second meeting should be held not before late autumn 1978 and cover a period of two weeks. The number of participants should be about 35. UNIDO should send two representatives and one conference assistant to the meeting. ITU should be invited again to send an observer.

The agenda for the first week should comprise discussions, introduced by ten-minute lectures in the mornings, and plant visits, group meetings etc. in the afternoons. In the second (optional) week, participants should be able to visit plants individually.

Annex I

LIST OF PARTICIPANTS

Participants

Egypt	F.M. Badran, Professor of Telecommunication Engineering, Cairo University, Faculty of Engineering, Giza, Cairo
Indonesia	Muchtil Yunus, President Director Pt., Telekomunikasi Indonesia, Jl. Moch Toha 77, Djakarta
Iran	M.M. Valadan, Deputy Chief, Electronic Industries Department, Ministry Industries Mines, Teheran
Kenya	S. Ngugi, Director, African Radio Manufacturing Company Ltd, P.O. Box 182 63, Nairobi
Peru	M.E. Sánchez Carrión, Ejecutivo en Fábrica de Equipos de Telefonía S.A., Iquique 191, Breña, Lima Percy Fernández, Engineer, Director of Telecommunications, Ministerio de Telecomunicaciones, Lima
Turkey	Yavuz Yılmaz, Director, Devlet Planilama Teskilati, (Turkish State Planning Office), Ankara K. Yazgan, Director of Turkish State Railways, Electronic Research Centre, TCDD Elektronik Arastirma, Merkezi Müdürlüğü, Gar, Ankara

Observers

Algeria	M. Seghir, Production Director SONELEC, 4 Bd Mohammed V., Algiers L. Ramdani, Director, Ministry of Industry, Algiers
Peru	A. Block, Engineer, Head of the Planning Department, Entelperu, Las Begonias 375, San Isidro, Lima

Hungarian participants and lecturers

Cs. Baráth	Chief Scientific Co-worker, VIDEOTON Development Institute
S. Bognár	Technical Director, Budapest Radio-engineering Factory
H.K. Csepregi	Director General, Co-operative Híradástechnika
A. Csurgay	Scientific Director of the Telecommunication Research Institute

A. Gellért Director, BUDAVOX, Telecommunication Foreign Trading Company Ltd

A. Györi Director General, BUDAVOX

A. Hartai Technical Director, Elektroakusztikai Gyár, Budapest

Gy. Horváth Technical-Economic Advisor, Budapest Telecommunication Works

G. Iklódy President of the Professional Section for Telecommunication and Vacuum Technics of the Hungarian Chamber of Commerce, General Director of the Beloiannis Telecommunication Factory, Chairman of BUDAVOX Telecommunication Foreign Trading Company Ltd

S. Lajkó Technical-Economic Adviser, Telefongyár Phone-Factory

I. Littvai Deputy Minister, Ministry of Metallurgy and Machine Building

E. Nagy Chief of Commercial Department, Association of Hungarian Telecommunication Industry

K. Nits Technical-Economic Adviser, ELEKTROMODUL, Hungarian Trading Company for Electrotechnical Components

L. Nyiredy General Director of BUDAVOX, Telecommunication Foreign Trade Company Ltd

T. Roska Chief Scientific Co-worker, Telecommunication Research Institute

S. Sárközi Manager, ELEKTROIMPEX, Hungarian Foreign Trading Company for Telecommunication and Precision Goods

F. Siklós Deputy Director General of the Hungarian Chamber of Commerce

B. Susits Director General, TUNGSRAM United Incandescent Lamp and Electric Co. Ltd

A. Szentfülöpi Head of Section International Organizations, Hungarian Chamber of Commerce (Main Conference Officer)

J. Szita Vice-President of the Association of Hungarian Telecommunication Industry

L. Uherezky Chief Development Engineer, Telefongyár

I. Váradi President of the Association of Hungarian Telecommunication Industry, General Director of Telecommunications Research Institute

Gy. Wollitzer Scientific Director, Research Institute for Telecommunication Industry

A. Zártos Chief Development Engineer, Mechanical Laboratory for Telecommunication Engineering

UNIDO staff

E. Krajenbrink Engineering Industries Section, Industrial Operations Division

H. Muegge Officer responsible for the meeting; Global and Conceptual Studies Section, International Centre for Industrial Studies

Annex II

PROGRAMME

7 March

Opening session

Chairman: G. Iklódy

Opening address of I. Littvai

Address by H. Muegge, UNIDO

Opening lectures

- "The Hungarian Economy, the Hungarian Chamber of Commerce and the Decision-Making in the Hungarian Economic Organs"; Lecturer: F. Siklós
- "The Telecommunication Industry in the Hungarian Economy"; Lecturer: I. Váradi

Film projection

Lectures and consultations

- "Computer Aided Design and Manufacturing of Electronic Circuits - The AUTER System"; Lecturer: T. Roska
- "Liquid Crystal Display" and "Hybrid Integrated Circuits"; Lecturer: Gy. Wollitzer
- "Establishment of Vacuum Technic Factories"; Lecturer: B. Busits

8 March

Lecturer and consultations

Chairman: L. Nyiredy

- "Connections of the Professional Telecommunication Industry with the Developing Countries"; Lecturer: A. Gellért
- "Production of Telephone Exchanges in Hungary"; Lecturer: Gy. Horváth
- "Microwave Systems"; Lecturer: A. Györi

Film projection

- "VHG-Technics"; Lecturer: S. Bogár

Lecturer and consultations

Chairman: L. Nyiredy

- "RTO-7504 TERTA Transmission Equipment"; Lecturer: S. Lajkó
- "Remote Data Processing by TERTA Equipment"; Lecturer: L. Uherezky

9 March

Lectures and consultations

Chairman: J. Szita

- "Studio Tape Recorders Quality and Reliability as Increased since 1954";
Lecturer: A. Zártos
- "Electroacoustics in Hungary";
Lecturer: A. Hartai

Film projection

- "Hungarian Signaltechnics in Developing Countries";
Lecturer: S. Sárközi
- "Measuring Gear System of Television Receiver Producing Factories";
Lecturer: H.K. Csepregi

Film projection

- "Videoton Computers and Terminals in Data Comm. System";
Lecturer: Cs. Baráth

Film projection

- "Development Tendencies of Electromechanical Parts";
Lecturer: K. Nits

10 March

Factory visits

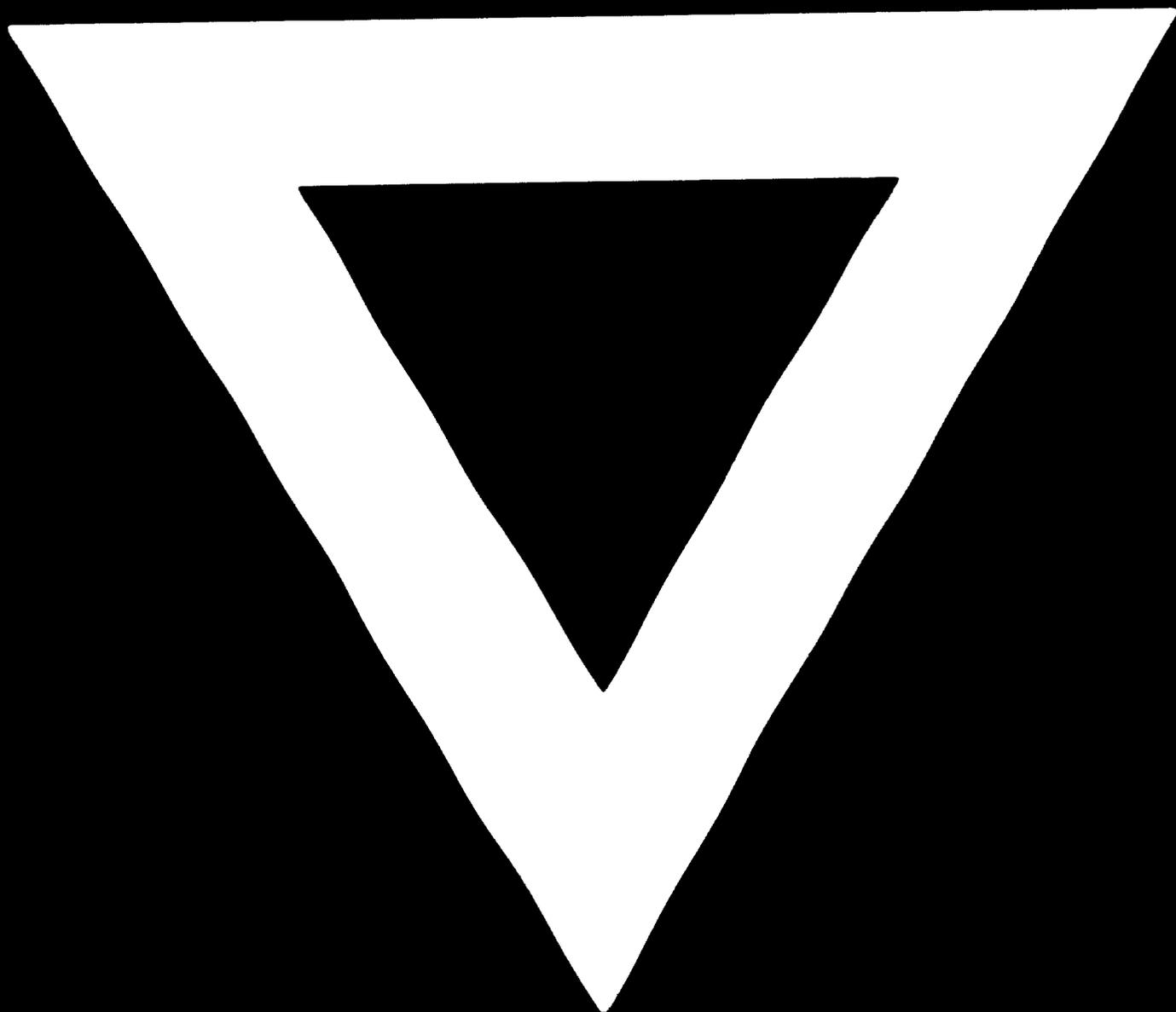
11 March

Summing up of the results of the Meeting and closure of the Meeting

Chairman: G. Iklódy



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