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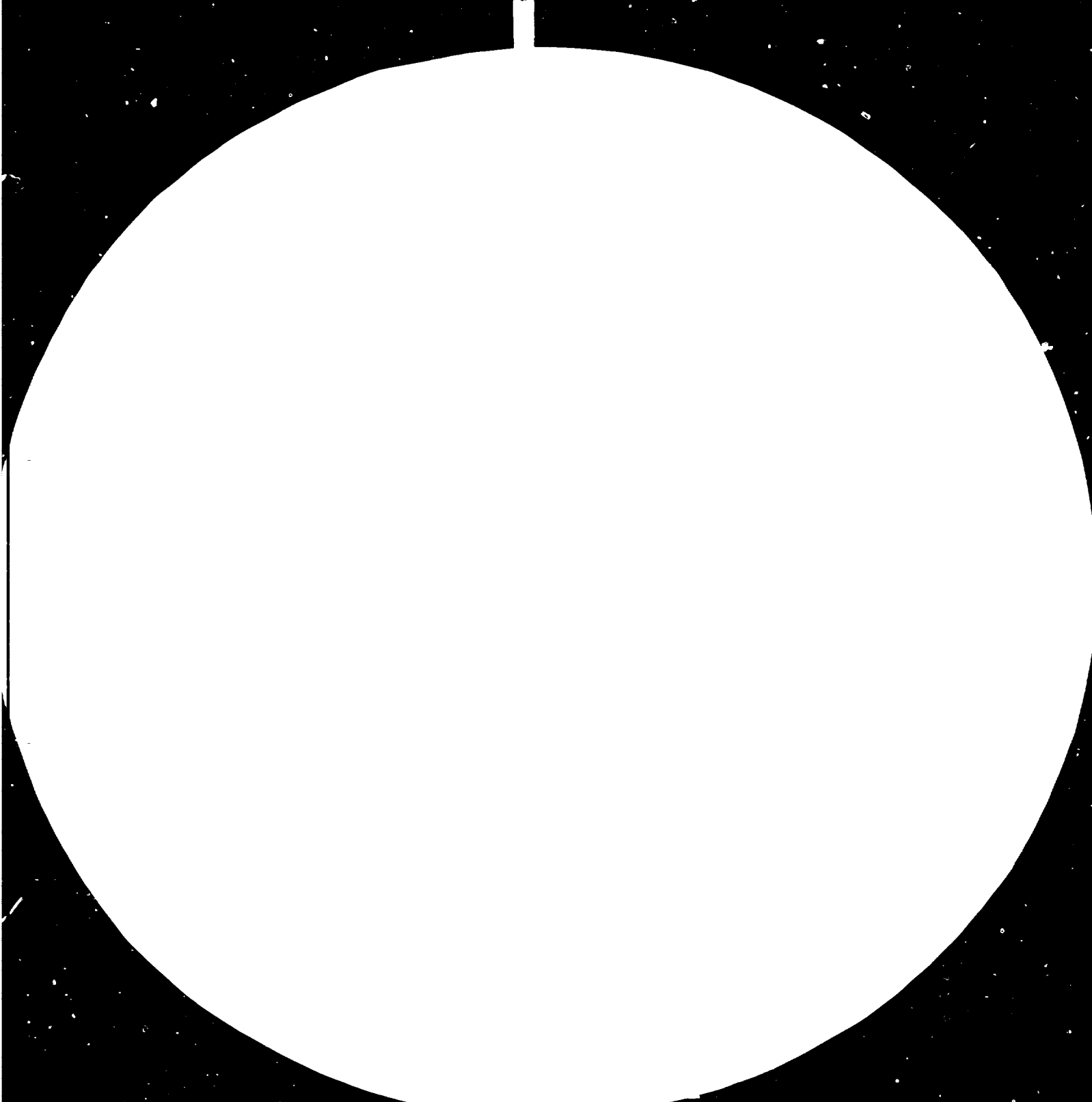
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Resolution Test Chart (NBS 1963-A) (ANSI Z39-18-1963)

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INDUSTRIAL AND TECHNOLOGICAL INFORMATION BANK

Activities undertaken in 1980 and prospects
for the future

Report by the Executive Director

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Summary

The report covers the activities of the Industrial and Technological Information Bank (INTIB) during its first full year of regular operation. The main components of the INTIB work programme are described, as is also its role within the global network of information systems. The long-term development of INTIB is analyzed in the light of changing trends in information supply and demand. Emphasis is laid on the need for adequate staff and financial resources to enable INTIB to carry out present tasks and fulfil its potential. Suggested points for decision by the board are contained in paragraph 26.

Introduction

1. At its fourteenth session, the Industrial Development Board considered a report by the Executive Director on the Industrial and Technological Information Bank (INTIB).^{1/} The Board, inter alia, requested the Executive Director to make another, comprehensive, report to its fifteenth session.^{2/} The present report is made in response to that request.^{3/}
2. 1980 was the first full year of regular INTIB operation, following the conclusion of the pilot operation at the end of 1978 and the recommendation of the Board in May 1979 that INTIB be continued as an ongoing activity of UNIDO.^{4/} However, although the Secretariat requested four Professional and six General Service staff, together with consultant and contractual services amounting to \$200,000 per year, to carry out INTIB activities for the biennium 1980-1981, only two Professional and three General Service staff and \$75,000 for expert services were made available. This contrasts with the sum of \$175,000 which had been provided for consultant and contractual services for 18 months of pilot operation covering four sectors. While this situation affects the realization of the full potential of INTIB, the Secretariat has nevertheless endeavoured to make progress within the limits of available resources.
3. A twofold approach has been adopted to overcome the constraints upon resources. This involves (a) integrating the work of INTIB with other ongoing information activities of UNIDO, rationalizing the latter and redeploying staff resources where possible, and (b) covering the promotional aspects of INTIB by concentrating initially on establishing a network of sources and users. Using this approach, inquiries from users are handled within the framework of the Industrial Inquiry Service, an established activity of UNIDO. In response to inquiries on technology selection, however, a greater amount of processed information is provided, corresponding to the precise nature of the inquiry. New activities have been initiated covering other essential aspects of INTIB, such as the preparation of profiles and publications on technology alternatives, the production of information packages and the expansion of the network of sources and users.

I. WORK PROGRAMME OF INTIB

4. The work programme of INTIB comprises three components covering three distinct aspects of the flow of technological information:
 - (a) Identifying and establishing linkages with and among INTIB users;
 - (b) Generating technological information, as well as establishing and developing the INTIB network;
 - (c) Disseminating information.

Linkages with users

5. The aim of this component is to develop linkages and communication channels with users in developing countries, utilizing in particular regional, subregional and national

^{1/} ID/B/241.

^{2/} A/35/16, vol.II, paras.84-87.

^{3/} Activities in the field of technological information were also reported to the Permanent Committee at its fourteenth session, see ID/B/C.3/100/Add.1, paras.28-33.

^{4/} A/34/16, para.153.

institutions to promote the availability of relevant information for use in decision-making. INTIB services are directed towards such users as planning and financing agencies; investment authorities; industrial development agencies; technology registries and regulation agencies; industrial and technological information centres; R+D centres; and industrial enterprises.

6. Since INTIB is a new activity, it has been necessary to promote its services^{5/} by systematically informing client institutions about the advantages of using its services, eliciting their information needs, and collaborating with them. In addition, the services of INTIB provide a special subject for discussion at important international meetings. For example, at the annual session of the World Federation of Engineering Organizations (WFEO), held in October 1980 in Budapest, a meeting was devoted to a discussion of INTIB activities; at the Joint OAU/UNIDO Symposium on Industrial Technology for Africa, held in November 1980 in Khartoum, separate discussions were held on the nature and type of industrial and technological information required by Africa. The Symposium recommended that UNIDO and OAU should organize a separate symposium with a view to creating an African industrial and technological information network. This latter could function as a regional off-shoot of INTIB to promote information flows in the African region. A Conference on "Informatics^{6/} and industrial development" organized by the Irish National Board for Science and Technology and Trinity College, Dublin, and co-sponsored by UNIDO, was held early in March 1981 in Dublin. This meeting provided a further opportunity to discuss and promote the role of INTIB within the overall context of global activities to assist the flow of information for industrial development. The 1981 annual meetings of the WFEO in Buenos Aires and the International Federation for Documentation in The Hague will provide similar opportunities to promote INTIB.

7. Staff missions are an important instrument for establishing and maintaining close contacts with specific user institutions; identifying their information needs within the context of the countries' industrial development plans; and focusing the activities of INTIB upon such needs. A mission to South-East Asia was undertaken by the Chief of the Industrial Information Section in 1980, and follow-up action has been taken to strengthen INTIB links with the institutions contacted. As already reported,^{7/} this mission highlighted the need to strengthen the information-handling capacity of national institutions in order to ensure the effective functioning of networks such as INTIB. In 1980, the senior technical adviser of the Technology Programme had detailed discussions with the Secretariat of the Board of the Cartagena Agreement which resulted in proposals for closer links between that Board's information services and INTIB with regard to information-processing activities. A staff mission to the Latin American region is scheduled for 1981 which will involve contacts and detailed discussions with user institutions identified as focal points for INTIB activity. Discussions will centre upon requirements with regard to physical facilities; staff recruitment and training; increasing user awareness; and operation modalities and standards.

8. In order to strengthen contacts with INTIB users and promote the regular use of information on technology selection in developing countries, it is proposed that an expert group meeting be held, involving key personnel in those regional, subregional and national information

^{5/} Promotional information is also furnished through the brochure "INTIB helps developing countries choose technology" (PI/68).

^{6/} The term "informatics" is used in this context to denote the rational and systematic application of information to economic, social and other problems.

^{7/} ID/B/C.3/100/Add.1, para.28; ID/B/260, chap.III, para.62.

centres which are potential points for INTIB activity. Discussions would cover the Secretariat's draft proposals concerning procedures for establishing national and regional focal points as well as standard procedures for processing the requests of national or regional users seeking information on technology choice.

9. A directory of information systems and services in developing countries has been compiled with the aim of publicizing existing industrial and technological information facilities in the developing countries and promoting the full use of their services. Furthermore, as a contribution to the programme of technical co-operation among developing countries (TCDC), the directory is intended to be an instrument for the development of information networks, to help institutions interested in creating their own linkages at national, regional or international levels. At present the directory lists over 400 institutions from developing countries; coverage is expected to be substantially expanded in subsequent issues.

10. In response to a Secretariat questionnaire, some 400 research institutes in developed and developing countries have provided information on their activities. Though the questionnaire was intended to identify specific cases where R+D co-operation would be possible, the information collected forms the basis for a network to facilitate the further exchange of information among R+D institutes and identify areas of current R+D activity.

11. Given the importance of technology selection, it is necessary to bring together user institutions located in developing countries to form groups which can not only give expression to current information needs as derived from national development plans and programmes, but can also exchange information among themselves and help to reinforce one another. In this respect, valuable experience has been gained from the regular meetings of heads of technology transfer registries which led to the establishment of the Technological Information Exchange System (TIES). In the field of technology acquisition, this experience has been useful in upgrading the type and quality of information provided and stimulating mutual co-operation and information exchange. Likewise, groups of user institutions, such as development financing agencies, investment authorities and R+D centres could serve a useful purpose by informing UNIDO in advance of the sectors and areas on which they are likely to need a lot of information. It is therefore proposed that meetings of user groups be organized for selected INTIB sectors in order to involve the services of INTIB more closely with actual decision-making.

Generating technological information and developing the network

12. The objective of this component is to generate specific technological information so that, prior to investment, relevant technology may be selected from the alternatives available in the 20 industrial sectors to be covered by INTIB. To this end, it is necessary to establish and further develop the INTIB network of technological information suppliers and to improve the flow of information. This activity distinguishes INTIB from "data bank" and other storage-oriented activities and is of particular importance, given the limited resources available to INTIB and the expanding supply of information.

13. The work involves identifying a number of top-level experts who have important information at their finger-tips and who could therefore advise both INTIB and decision-makers in developing countries on questions of technology selection and evaluation at the pre-investment stage. During the biennium 1980-1981, efforts are being made to conclude special agreements with between 50 and 70 international experts within the various sectors covered by INTIB. This is

the first phase in the creation of a data base of individual experts to deal with specific inquiries which call for specialized information (from a variety of sources) on recent and forthcoming technological developments in a particular sector. Further activity in this area aims to broaden the base of institutional correspondents so as to cover more INTIB sectors and ensure balanced geographical distribution. Particular emphasis is being given to the identification of centres of excellence from amongst correspondents in developing countries. The directory of information systems and services in developing countries (see para.9 above) would also provide a guide to sources of information from those countries. In addition, to complement the two volumes of information on "Technologies from developing countries", already published,^{8/} the draft of a third volume has been compiled for publication in 1981.

14. Currently, additional sources of information in developed countries are also being contacted. In this respect, the senior technical adviser of the Technology Programme established contacts with a number of institutions in Japan and with the National Technical Information Service and the Department of Energy in the United States of America.

15. As reported earlier,^{2/} through the Vienna International Centre Library, INTIB now has access to over 70 computerized data bases. In order to assist institutions in developing countries in gaining direct access to the large number of data bases and information systems in the world, work has been initiated to compile a world directory of sources of useful and reliable information on technology choice, providing details on the orientation of each data base and on the scope, mode and cost of accessing these sources.

Disseminating information

16. With regard to the dissemination of information by INTIB, inquiries relating to technology selection will be answered through the Industrial Inquiry Service, but using the INTIB network and UNIDO's technical staff to provide the relevant processed information. In addition, INTIB will prepare and disseminate technological information profiles in the sectors covered by its operations. These profiles will provide comparisons of the principal industrial and technical data on each of the alternatives available. The preparation of such profiles is to be initiated in the following fields: (a) solar energy equipment; (b) alcohol fuels and (c) pumps for agriculture. Items (a) and (b) would be in keeping with the need to emphasize the dissemination of information on energy-related technologies as laid down in the New Delhi Declaration and Plan of Action. Item (c) would constitute a follow-up to one of the recommendations of the First Consultation on the Agricultural Machinery Industry.^{10/}

17. In addition, wherever there is substantial demand from users, information packages are to be prepared. These will cover technology choice in the areas where demand has been noted and will make use of material available at UNIDO Headquarters.

^{8/} ID/208, ID/246 (Development and transfer of technology series No.7).

^{2/} ID/B/C.3/100/Add.1, para.29; ID/B/260, chap.III, para.58.

^{10/} Report: ID/239.

II. ROLE OF INTIB WITHIN A GLOBAL NETWORK

18. In keeping with the role envisaged for INTIB within the global network of technological information, INTIB has sought to promote and maintain contacts with other information systems and services, both within and without the United Nations system in order to meet specific information requirements. Preparation of technical memoranda is continuing in co-operation with the ILO. In co-operation with the World Intellectual Property Organization (WIPO), four users' guides have been prepared on how to access patent information in the iron and steel, fertilizer, agro-industries and agricultural machinery sectors.

19. INTIB has one important feature which distinguishes it from other systems - it operates as a service, and not as a bibliographic, documentary or referral system. Its mission is not to provide "raw" information as such, but rather processed information of a practical nature or of immediate relevance to technology selection. Such practical services have been welcomed by users in developing countries and INTIB will have to assume increasingly specialized functions in order to have the greatest possible contact with, and relevance to, practical decision-making.

III. LONG-TERM DEVELOPMENT OF INTIB

20. The experience gained by operating INTIB for a limited period has revealed that certain shifts seem to be occurring within the overall pattern of information supply and demand. In this context, consideration of the long-term development of INTIB becomes relevant. Along with the targeted users already mentioned, engineering and consultancy companies from developing countries are also seeking information. Moreover, the type of information required has been changing. As distinct from requests for documentary information, there is an increasing demand for technology-intensive information on methods of production, technological alternatives etc. Inquiries to INTIB now tend to be problem-oriented, a trend to be welcomed, considering UNIDO's information activities were originally conceived as "mail order technical assistance". In the future, it will be increasingly necessary to monitor the way information is used, particularly with regard to large projects. In due course, INTIB may provide increasingly specialized services, unavailable elsewhere, which have a direct bearing on the technology selection process.

21. There is already a need for information on emerging technological advances and long-term technological trends which, in addition to offering possible technological alternatives, also have wider implications for developing countries. To support the activities initiated by the Technology Programme, the monitoring of important information on technological advances and trends will be made an essential part of INTIB. In addition, more attention will need to be devoted to energy-related technologies, particularly in the field of new and renewable sources of energy.

22. While INTIB is concerned only with technology selection, it cannot ignore the dramatic increase in the general supply of information which has been brought about by advances in micro-electronics and telecommunications. In this context, the role of informatics in industrial development was assessed at the conference held in Dublin (see para.6 above). It is important to ensure that INTIB and UNIDO activities at international level do not lag behind general advancements in information availability, handling and technology.

23. INTIB will continue to function in a dynamic way. There are an increasing number of information sources which can be accessed and new technological options are emerging in several fields, including energy. With regard to user needs, there are not only geographical variations, but also variations in accordance with changing industrial structures and with new development plans and programmes in various sectors. The vitality of INTIB and the key to its success will lie in its ability to discern, and adapt to, the changing pattern of supply and demand with regard to technological information.

24. A further condition for the sound long-term development of INTIB is the need to strengthen the information-handling capacity of developing countries, not only in traditional information centres, but also in a variety of decision-making agencies where information is ultimately put to use. Information-processing activities may have to be incorporated into various industrial and technological institutions and agencies as well as in enterprises themselves. Helping to strengthen the information-handling capacity of users may thus become a logical function of INTIB.

25. Perhaps the most important condition for the long-term development of INTIB is the provision of adequate resources for its operation. In the context of exponentially increasing information exchange and use, the already inadequate resources of INTIB are clearly not in keeping with either the demands currently made on INTIB or the need it has the potential to serve. Not only must INTIB be extended to cover 20 industrial sectors together with energy-related activities, it must also be able to specialize and adapt to changing conditions.^{11/} Though INTIB will continue to rely to a large extent on networking sources, it should be remembered that accessing such sources also requires funds (e.g. for recompensing the sources). Thus unless remedial steps are taken, resource constraints will constitute a serious bottleneck, hampering the full realization of the potentialities of INTIB.

IV. ACTION REQUIRED OF THE BOARD

26. The Industrial Development Board is requested to offer its comments and guidance on the further elaboration of INTIB activities and to make such recommendations as it deems fit, including the allocation of resources, in order to strengthen INTIB's ability to cope with the variety of tasks required of it. The additional resources required are two Professional posts (one at the P-5 level and one at the P-4 level) and three General Service posts as well as consultant and contractual services amounting to \$325,000 for the biennium 1982-1983.^{12/}

^{11/} As an indication of the costs of designing information systems, it may be mentioned that in 1980 the UNESCO General Conference in Belgrade allocated \$1.2 million for an energy information system and pledges were obtained for voluntary contributions of the same order of magnitude.

^{12/} (a) Consistent with the Secretary-General's instructions for the preparation of the programme budget 1982-1983, UNIDO's proposals maintain zero-growth over resources for the biennium 1980-1981. Accordingly, the additional resources for INTIB are not included in the draft programme budget 1982-1983 for UNIDO. Vigorous efforts have been made to redeploy resources in connection with the UNIDO work programme for 1981, but all possibilities to provide the necessary resources through these means have been exhausted.

(b) The present level of resources will provide 15 work-months of consultancy services (for the preparation of six profiles on alternative technologies in six sectors; and one directory of "centres of excellence" facilities in the field of information). The additional resources sought

are for 60 more work-months of consultancy services (for the preparation of ten more profiles on alternative technologies in ten sectors; six profiles on energy-related technologies; one directory of information institutions in Africa; and one directory of R+D programmes on energy-related technologies in developing countries).

(c) Of the two additional Professional posts requested, one is for work relating to the preparation of sectoral profiles and the other for energy-related technologies. Two General Service posts are required to support the work of the two Professionals, and one General Service post for work connected with the directory of information institutions in Africa and its maintenance and continuous updating.

