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UNITED NATIONS INDUSTRIAL
DEVELOPMENT ORGANIZATION
(UNIDO)

AFRICAN REGIONAL CENTRE
FOR TECHNOLOGY
(ARCT)

**REGIONAL SEMINAR ON INTIB/IRMS STANDARD
DATABASE MANAGEMENT AND NETWORKING**

12 -15 DECEMBER 1995
DAKAR - SENEGAL

FINAL REPORT *

*This document has not been edited.

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ANNEXES

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I. RECOMMENDATIONS

1. *The workshop participants noted with great satisfaction the important role played by UNIDO through the INTIB programme to support networking activities in Africa. They further recommended that INTIB should continue to intensify its assistance to national, sub-regional and regional focal points in order to help Africa fully benefit from the current advances in information and communications technologies.*
2. *For INTIB to further develop as an effective network system, it is necessary for it to establish common standards and formats for data management and to harmonize existing systems where possible.*

In this regard, INTIB should endeavour to liaise and co-operate with the Standing Committee on the Harmonization and Standardization of Information and Documentation Systems in Africa, with a view to adopting the already established regional standards, data format conversion interfaces and related guidelines and information management tools.

3. *Pursuant to 2 above, all available standardized tools and methodologies should be refined, in cooperation with other organizations and adapted to help NFPs & RFPs produce harmonized products (databases, guides, directories, indexes and profiles).*
4. *Recognizing the importance of electronic communication as a means of networking, it is envisaged that UNIDO will provide support for the establishment and use of Electronic Mail (in the short-term) and InterNet as probable media for data interchange among NFPs. In this regard, the need for integration into the international networks was considered a prerequisite for information exchange.*
5. *The use of the Information Resource Management System (IRMS) as the backbone database management tool by all INTIB NFPs is highly encouraged. Since the system is being used for the first time, NFPs should provide timely feedback to UNIDO and ARCT in order to improve upon the user interfacing and other technical/practical issues with regard to its implementation. To this end UNIDO should endeavour to convene a seminar within 12 months with a view to addressing problems that might have been encountered.*
6. *While the IRMS is a useful tool for implementation of the INTIB network, the time allocated for training is inadequate. UNIDO and ARCT should consider providing further training, technical support and methodological materials to facilitate the work of NFPs and enhance the success of the network. Participants suggested a timeframe of one year within which another regional training seminar should be held.*
7. *There is need to produce, as soon as possible, the French version of the IRMS package to enable French-speaking NFPs to effectively use the package.*
8. *Each NFP is encouraged to use the IRMS package for data processing and dissemination and to promote its use at the national level and in this context all NFPs are encouraged to send their feed back within one year.*

9. *Marketing information products and services has become an important element of information delivery mainly for commercial gains. The participants request UNIDO to assist NFPs to acquire the capacity for information brokerage as a means of helping them to become self-supporting.*
10. *All NFPs should endeavour to consolidate and implement their respective national networks. In this way, the INTIB tools, facilities, products and services can be used to benefit a larger community.*
11. *UNIDO should continue to assist ARCT to not only establish national focal points, but also attempt to backstop their activities so that they (the RFPs, Sub-regional FPs and NFPs) may become more self-supporting in the long term.*

The training programmes should be organized through the ARCT, which has both the technical and human resources to support the requisite activities.

II. INTRODUCTION

BACKGROUND INFORMATION

The United Nations General Assembly passed its Resolution 31/183 on the establishment of a network for the exchange of technological information, particularly Paragraph 9, concerning the establishment of the Industrial Technological Bank (INTIB) in UNIDO, and UNIDO Industrial Development Board (IDB) Resolution 47 (XI) as well as the Vienna Programme of Action on Science and Technology for Development, also stressed the importance of strengthening the national technological information capabilities of the developing countries.

In this connection, UNIDO has carried out a number of activities in collaboration with Regional and National institutions to facilitate not only the collection and dissemination of industrial and technological information, but also to create practical formal, informal and electronic networks for easy and speedy interchange of information.

The Regional Seminar on INTIB/IRMS Standard Database Management and Networking was jointly organized by ARCT and UNIDO under the umbrella of the AFRISTEC'95 Biennium, in Dakar, Senegal, from 11-15 December 1995. Twenty participants and five resource persons, from 9 countries attended the seminar (see list of participants - Annex I).

The meeting discussed crucial elements concerning collaboration mechanisms, networking, tools for INTIB implementation, including guidelines, manuals for common standards, data entry and exchange formats, etc. Participants had two days of practical sessions on how to use the IRMS management package. A detailed programme is attached as Annex II.

OBJECTIVE

The principal objective of the seminar was to build capacity at NFPs and regional levels, and to strengthen the INTIB African Network.

The immediate objectives are :

- To provide INTIB network members with basic working tools with a view to facilitating data exchange between network members and to provide guidelines and procedures for the implementation of the network ;
- To make available guidelines and procedures for network members, in particular guidelines and a users' manual for common standards and practices related to methodology, data entry, data exchange and data protection, procedures for the allocation and specific use of INTIB hardware, software and guidelines for the preparation of a national network programme ; and
- To train participants on the use and application of INTIB/IRMS standard database and data management. The training programmes should be organized through the ARCT, which has both the technical and human support resources to backstop the requisite activities.

ORGANIZATION

OFFICIAL OPENING CEREMONY OF THE IMPACT AND INTIB WORKSHOPS

The opening ceremony was chaired by H. E. Dr. Marie Louise CORREA, Senegal's Minister for Scientific Research and Technology. Addresses were delivered by Dr. Ousmane KANE, the Acting Executive Director of ARCT, Mr. Moriké KONARE, UNIDO Country Director, and Dr. M. L. CORREA.

- A. Dr. KANE expressed gratitude to UNIDO and called for the continuation of the invaluable assistance it has been offering to Africa through its national and regional activities which have given fresh impetus to the continent's industrial development drive especially in the formal and informal SME sectors. He reaffirmed ARCT's determination to assist African SME to achieve sustainable vertical growth so that they can play a greater role in the socio-economic development of their respective countries.

He said the INTIB programme co-ordinated by ARCT will enable Africa to harness advancements in information technologies and thus add value to industrial information as an important resource for sustained industrialization of the continent.

Dr. KANE noted that the application of IT tools and the rapid exchange of information among institutions far and wide have become an important reality for the transfer of knowledge and know-how as well as for trade and commerce.

He noted that, with the gradual liberalization of world trade and local markets there is need for increased industrial innovation and competitiveness. In this regard, Dr. Kane pointed out that the INTIB Project would address this need through the blending of information resource management skills and application of new achievements in the area of information technology.

Dr. Kane thanked the Government of Senegal and ARCT member States for the constant effort they have been making to support the Centre.

- B. In his address, Mr. Konare said UNIDO was pleased to jointly organize the workshop with ARCT under the umbrella of the African Science and Technology Biennial Meeting (AFRISTECH). He expressed satisfaction at the fruitful results achieved during the first edition of the AFRISTECH Biennial meeting.

He emphasized on the importance of UNIDO programmes to the development of sustainable industrial growth particularly for the small and medium-scale enterprises (SMEs) in Africa. He recalled that most of UNIDO's programmes cover the industrial sector, technical co-operation and support, introduction of new technologies and entrepreneurial development. Mr. Konare pointed to the vital importance of the INTIB project which constitutes a means of building up the capacity to address issues concerning the fundamental inputs to modern industrial development, information and related technologies.

Mr. Konare recalled that UNIDO established the Industrial and Technological Information Bank Programme (INTIB) in 1977. He noted with satisfaction that the Programme has since helped developing countries in Africa to establish their own information resources for the management of sustainable technology transfer. In Africa, the programme started in 1986 with 21 African countries and has now been extended to cover the entire continent.

The project phase covering the current INTIB workshop aims at installing standard databases and training national experts to use the various software packages for the management of the International Referral System.

Mr. Konare therefore called for the intensification of training, especially practical training activities, to ensure that participants benefit from the use and application of these tools.

Finally, the UNIDO official expressed his appreciation to the Government of Senegal for hosting the UNIDO-ARCT Workshop and for its constant support. He also commended the ARCT Directorate and Staff for the hard work and commitment manifested in backstopping the INTIB programme. He acknowledged the positive results thereof and encouraged them to carry on with this spirit of collaboration.

- C. In her opening address, Dr. Marie Louise CORREA, on behalf of the Government and people of Senegal, welcomed all the participants, particularly those who had come from outside Senegal to share their experience and contribute to the national reflection and follow-up action on crucial themes such as information technology and data communication.

Dr. Correa expressed satisfaction at having the opportunity to open the INTIB Workshop which constituted a beautiful example of the triangular co-operation between UNIDO, ARCT and African National Institutions.

She drew attention to the vital importance of the themes of the workshop and warmly thanked UNIDO and ARCT for choosing Senegal to host the deliberations just as they did during the first edition of AFRISTECH in 1993. She expressed the hope that the efforts made by UNIDO and ARCT towards promoting development through application of research results, in the industrial sector, would receive positive responses and results.

The Minister said it would be advisable for UNIDO to further co-operate with ARCT and focus particular attention on industrial information and other sectors within the framework of the programmes drawn up for the 2nd African Industrial Development Decade. She expressed renewed confidence in ARCT, called for further support from international institutions such as UNDP and UNIDO and reaffirmed the will to make ARCT an efficient regional tool for the technological development of Africa particularly in the Food, Energy and Information sectors.

Dr. CORREA expressed the hope that the workshop would come up with concrete arrangements that would strengthen such co-operation for greater mastery and promotion of information technologies and technological data communication and for an endogenous integral development of Africa especially through the Small and Medium-Scale Enterprises.

The Minister finally opened the workshop after reaffirming the assurance and total commitment of the Government of Senegal to assist ARCT and its partners to meet the challenges inherent in technological development as an indispensable factor of Africa's economic and social progress.

ELECTION OF OFFICERS

The participants were invited to elect a Chairman, Assistant Chairman, Rapporteur and Assistant Rapporteur. The following were unanimously elected :

1. Mr. A. H. K. DAKEY (Ghana) - Chairman
2. Mr. POUJODOGO (Cameroon) - Assistant Chairman

3. Mrs. W. NYONYI (Tanzania) - Rapporteur
4. Mr. Mansour SARR (Senegal) - Assistant Rapporteur

III. WORKING SESSIONS AND DISCUSSIONS

a) PRESENTATIONS BY PARTICIPANTS

CAMEROON

INTIB Focal Point : Ministry of Industrial and Commercial Development
Department of Industry

The INTIB Focal Point operates at three levels : collection, processing and dissemination of industrial information.

Internal data collection is carried out through local field activities as well as external contributions from publications received from various foreign organizations.

The Focal Point (Ministry) processes the data thus collected and transmits them to businessmen.

The Focal Point (Ministry) has :

- A reception and information unit ;
- A library ;
- A Research and Industrial Project Bank with production processes;
- A directory of foreign suppliers of equipment ;
- A CD-ROM station for information on patents worldwide as well as technological discoveries ;

Technology days are commemorated every year to promote research and the use of local technologies.

The Focal Point (Ministry) works in close collaboration with the Cameroonian institutions disseminating industrial information to research centres.

As the Focal Point is a public institution, its services are free of charge.

At present, the Focal Point has no appropriate computer equipment and has difficulties in establishing relations with other foreign centres.

It is hoped that, at the end of this meeting, a framework will be worked out to harmonize our diverse relationships.

GHANA

INTIB Focal Point : National Science and Technology Library Information Centre (NASTLIC)

The National Science and Technology Library and Information Centre (NASTLIC) of the Council for Scientific and Industrial Research was first established in 1964 as the Central Reference and Research Library (CRRL).

As its mandate assumed national proportions, from which it derived its present name, it embarked on a project known as the Ghana National Scientific and Technological Information Network (GHASTINET) in 1989 with financial assistance from IDRC.

The mandate of Ghastinet which is embodied in the overall objective of NASTLIC is to establish a national system for the provision of S&T information in appropriately packaged form, for the benefit of policy makers and planners in Government, to university staff, students and researchers, to promote and other public corporations and to small and medium scale enterprises.

The network which is primarily a human one, aims at being computerized. To this end, at the National Focal Point based at NASTLIC has developed four main databases for indigenous S&T literature, for On-going Research Projects, for High-level Manpower and for a Union List of Serials in Ghana's major libraries.

It has also seen to the establishment of sectoral nodes for agriculture and for industry and technology as information sub-networks. Other sectors so far established are for Health and Medicine, Water Resources and Geology. Steps are being taken to establish sectors for Transport and Communication, Public Construction and Engineering and for Trade and Commerce.

Some of the services so far being provided include CD-ROM Searchers, E-mail, Microfiche and Reprography, Consultancy and Training.

Publications include a Ghana Science Abstracts Bulletin, a Ghastinet Newsletter, Brochure, Roster of High-level Manpower, Union list, on-going research projects, directory of small-scale industries in a suburb of Accra (Ashaiman) and various handbills and publicity material.

It is desirous of strengthening its training facility and extend it to industrialists, especially the small and medium scale ones. It has therefore initiated forming strong links with agencies that promote such industries.

INTIB Node : EMPRETEC Ghana Foundation

EMPRETEC Ghana Foundation is a comprehensive technical co-operation programme sponsored by the United Nations Development Programme (UNDP), Overseas Development Administration (ODA), World Bank, European Union (EU), Barclays Bank of Ghana Limited and the National Board for Small Scale Industries. The main focus is entrepreneurship and business development.

The Objective of the Programme

The objective of the programme is to act as a catalyst for private sector participation in national development by helping and supporting small and medium scale entrepreneurs operating in that sector and thereby encouraging private enterprise and job creation.

Components of the Programme

The main components of the programme are :

Training

Entrepreneurial Training - Carefully selected candidates participate in an intensive ten-day training workshop which emphasizes on the behavioural aspects of entrepreneurship whilst building and reinforcing the skills necessary to develop and operate a business successfully.

Management Seminars - These are usually 2 - 3 day seminars designed to enable entrepreneurs appreciate the application of the management function and to improve the effectiveness of their operations.

Training in the Regional Offices - The same indicating programmes are organised in the regional offices.

Consultancy

Management Diagnosis and Extension Service - Using a "hands-on" approach, the Business Support Centre of Empretec employs local and international consultants to undertake business diagnosis or troubleshooting to identify and redress specific problems in the client enterprises.

Linkages

Empretec assists enterprises to develop mutually beneficial relationships with both local large and transnational and foreign companies within the domestic environment.

Finance

Loan Monitoring Service - To enhance the confidence of financial institutions in small enterprises and facilitate the provision of loans, a loan monitoring scheme has been instituted to enable participating enterprises generate requisite financial information on their business activities, which is then provided to the financial institutions to complete the monitoring cycle.

Business Plan Development Fund - The European Union (EU) has provided Empretec with support to operate a Business Plan Development Fund (BIDPF) which will finance the preparation of business plans to source funding.

Business Plan Preparation - Preliminary business plans are prepared by the entrepreneurs themselves with assistance from Empretec personnel. Entrepreneurs are subsequently advised on how to develop these proposals into bankable projects, with the assistance of experienced consultants.

KENYA

INTIB Focal Point : Kenya Industrial Research and Development Institute (KIRDI)

The Kenya Industrial Research and Development Institute (KIRDI) Information Centre is the INTIB National Focal Point for Kenya. KIRDI is a body corporate under the Ministry of Research, Technical Training and Technology and its main mission is to conduct research and development in industrial and allied technologies, including engineering, commodity technologies, mining and power resources development.

KIRDI maintains 3 databases (built in CDS/ISIS program) containing useful information for researchers and scientists and small and medium scale entrepreneurs. The Centre is working on a plan to network its databases with other centres in and outside the country to enhance fast data and information exchange.

Meanwhile, the Centre uses publications such as Newsletters, Annual reports, computer printouts to inform users of industrial information about relevant development in R&D.

The Centre also maintains a directory of all manufacturing industries in Kenya, which it updates periodically. E-mail communication is available and there is hope of getting connected to the InterNet in the near future.

At present, INTIB activities at the Institute (KIRDI) are fairly reduced from the fact that the information centre does not have any INTIB databases, and no specific assistance has been forthcoming from UNIDO.

NIGERIA

INTIB Focal Point : Federal Institute of Industrial Research, Oshodi (FIIRO)

The UNIDO/INTIB focal point at FIIRO operates independently, as well as through nodes. Presently the nodes include some organizations in the private and public sector of the Nigerian economy.

The focal point at FIIRO is within the Information Technology Marketing and Extension Division of the Institute. It is operated alongside the Industrial Information Centre and Extension Services of FIIRO (FIIRO INDICES).

The FIIRO Industrial Information Centre and Extension Services (FIIRO INDICES) is equipped with computers, made up of 486 and 386 PCs, complete with printers and other accessories. The Computer Centre of the Institute accommodates these computers and it is manned by a graduated computer specialist and a maintenance engineer.

1. On-going research and development (R&D) activities in Nigerian Universities and Research Institutes ;
2. Companies and their profiles ;
3. Scientific, technical and economic subjects and enquiries.

Services rendered include the following :

1. Technical and industrial enquiries ;
2. Current awareness ;
3. Photocopying ;
4. Document/article supply.

Clients of the FIIRO Industrial Information Centre and Extension Services (FIIRO INDICES) include industrialists (small, medium), engineers, scientists

The Federal Institute of Industrial Research, Oshodi (FIIRO) was founded in 1956. its mandate is to assist the industrialization of Nigeria, by finding uses for the locally available raw materials, and modernizing the traditional production methods.

Various activities are carried out in the institute in pursuant of these mandate. Industrial and technological information is one of the activities and it is a preminent facility for Nigerian industrialists.

SENEGAL

INTIB Focal Point : Société Nationale d'Etudes et de Promotion Industrielle - SONEPI (National Industrial Research and Promotion Company)

The Société Nationale d'Etudes et de Promotion Industrielle (National Industrial Research and Promotion Company) is a semi-public institution established in 1969.

Its objective is to contribute to the development of the industrial fabric of Senegal through the following activities :

- Conducting project studies and evaluations ;
- assisting indigenous and foreign investors ;
- Providing advisory support to small and medium-scale enterprises in areas such as :
 - . search for funds ;
 - . accounts management ;

- production and maintenance ;
- marketing ;
- Industrial information ;
- Training ;
- Providing a broad range of services offered by the Industrial Development Centre.

Ever since its creation, SONEPI has made the following achievements :

- About 715 project feasibility studies accomplished (25% realization rate) for the creation of 19,850 temporary and permanent jobs;
- More than 619 SME/SMI supervised.

To ensure smooth operations and rapid results in the framework of its restructuring exercise, SONEPI has set up a light structure (Staff strength reduced by 40%) which cuts the inherent costs and particularly addresses the strategic option whereby the company limits itself to conducting, with efficiency, project studies, evaluation, follow-up, supervision and technical assistance for which it has the requisite skills.

SONEPI activities have been sponsored by :

- The Government of Senegal ;
- UNDP
- UNIDO
- IDC

Other donors have also made the new SONEPI their executing agency for funding projects intended for small and medium-scale enterprises and industries (SME/SMI).

SUDAN

INTIB Focal Point : National Industrial Information Department (IRCC) of the Industrial Research and Consultancy Centre (IRCC)

The main role of the center is to participate actively in the promotion and development of industry in the Sudan (R&D). Therefore, the objective of the Center is to :

- Conduct R&D and improve its efforts as a major work of the Center ;
- Conducting tech-economic feasibility studies on industrial projects for public as well as private sector ;

- Provide consultancy services on industrial planning, processing, engineering, production management, costing, plant efficiency, and quality control development;
- Participating in laying down national industrial development plans of existing industries in public and private sectors ;
- Help in identification and transfer of modern technology, and adopting what is appropriate ;
- Conducting with or without other research and scientific institutions inside and outside Sudan in promoting scientific and technological research in the field of industrial development in Sudan ;
- Establishing a center for industrial information to be a national information reference to all branches of industry and to technical, economical, administrative and organization fields in time with the states programme for establishing libraries and specialized centers for authentication of information. The center consists of the following sections:
 - . Library ;
 - . Information bank ;
 - . Printing & binding section.

One of the Sudanese INTIB nodes is the Elnilein Industrial Bank.

The main objectives of this Specialized Bank in the field of industry may be summarized as following :

- Promotion and development of handicrafts, rural industries and small scale industries ;
- Extending assistance to productive families and professional groups;
- Encouragement of the processing of agricultural products with due emphasis given to industries that will achieve food security ;
- Supporting engineering industries specially those engaged in manufacturing spare parts, machinery and equipment ;

Generally speaking the financial lending policy of the bank is classified into two forms:

1. Working capital finance. This type is concerned mainly with the financing of raw materials ;
2. Investment finance which refers mainly to the financing of machinery and equipment.

It is worth mentioning that the bank purchases raw materials, machinery and equipment either from outside or locally, and we think that the creation of a set-up of a data bank unit is essential in providing the bank with the updated information regarding the prices, supply and demand of raw materials and equipment.

Another node for the INTIB Focal Point is the Bittar Group of Companies which are mainly manufacturers of edible oils, soap detergents and personal products.

Other activities of the group includes importing of engineering tools and equipment and exporting agriculture products of Gum Arabic, Sesame, groundnuts and karkadi.

The group will benefit a lot from such programme when implemented by having access to information about appropriate technology, spare parts, raw materials as well as financing facilities.

TANZANIA

INTIB Focal Point : Tanzania Industrial Research and Development Organization (TIRDO)

Introduction

TIRDO is a parastatal Organization which was established by the Parliamentary Act No. 5 of 1979 and it became operational in April 1979. Basically the Organization was set up for the purpose of conducting industrial research and offer consultancy services to industries. The core of our operation is to promote technology utilization in economic ventures.

Research and Development

The Organization is mainly involved in carrying out industrial research for the purpose of developing products and process suitable for the Tanzania industrial environment. In this regard the emphasis is to promote the use of indigenous raw materials which can be processed using equipment fabricated largely by local workshops. Based on the technologies developed, entrepreneurs are consequently invited to spin off and establish production plants following a field trial of at least two years.

(i) Research and Development Projects Completed to Date Include :

Production of Natural Dyes from the barks of Mangrove trees (Mikoko) and from Bixa Orellana Technocomics Study and equipment designs are available. Total investment required USD : 100,000 ;

Production of Caustic Soda from lime and Lake natron Soda Using the causticization process. The process has been piloted for two years. Equipment can be partly manufactured in Tanzania. Total investment required USD: 400,000 ;

Production of Sodium Alginate (Industrial Thickener) from brown seaweeds (Sargassum Sp.). Product required by most textile industries, the food industry and the pharmaceutical sector. Process under pilot testing at TIRDO laboratory. Total investment required USD : 100,000.

Production of Tannin based Wood adhesives applicable in particle board (chipboard) and plywood production. Formulation costs USD 800 per ton for particle boards and USD 480 per ton for plywood. Formulation equivalent in performance to imported PF Resin which costs USD 1,800 per ton. Technoeconomic study completed. Process suitable for incorporation into wooden building products :

Production of School Chalk based on local gypsum and related industrial wastes. Process under pilot testing at TIRDO laboratories. Production started at zero series to enhance market testing. Process suitable for small scale manufacturers to produce 5 million sticks per year. Total investment required USD : 48,000 :

Essential oils production from a variety of local plant resources.

(ii) Commercial Formulations Developed so Far :

Turkey Red Oil from castor oil applicable as wetting agent in textile manufacturing ;

Furfural and furane resins from bagasse, and other agricultural wastes :

Alum from Pugu kaolin and water quality aluminium sulphate :

Abrasive hand wash paste applicable to engineering workshops, kitchens, etc. :

Toilet soap from tea seed oils.

(iii) Designs Available

Wind ventilated solar dryer for batch drying of fruits, fish and vegetables.

Services to Industry

For the furtherance of the industrial activity a number of services are offered by the Organization :

(i) Instrumentation, Maintenance and Repair :

The TIRDO instrumentation Centre supports industry by providing services and expertise in the repair and maintenance of various instruments, thus ensuring fewer breakdowns and faster reconditioning of equipment such as the IC testers, signal tracers, oscilloscopes, standard cells, semi conductor checker, multichannel temperature recorders, metre calibrators, pulse generators, logic analysers, monocular microscope, colony counter and many others ; the instrumentation staff offer maintenance services on electrical equipment, electronic equipment, chemical analysis instruments, medical instruments and other miscellaneous scientific instruments including Bank Note counting machines. Preventive maintenance contracts available on request. Adhoc maintenance and service is provided at nominal fees.

(ii) *Chemical Analysis :*

The Organization's chemical laboratory is equipped with analytical instruments such as the infrared, atomic absorption spectrophotometer, visible spectrophotometer, flame photometer, bomb calorimeter and other standard analytical instruments. A number of analytical services can be offered on materials such as water, mineral rocks, foodstuff, soil, industrial raw materials and quality control of finished products.

(iii) *Energy Management Centre :*

The TIRDO energy management centre has got expertise and enough experience to offer advise on the efficient use of energy. Quantification of energy losses in industry can be reasonably established on the energy carriers such as steam pipes, heating sources such as boilers and furnaces and, on energy converters such as evaporators and cooling systems.

(iv) *Material Testing :*

The Organization's materials laboratory offers a range of mobile non-destructive tests as well as physical tests on various materials. Techniques such as Radiography, Ultrasonics and Magnetic particles are used in Non-Destructive Tests whereas Physical testing involves metallographic hardness, impact and bending test activities.

(v) *Trouble Shooting and Advisory Service :*

TIRDO offers advisory services to industrial entrepreneurs on such matters as technology selection, production diversification and process control and optimization. It also offers troubleshooting services which provide practical solutions to short term industrial problems.

(vi) *National Cleaner Production Centre (NCPC) :*

Established with the assistance of UNIDO, the NCPC will strive to catalyse the introduction of cleaner production technologies. NCPC will provide technical information and services, demonstrate cleaner production technologies and provide training where necessary, to enhance environmental management.

(vii) *Machining, Welding and Fabrication :*

The mechanical workshop, equipped with metal sheet working machines, lathes, drilling and milling machines, welding machines, grinders, compressors and other pieces of equipment offers a range of mechanical services involving fabrication, welding, and regrinding of worn out tools. The fabrication of satellite dishes at TIRDO is progressing well.

(viii) *Industrial Information Centre :*

This is the centre of professional communication. It enjoys a collection of a number of technical and reference books, reports, journals, machinery and equipment catalogues and suppliers directories. The Centre responds to technical inquiries related to industrial and technical matters and it is always gathering appropriate industrial information for future use by industrialists. With a network correspondents all over the world, the Centre can supply any specific industrial information upon request.

(ix) *Furniture Workshop :*

There is a well equipped wood workshop at TIRDO Laboratory Complex. The workshop is capable of undertaking the manufacture of any type of office and domestic furniture including panels and joinery wood work. Jobs are accepted upon request.

ZAMBIA

INTIB Focal Point : National Council for Scientific Research

The INTIB Focal Point in Zambia is located at the Information Services Unit of the National Council for Scientific Research (NCSR). The NCSR is responsible for advising the Government on policy matters relating to Science and Technology and conduct Scientific Research to ensure that the Country's development plans are properly supported by results form scientific research.

The Information Services Unit, which consists of a library and a documentation centre encompasses INTIB in its framework or activity. With specific reference to INTIB the following activities are conducted :

1. Creation of local databases on CDS/ISIS, notably the Zambia Science Abstracts which covers a large section on general industrial information, patents and standards, etc. ;
2. Maintaining a library collection on industrial information ;
3. Maintaining an appropriate technology database on microfiche ;
4. Provision of specialized information to entrepreneurs and companies in their request for technologies relating to products, processes, machinery, etc. from local and external sources;
5. Co-ordinating the various information services by identifying institutions dealing with industrial information and channelling requests to appropriate institutions ;
6. Installation of E-mail to improve various services including industrial information ;

7. Use CD-ROM libraries to improve retrieval of information from various databases on industrial information and others ;
8. Marketing information on local technologies at shows and fairs on science and technology ;
9. Dissemination of information to various organizations particularly publications such as newsletters, appropriate technology catalogues from various institutions e.g. UNIDO.

ZIMBABWE

INTIB Focal Point : The Research Council of Zimbabwe (RCZ)

The Research Council of Zimbabwe was established by an Act of Parliament in 1986. Its mandate is to promote, coordinate and support research in science, technology and the humanities.

In its endeavour to achieve this, the RCZ is offered secretariat services by the Scientific Liaison Office (SLO) (formerly Department of Technology). The RCZ therefore is the mother body of all research institutes in Zimbabwe.

The SLO collects, collates and disseminates information to all interested and is also to keep the President's Office informed of all scientific and technological advancements in the world. In order to achieve this, it subscribes to renown international journals.

The RCZ publishes the following publications :

- a) Proceedings of symposia held every 2 years ;
- b) Directory of organizations concerned with research and technical services published triennially ;
- c) Directory of scientists and professional societies in Zimbabwe published every 2 years ;
- d) Zimbabwe Research index published every year. This index lists all research projects being undertaken in Zimbabwe in a particular year ;
- e) RCZ bulletin (4 times a year).

The RCZ has established a parastatal called the Scientific, Industrial and Research Development Centre (SIRDC). The SIRDC is there to promote research linked to industrial activities. This institution has the capability to promote and coordinate industrial research.

The Scientific Liaison Office (SLO) has been the focal point for INTIB in Zimbabwe, but unfortunately there is nothing much to be reported because the database has not been updated. Requests diminished considerably because of outdated information.

The Technological and Industrial Promotion System (TIPS) sponsored by UNDP is able to provide updated information. It is pleasing to report that TIPS is now attached to SIRDC and we feel it will be able to improve its services to the industrialists.

b) DISCUSSIONS

A total of 8 sessions were delivered highlighting various facets of the facilities, the conditions and the need to implement information networking at the regional level in Africa. The Information Resource Management System Databases, which the seminar sought to establish, would through UNIDO get hooked to InterNet in the near future : the major aim being further facilitation of connections between networks with a tremendous repository of information resources.

(i) Use of InterNet for Business Activities

Besides being a fast and cheap communication linkage, the seminar observed that InterNet offered to users an unlimited access to computing power of computers located worldwide. For this reason, InterNet opened up unlimited sources of data plus the chances of downloading from all these databases thereby making the sky the limit to possibilities for information retrieval.

The seminar observed that despite the advantages offered by InterNet, the usage was largely anti-business. It was hoped that this attitude would change in the near future to enable suppliers of databases to cost the value of their resources to users.

Participants observed the major sources of InterNet as consisting of :

- Electronic mail :
- Usenets :
- Telnet :
- File transfers protocol (FTP) executed swiftly , and
- World wide webb servers for hypertexting and navigation through citations.

Participants further observed that the use of the InterNet would achieve the following benefits :

- Enhanced customer service ;
- Low cost marketing and advertising ;
- Tracking competitors
- Accessing research information ;

- Collaboration between remote partners ; and
- Electronic mailing.

It was further noted that besides the E-mail advantages, SLIP connectivity opened up unlimited opportunities to navigate databases through the InterNet.

(ii) Good Use and Misuse of Analysis Applications for Decision Support in Enterprises

On the use of computer applications for decision making at enterprise levels, it was observed that managers in general had very limited use of information largely due to lack of insight of the value of data to business and partly due to problems with vendor support and system applications and maintenance.

Two software packages to enhance SME performance analysis and management training namely, 3Bs and PHAROS had been developed at UNIDO initiative and would be used in subsequent training workshops on SME Re-engineering for competitiveness.

Participants raised the issue that SME performance was not just affected by low utilization of trade and commercial data and weak managerial styles, but that non-use of industrial property and related information was largely responsible for the dismal performance.

(iii) Defining a Methodology, Standards and Communication Formats

On defining a methodology, standards and common formats for processing bibliographic resources, emphasis was placed on the need for :

- Compatibility through use of standard formats, keywords, etc. ;
- Proper selection of system configuration in line with scope of bibliographic storage and retrieval;
- Use of standard formats as developed by ARCT, ARSO and PADIS; and
- Use standard manuals for text processing in order to harmonize information databases.

(iv) ARCT Programmes and Capacities for the Benefit of Member States

The establishment, organization and operational programmes of the ARCT were presented by Dr. Ousmane KANE, Director of the ARCT. The current ARCT programme highlights the need for creation of an enabling environment for development and dissemination of local technologies for which the ARCT approach constitutes the following :

- Assessment of technological needs ;

- Information acquisition, documentation networking and publications including an active participation in the INTIB network as a Regional Focal Point ;
- Research and development ;
- Popularization, incubation and demonstration ;
- Provision of technological advisory services ;
- Provision of training and human resources development in priority sectors of food, energy, capital goods and the environment ; and
- Partnerships and S&T co-operation with centres of excellence.

During discussions, participants observed the need for the ARCT to create an enabling environment for integration of S&T into development. The Centre needed to carry out a lot of publicity in order to sensitize the masses and set its S&T priorities as well as educate policy makers at political levels. The need for mass support and financial assistance to enhance incubator programmes in Africa was underlined, while S&T popularization among all levels of potential users was recommended as a strategy of involving all sector of society to appreciate the need to support S&T efforts in development.

(v) Information Networking

On information networking, it was advocated that the concept of "brokering" be adopted by INTIB nodes and focal points, primarily to be able to market and sell valuable information as a commodity for sustainability. A code of conduct for repackaging such consultancy services, based on the experiences of Europe and Bolivia was recommended for adaptation to African conditions.

(vi) E-Mail and Data Transfer Using FidoNet

Presentations and discussions on Electronic Mail services concentrated on the basic computer configuration required for connectivity, Modem types and suitable for African conditions, telephone facilities, software and the actual implementation and operations of the system.

Advantages and disadvantages of an e-mail service were discussed and in particular the FidoNet Network System was highlighted.

Optimum requirements to communicate with other networks via Gateway, addressing systems, time delays for mail delivery, searches of international databases through the ARCHIE services and other E-mail opportunities and potentials were also examined.

Practical sessions were conducted for participants to explore some of the services offered by ARCT and other service providers, while specific recommendations to adopt E-Mail as the major INTIB network communication medium were made. Participants also expressed the need for UNIDO and ARCT to provide the requisite training and technical support for the establishment of E-mail services at NEFs that do not as yet have any.

(vii) Description of the Information Resource Management System (IRMS)

On Information Resources Management Systems, it was observed that the new software sought to standardize the fields of data that each institution will input into its databases. Five types of databases were recommended for establishment at each participating institution. These include :

- Institutional profiles ;
- Experts and their affiliations ;
- Processes (technology and machinery) ;
- Information systems resources ; and
- Training opportunities available to SME and others locally.

(viii) Practical Sessions on IRMS

Practical sessions on the installation, data processing uploading and downloading using the IRMS software package were conducted during the last two days of the seminar.

In effect this was the main activity of the seminar, as participants need to master the application of the IRMS system for the implementation of the INTIB network at national level. The objective of the exercise was to train the trainers. However there was an expressed fear that it might not be possible to grasp, in just two days, the essential skills needed to implement the system at national level.

Therefore, participants wish to request UNIDO and the ARCT to continue backstopping the training components at national level whenever possible.

Furthermore, it was noted IRMS package is only available in English. This would create difficulties of implementation in many French speaking NFPs, and hence cause delays and even impede the information interchangeability, it was recommended that the French version of the IRMS package be made available as soon as possible.

IV. ADOPTION OF REPORT

After detailed discussions, the participants adopted the report and its recommendations.

V. ACKNOWLEDGEMENTS

The seminar participants expressed their deep appreciation for the efforts made by ARCT and UNIDO for the organization of the seminar and also offered special thanks to the Senegalese Government for providing excellent host facilities.

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ANNEX II :

REGIONAL SEMINAR ON INTIB/IRMS STANDARD INFORMATION DATABASE MANAGEMENT AND NETWORKS

DAKAR, SENEGAL
12-15 DECEMBER, 1995

VENUE : Hotel Le Meridien President, Dakar,
Senegal

IN COOPERATION WITH : ARCT

PARTICIPANTS : 20-25 staff from INTIB Focal Points
and Nodes

SPEAKERS : Staff from UNIDO/INTIB, from ARCT,
UNIDO Consultants and Consultants
from Institute for Computer and
Information Engineering (ICIE)

DATES : 11-15 December 1995

WORK PROGRAMME AND AGENDA

FINAL

TUESDAY, 12 DECEMBER 1995

08:00-10:30 Registration of participants

10:30-11:00 Welcome to the participants with a brief
to INTIB/AFRICA programme (Mr. Nageri,
ARCT and Ms. S. Bakhait, UNIDO)

11:00-11:30 Coffee Break

11:30-12:00 Election of the Bureau and adoption of the
agenda

12:00-13:00 Use of INTERNET for Business activities
(Mr. Muraszkievicz, UNIDO Consultant)

13:00-14:30 Lunch Break

- 14:30-15:30 Good use and Misuse of Analysis Applications for Decision Support in Enterprises (Mr. Per Lind, UNIDO Consultant)
- 15:30-16:00 Coffee Break
- 16:00-16:30 Opening of IMPACT and INTIB Workshops, (Dr. O. Kane, Executive Director a.i., ARCT ; Mr. Morike Konare, Country Director, UNIDO, H.E. Dr. Marie Louise Correa, Minister for Scientific Research and Technology)
- 16:30-17:00 Defining a methodology, Standards and Common Formats (Mr. M. Nageri, ARCT)

WEDNESDAY, 13 DECEMBER 1995

- 09:00-10:00 ARCT - Programme and Capacities (Dr. O. Kane)
- 10:00-10:45 Information Networking (Mr. C. Carrier, UNIDO)
- 10:45-11:15 E-Mail System (Mr. Asfaw and Mr. Nageri, ARCT)
- 11:15-11:30 Coffee Break
- 11:30-13:00 Data Transfer using the FIDO Communication System (Mr. M. Nageri, ARCT)
- 13:00-14:30 Lunch Break
- 14:30-17:30 Description of the Information Resource Management System, IRMS (Mr. W. Struk)

THURSDAY, 14 DECEMBER 1995

- 09:30-11:00 Practical use of the IRMS.
- General practical overview of the use of all IRMS functions (Mr. W. Struk)
- 11:00-11:30 Coffee Break

11:20-13:00 Installation and Data Entry with
validation for IRMS (Mr. W. Struk)

13:00-14:30 Lunch Break

14:30-17:30 Hands-on practice on IRMS (Mr. Struk, Ms.
Bakhait and Mr. Carrier)

FRIDAY, 15 DECEMBER 1995

09:30-11:00 IRMS applications :

- Searching
- Printing/Outputs
- Data modification

11:00-11:30 Coffee Break

11:30-13:00 Discussion and trouble-shooting (Mr. W.
Struk, participants)

13:00-14:30 Lunch Break

14:30-16:00 Recommendations to the report and closing
of the seminar