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THE ROLE OF THE INDUSTRIAL AND TECHNOLOGICAL INFORMATION BANK (INTIB)*

Prepared by the

UNIDO secretariat

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BACKGROUND

1. In March 1975, the Lima Declaration and Plan of Action (Second General Conference of UNIDO) urged the Executive Director of UNIDO to establish the Industrial and Technological Information Bank (INTIB).

2. In December 1975, UN General Assembly in its Resolution 3507(XXX) reaffirmed the "need to enable developing countries to have access to specific information on advanced and other technologies requested by them, as well as on the new uses of existing technologies, new development, possibilities of adopting them to local needs, and the needs ... to select technologies which meet their requirements". In this context, the Executive Director of UNIDO was requested to establish INTIB.

3. The Industrial Development Board (IDB) of UNIDO defined INTIB functions as follows:

(i) Technological information: i.e. information for use in the techno-economic evaluation of projects and their implementation;

(ii) Natural resources: i.e. information on their more effective utilization;

(iii) Wastes: i.e. information on their economic exploitation and profitable utilization;

(iv) Technology licensing: i.e. information on the experience of various countries in the acquisition and purchase of licences or patent rights, including the terms and conditions of licensing agreements;

(v) Investment data: i.e. information on sectoral investment plans throughout the world as a means of promoting understanding and furthering the process of international co-operation in this field;

(vi) Energy: i.e. the provision of an access point of existing knowledge on the industrial application of energy;

(vii) Who's who: i.e. information on technology as well as equipment suppliers, research institutes, consulting companies and consultants throughout the world, describing the competences of all those registered in the manner of a 'better-business bureau';

(viii) Industrial legislation: i.e. information on various countries' legislations and procedures governing industrialization.

4. In September 1976, the Industrial Development Board of UNIDO endorsed, in the form of INTIB, pilot activities involving:

(i) The operation of the bank as a source of technological information for specific geographical areas on selected industrial sectors;

(ii) The establishment of contacts and conclusion of agreements with existing information systems;

(iii) Examination of the possible utilization of computers in data processing.

5. In December 1976, the General Assembly (Resolution 31/183) welcomed UNIDO Executive Director's report on the establishment of INTIB; establishment of a network for exchange of technological information.

6. In May-June 1977 the Industrial Development Board of UNIDO endorsed INTIB pilot operation to be undertaken.

7. In December 1977, the General Assembly endorsed decision of the Industrial Development Board of UNIDO regarding the pilot operation of the INTIB.

8. In February 1979, UNIDO organized the Ad hoc Expert Group Meeting on Pilot Activities of INTIB. The meeting recommended the following, including continuation of INTIB operation after examination of the performance of INTIb on four selected industrial sectors, namely agricultural machinery and implements, iron and steel, fertilizer industry, agro-industry, for a period of 18 months (1 July 1977 - 31 December 1978):

(a) It is necessary to define clearly the functions of the Information Bank particularly in addition to the various other activities of UNIDO.

(b) The information provided by the Bank should concentrate on what is being done in the sector of agricultural machinery design development and manufacture; where it is being done and how it being done. However, in the final detailed stages there is no substitution for personal consultation.

(c) Priority should be given to:

(1) Information on research and development work being carried out in both developed and developing countries;

(2) Documentation regarding manufacturers in developing countries and especially in the least developed countries;

(3) Collection of information already existing in UNIDO and other international agencies in the form of regional profiles and country profiles.

(4) Preparation of technical manufacturing profiles on selected products. The exact format and purpose of these profiles would require more detailed definition.

(5) Information on agricultural machinery and implements, particularly tractors to define elements of investment, licensing, sub-contracting and the transfer of technology based on experience already gained in the developed countries and manufacturing plants in the developing countries.

(6) The preparation of an annual publication relating to agricultural machinery and implements and which would include:

(i) Statistical data relating to imports and exports between developing countries and the developed countries;

(ii) Production in the developing countries based on available data and information from UNIDO field activity;

(iii) Market requirements;

(iv) New technologies.

INTIB ACTIVITIES (1982-85)

9. The main objectives of INTIB are to facilitate and accelerate industrial and technological information flow to INTIB users for the proper selection of technologies and equipment for decision-making etc.

10. The INTIB work programme aims at establishing and further developing INTIB network of suppliers of technological information and improve its flow; and to generate specific technical information in the area of concern to the pre-investment choice of technology from alternatives in the 20 selected industrial sectors (see Annex I) for the operation of INTIB as well as developing linkages and communication with end-users of INTIB in developing countries, in particular through regional, sub-regional and national focal points so as to exchange relevant information based on needs and to promote greater availability and utilization of technological information in the decision-making processes.

11. The INTIB serves in the technology selection processes as part of the decision-making process of the investment through pre-feasibility studies.

Such selection processes require two basic pre-requisites, namely information on alternatives of technology and the capability for choice among alternatives. Therefore, the INTIB has been providing selected, analyzed and annotated information on industrial matters through industrial inquiry services, which includes access to information on manufacturing processes and know-how as well as equipment and machinery suppliers, on criteria and parameters for selection of technology at pre-feasibility study stages, on implications of terms of conditions for better acquisition of technology, on R+D activities, on advisory services for information handling etc.

12. With regard to meeting the needs of users, INTIB's Inquiry Service maintained its activities at generally the same level during the period of 1982-85. The number of substantive inquiries received during 1982-85 was about 1,300 per year. Of these, 43 per cent were related to manufacturing processes and know-how, 33 per cent to equipment and machinery suppliers, 6 per cent to research activities etc. The major users continued to be the small and medium-scale industrial enterprises, industrial information service centres, research and development institutes, government decision-makers, engineering consulting firms etc.

13. In answering industrial inquiries, the Secretariat has been utilizing not only in-house expertise but also external resources including over 200 on-line databases. Also, the secretariat is working on a sub-division of INTIB datbases to match with CDS/ISIS information retrieval software which can be run at inexpensive mini-computers or personnel computers, in order to encourage computerization of information system at INTIB focal points supplying them up-dated INTIB data regularly.

INTIB ANATOMY

14. The analysis on INTIB inquiries is as follows:

(a) INTIB Users

- Industrial enterprises (28%)
- Information service centres (16%)
- International organizations (14%)
- Research and development institutions (9%)
- Engineering consulting firms (8%)
- Government policy-makers (7%)
- Universities (7%)
- Professional organizations (6%)
- Development banks (2%)
- Others (3%)

(b) Industrial Sectors (ISIC)

- Industrial chemicals/Petrochemicals/Pharmaceuticals (29%)
- Agro-industries/Food processing (26%)
- Capital goods/Fabricated metal products (18%)
- Non-metallic minerals (7%)
- Basic metal industries (5%)
- Textile/Leather products (5%)
- Pulp and paper (4%)
- Wood and wood-processing (2%)
- Others (4%)

(c) Information Needs

- Manufacturing process and know-how (43%)
- Equipment/machinery suppliers (33%)
- Research and development activities (6%)
- Raw materials (2%)
- Quality control (1%)
- Marketing (1%)
- Patent (1%)
- Others (13%)

(d) Region

- Africa (25%)
- Asia and Pacific (21%)
- North America (17%)
- Latin America (14%)
- Europe (6%)
- Caribbean (3%)
- Central America (3%)
- Arab region (3%)
- Others (8%)

15. In recognition of the importance of industrial research and development activities in the industrialization processes of the developing countries, a series of directories has been published, namely Global Industrial and Technological Research Institutes; Regional Directory for Africa, and sectoral directories on research in metallurgy, industrial conversion of biomass, solar energy, and solar equipment manufacturers.

16. The subject of new materials received considerable attention during the period. The Advances in Materials Technology Monitor" has been published since 1983. Also the quarterly "Microelectronics Monitor" and "Genetic Engineering and Biotechnology Monitor" have been published in order to monitor trends of technological advances and assess their impact on the developing countries.

17. A number of technological information profiles on alternative technologies for the production of industrial goods has been published. Also numerous technology information packages relating to choice of technology in priority sectors in response to industrial inquiries of developing countries have been published.

18. During the period staff members undertook a number of advisory missions to Latin America, Eastern Europe, South-East Asia and Africa to assist in activities related to the establishment and improvement of national, as well as regional industrial information network as part of INTIB network.

19. In view of the important role played by development finance institutions in technology selection, the secretariat organized a meeting of selected Industrial Development Finance Institutions from developing countries to establish a Technological Information Exchange Network (TIEN) among themselves.

20. In addition to developing further linkages with other data banks and with specialized correspondents, attempts were made to promote wider use of INTIB. Also attemps were made to experiment with PACSAT project, utilizing low-cost communications satellite system for INTIB inquiry service, which might improve information delivery time to INTIB end-users.

21. The "Directory of Industrial Information Services and systems in Developing Countries" was published to promote the full use of existing industrial information facilities by INTIB end-users.

22. In recognition of the importance of national industrial and technological information policies and plans, interlinking it with industrial, technological and economic development policies, UNIDO will publish "Guidelines for the formulation of a National Industrial Information Policy based on Indian and Korean experiences".

23. Initiated the preparation of "Guidelines for the Establishment or Redesign/Strengthening Industrial and Technological Information Centres in Developing Countries, including the Selection of Mini-computer/PC and Software".

Plans for 1986-87

24. Strengthen linkages and communication between INTIB and industrial information supplier/contributors, including external data bases so as to enlarge INTIB database.

25. Collect, analyse, annotate and disseminate information on the trends as well as the impact and the potential utilization of emerging technologies to developing countries in the industrial sectors covered by the system of consultations.

26. Sources of information on access to the process technologies, particularly in the public domain, including expired patents in selected industrial sectors, will be published. Such information should be computerized as one of INTIB databases as well as on-line service for quick and easy retrieval.

27. Up-dating, expanding and publishing the existing research and development institutes directories in sectors covered by the system of consultations to promote twinning or co-operative research and development arrangements among research and development institutes, so as to reduce duplication of work and accelerate research results. Publish directory of institutions concerned with information technology for development to strengthen industrial information handling capabilities applying the latest techniques at INTIB focal points. Publish directory of manufacturers of energy-related equipments in developing countries.

28. Publish quarterly bulletins on a continuous basis monitoring technological developments in micro-electronics; genetic engineering and biotechnology; and new materials technology. Publish quarterly INTIB bulletins on resources sought and available (know-how licensing and joint ventures) by entrepreneurs in developing countries so as to promote industrial opportunities, on latest developments in information handling and the activities of INTIB focal points.

29. To improve effectiveness of the linkages of end-users with INTIB through INTIB network, INTIB staff will provide ad-hoc advice, upon request, through advisory missions. Also INTIB staff will organize a number of Training workshops for INTIB Focal Points' staff on a regular basis.

30. Comprehensive and up-dated guidelines for establishing/strengthening industrial and technological information centres in developing countries will be published with more examples.

31. Under the IDDA project, the secretariat is establishing a sub-regional INTIB network in Africa (10 participating countries) as part of global INTIB network.

32. Network among Industrial Development Finance Institutes will be formulated to exchange vital and relevant industrial/technological information for project appraisal.

33. Trial operation will be made between selected INTIB focal points and INTIB, utilizing low-cost communications satellite system to improve information delivery system in conjunction with INTIB inquiry service.

CONCEPT OF NETWORKING

34. Inter-focal points co-operation is the underlying principle for the establishment of a network. Network consists of INTIB focal points, namely industrial and technological information service organizations, chambers of commerce, federation of industries, association of small and medium industries, national productivity centres, R+D centres, engineering consulting firms, development banks, technology transfer promotion organizations, agencies for commercialization of research results etc., who are actively engaged in industrial information service, particularly with the industrial inquiry service. Every participating institution will have an important role in the network. The process of exchange and co-operation gives momentum to the network and its success depends entirely on the extent of co-operation.

INTIB NETWORK

35. The efforts of INTIB during the period, were concentrated on improvement of industrial inquiry service by increasing the sources of information, generating information and establishing information networks in order to facilitate and accelerate inquiry flow between end-users and INTIB. The Secretariat identified already more than 120 potential INTIB focal points from 55 countries who are actively engaged with industrial and technological inquiry service.

36. The INTIB network consists of those focal points through which the secretariat already started exchange of industrial inquiries, i.e. UNIDO sends industrial inquiries relevant to their specialized field for direct supplementary reply to the inquirers with a copy to us, and in return INTIB focal points also send their inquiries to UNIDO,(only those they are unable to handle due to lack of information sources, lack of expertise, lack of capabilities) to analyse and annotate the questions for our direct reply to the inquirers, for a trial period of one year (1985-1986) prior to exchanging a "Memorandum of Understanding for Co-operation".

UNIDO DATA BASES

37. The data bases of UNIDO area as follows:

(a) INTIB data bases

(i) INDIS (Industrial Information System)

UNIDO generated information with titles and abstracts, such as technical reports, terminal reports, feasibility study reports, industrial studies, papers presented at all UNIDO meetings etc. It is operating On-line system with thesaurus of industrial development terms.

(ii) LINK (The On-Line-Information-Key)

Information generated by other than UNIDO, such as directories of research and development institutions: metallurgy, industrial biomass, solar energy; industrial information service centres; industrial inquiries reply file; subject files; technology suppliers file etc. On-line retrieval with key-words.

(iii) TIES (Technological Information Exchange System)

TIES is a data base on information abstracted from technology transfer agreements. The information is only accessible to those governmental institutions, organizations or agencies in developing countries who provide on a regular basis such information on a confidential, reciprocal and mutually beneficial basis (close information system).

(b) Other UNIDO data bases

(i) INPRIS (Investment Promotion Information System)

INPRIS consists of two computerized data banks, namely the "Project File" and the "Investment File". The Project File contains a detailed summary of number of industrial investment project proposals; the Investment

File contains information on many public and private enterprises in industrialized and developing countries. They are suitable and willing to participate in specific industrial investment projects in developing countries and is used primarily to identify potential investments in response to requests from developing countries.

(ii) UNIDO Statistical Data Base

This data base provides a central reference point for statistical data in the manufacturing sectors. Information is included on: value-added, gross output, wages and salaries, employment and production indices. The datas are presented by country and industry. The data base presently contains information on 80 countries.

(iii) Expert Roster for Industry

Individual experts in various industrial sectors registered in the computer.

(iv) Purchase and Contract Data Base

The data base contains purchase orders, contracts, vendors roster, manufacturers catalogue etc.

(v) External Data Bases

Joint UNIDO/IAEA library (the Vienna International Centre Library) has access to a number of bibliographic and directory type data bases in various subject areas. Over 200 data bases with a total of 40 million records are available, such as

BLA - BLAISE - British Library Automated Information Service (UK)
DIA - DIALOG Information Services (USA)
ESA - European Space Agency Information Retrieval Service (Italy)
QUE - QUESTEL/Telesystemes (France)
SDC - Systems Development Corporation Search Service (USA)

Retrieval services from these data bases are utilized for INTIB's operation.

(vi) Energy Data Base

Information on UNIDO's energy-related technical assistance activities (projects, meetings and programmes). This is an on-line system with an established thesaurus of energy keywords. A large number of periodical reports on UNIDO's energy activities as well as ad-hoc reports are compiled from the system.

Annex I

TWENTY INDUSTRIAL SECTORS TO BE DEALT WITH BY INTIB

Food processing with special emphasis on vegetable oils and fats
Fertilizer
Leather and leather products
Capital goods with special emphasis on energy related equipment and technology
Petrochemical
Building materials
Fishery industry
Industrial manpower training
Agricultural machinery
Non-ferrous metals
Iron and steel
Pharmaceutical
Industrial financing
Wood and wood products
Textile and wearing apparel
Electronics
Agro-industry
Low-cost transport
Pulp and paper
Energy: New and renewable sources of energy; Non-conventional sources of energy; Energy for rural requirements