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DEVELOPMENT OF TECHNOLOGY
INFORMATION SERVICES (TIS)

DP/PHI/86/016/11-02/J12101

PHILIPPINES

Technical report: Development of a training system for a core of industrial information specialists of TIS*

Prepared for the Government of the Philippines
by the United Nations Industrial Development Organization,
acting as executing agency for the United Nations Development Programme

Based on the work of Dr. Bahaa El-Hadidy, technology information training expert

Backstopping officer: Juraj Pavlik,
Institutional Infrastructure Branch

United Nations Industrial Development Organization
Vienna

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* This document has not been edited.

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LIST OF ABBREVIATIONS

BETP - Bureau of Export Trade Promotion

BSMBD - Bureau of Small and Medium Business Development

CTIS - Computerized Trade Information System

DOST - Department of Science and Technology

DTI - Department of Trade and Industry

IIA - Industrial Information Adviser

INTIB - Industrial and Technological Information Bank

NISST - National Information System for Science and Technology

STII - Science and Technology Information Institute

TIES - Technology Information Exchange System

TIPS - Technology Information Pilot System

TIS - Technical Information Services

TITE - Technology Information Training Expert

ABSTRACT

The report discusses the activities of the Technology Information Training Expert (TITE) during his first mission for the period 10 July 1990 to 19 August 1990. The role of the TITE was to develop a training system for the staff of Technical Information Service (TIS) project implemented jointly by DOST and DTI. The project is a pilot test to accelerate the utilization and commercialization of technology information to promote small- and medium-scale industries in four regions in the Philippines. The report covers the tasks and activities of the TITE including the formation of project management team, survey of DOST and DTI information activities, and visits of two of the four regions of the project. Major findings and conclusions resulting from these activities are discussed. The report also covers the selection of prospective trainees, and the feasibility of establishing a training unit. A proposed training program is discussed, including elements and strategies of training, scope of training, and recommendations concerning the implementation and schedule of training.

RECOMMENDATIONS

1. To strengthen the communication and coordination of activities of DOST and DTI, the project management team should include assistants to each of the two project coordinators of DOST and DTI.

2. Access to foreign databases and international information is a must to provide adequate technology information necessary to improve the rural-based industries.

3. The TIS project should be linked to other UN sponsored projects, such as EXPONET and PRODEX II, to benefit from the related information activities of these projects, including the provision of online searching from DIALOG and DataStar. The project should also benefit from computer-based information services available at present in Manila, such as Agris and Medline.

4. Selection of the project trainees should include a core staff of personnel from both DOST and DTI in each region, with a total of 20 instead of the initial 12 stipulated in the project document. This is essential since information activities in each region require the participation of the staff of both agencies.

5. Due to limitation of the present budget, it is not possible to establish at present a separate training unit for the project. Instead, a training coordinator should be assigned to the project.

6. The training coordinator should be attached to STII of DOST and should handle the administrative aspects of the project training, including the collection and organization of the training packages. A training component should be included to train the training coordinator in modern training techniques and technology.

7. The training elements should include an orientation workshop to the project personnel to introduce them to the project and acquaint them with the information resources and activities at DOST and DTI headquarters.

8. The orientation workshop would include a module on modern basic information sources and services, including online and CD-ROM information systems and services.

9. Other training elements include fellowships for training abroad; short courses, workshops and seminars; field visits abroad; and in-service training.

10. Scope of training include ten areas in modern information sources, services and technology.

11. The implementation of the training program, including the fellowships, should start after the design study is completed, including determining job responsibilities of the staff and the required skills for their work.

12. A meeting should be organized between the training expert and the industrial information adviser to coordinate the implementation and scheduling of their activities.

13. To keep the momentum of the project, the orientation workshop should be organized at the earliest possible time.

14. Future plans should include establishing a separate training unit at STII to meet the future training needs of the STI activities.

INTRODUCTION

This report discusses the first five week phase of a split mission of Dr. Bahaa El-Hadidy, Technology Information Training Expert (TITE), to develop a training system for information specialists at the Department of Science and Technology (DOST) and the Department of Trade and Industry (DTI) in the Philippines. The major objective of the training system is to train a core group of information specialists in the technical skills required to provide technology information services (TIS) at the central office in Manila and four regional centers in selected areas in the Philippines. The project is envisioned as a pilot test to accelerate the utilization and commercialization of technology information in promoting employment-oriented, rural-based small-scale industries in the country.

This project is a follow-up to a completed UNDP-assisted project PHI/79/018[1] which succeeded in developing the infrastructure of a National Information System for Science and Technology (NISST). While the NISST succeeded in achieving several accomplishments, it did not reach some desired target groups, mainly in the rural areas. So, it was necessary to develop a second phase to link and synchronize the activities of NISST of DOST with the promotion activities of the trade and industry sectors of DTI to serve the information needs of would-be enterpreneurs in the rural areas. This is in accordance with the top agenda of the Philippine Government to bring about socio-economic development thru assistance to people in the countryside. Special attention is paid to the development of enterpreneurs for cottage, small- and medium-scale industries, investment opportunity studies and programs for formulation and promotion of industrial projects in selected industries.[2]

The terms of references designated by UNIDO to the training design include:

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[1]See "Terminal Report: Strengthening the National Scientific Information System (NSIS), Project No. PHI/79/018."

[2]See Project Document: Phl/86/016/A/01/87 Development of Technology Information Services (TIS).

1. Study the needs for and the feasibility of establishing a permanent training unit for the project.

. 2. Identify the training requirements of the staff of the project.

3. Assist in organizing and conducting some training courses, including teaching packages.

4. Assist in selecting the trainees and advise on the individual fellowships, its place and duration.

The details of the job description of the above assignment is included as Annex A. The training expert is designated to work closely with an Industrial Information Adviser (IIA) who is assigned by UNIDO to design and develop a master plan for the organization and operations of the central office and the four regional centers of the project, including its staff, equipments, information services, etc.

The mission of the training expert started on 10 July 1990, and was initially scheduled for one month. However, unanticipated events, including the development of a "National Workshop on Information Needs for Technology Development," which was sponsored by UNDP and hosted by DOST made it necessary to extend the mission eight more days. Since the workshop was related to the activities and objectives of the training project, the training expert was asked by DOST Coordinator to participate in the training workshop. Several staff members of DOST and DTI who are involved in this project attended the workshop.

At the time this mission started, the decision on the selection of the Industrial Information Advisor was not finalized. In the absence of a detailed master plan for the organization and operation of the central and regional offices, including job responsibilities and tasks of the staff, it was not possible to achieve some basic objectives of the mission. To maximize the benefits from the training, the training expert felt that the organization and selection of the individual fellowships and other visits abroad should be determined after the initial work of the Industrial Information Adviser and in close coordination with him.

Ideally, the mission of the training expert should have been started after the initial work of the design study by the Industrail Information Adviser is completed, including determining the different tasks and activities of the system. Then the job responsibilities of the staff required for the project would have been defined and the required skills would have been determined. The staff would be then selected and their background would be analyzed and the training system would have been planned to develop the necessary skills required for their work.

I. TASKS AND ACTIVITIES

The approach followed by the training expert during the short time available in the field (about three weeks), and in the absence of the work of the Industrial Information Adviser, was to concentrate on the following:

1. Study the feasibility of establishing a permanent training unit.

2. Identify possible major requirements (or areas) of staff training.

3. Identify prospective trainees of the project.

4. Assist the project management in finalizing the selection of the Industrial Information Adviser.

In fulfilling the above objectives several activities were conducted. These activities are discussed below.

A. Formation of Project Management Team

The project document indicated that the project would be jointly implemented by DOST and DTI, with a project coordinator from the two agencies heading the project on an equal capacity. These two agencies were identified as:

1. Science and Technology Information Institute (STII): Dr. Irene Amores, Director of the Institute, as DOST general coordinator.

2. Bureau of Small and Medium Business Development (BSMBD): Mr. Zafrullah G. Masahud[3], Director of the Bureau, as DTI general coordinator.

The interagency nature of the project and the diversity of its activities will require continuous communication and effective coordination between the two agencies. Discussions with the project coordinators led to the approval cf senior staff members from each of the two agencies to act as assistants to the coordinators and as the principle contacts in their absence. For the DOST Agency (STII), the two assistants are:

1. Ms. Virginia P. Dolotina: Science Research Specialist II

2. Ms. Remedios S. Lozano: Science Research Specialist

For the DTI Agency (BSMBD), the assistants are:

1. Ms. Alicia M. Opena: Division Chief, Policy Planning and Research Division

2. Ms. Elvira P. Tan: Sr. Trade and Industry Specialist

3. Ms. Gladina M. Aquino: Sr. Trade and Industry Specialist

B. Survey of DOST and DTI Information Activities

STII of DOST is the primary agency involved with technology information in the Philippines. Its activities include:

1. Research and development to strengthen the national information system for science and technology.

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[3]Mr. Masahud replaced Ms. Elena Roaring, as DTI Coordinator so that representation of the two agencies implementing the project would be on equal capacity.

2. Science and technology services, including data bank development, design of management information systems, and establishing computer-based systems and networks.

3. Education and training through formulation of training program modules in library and information services operations.

4. Information dissemination and library services, including literature search and inquiry services, referral services, and popular science journalism.

STII has 10 regular publications, including databases of union catalogs of member libraries, a union-list of serials, patents of Philippine inventions and others. The organizational structure of STII and a list of its publications is given in Annex B.

The Bureau of Small and Medium Business Development of DTI is the major government agency involved with trade and industry promotion activities. The agency information services include several activities including disseminating trade and industry information through a program of publications and databases. The organizational structure of the agency and a list of its publications is given in Annex C.

C. Visits of Two Regional Centers

The project is envisioned to develop Technical Information Services (TIS) at four regional offices of DOST and DTI. The location of these centers are:

1. Region I: San Fernando City

2. Region VII: Cebu City

3. Region X: Cagayan de Oro City

4. Region XI: Davao City

The TIS centers at Regions I and XI have been designated to be primarily managed by DTI. The TIS centers at Regions VII and X will be managed by DTI regional offices. The profiles of the four regions are given in Annex D.

In view of time limitation, only two of the above four regional offices were visited by the training expert. These were Cebu (Region VII) and Davao (Region XI). Mr. Mikael Winther, the UNIDO Officer in Manila, participated in the visits to the two regions. Meetings were held with the directors and staff of the regional offices of both DTI and DOST in the two regions, and presentations were made about their activities.

The Information Service scenario at the regional offices was given as follows:

1. Concept: establish one step industry and business/trade information service.

2. Scope: includes technical information, market information, development of institutional networks between government and private sector such as chambers and sectoral associations.

3. Delivery mechanism: library services, data banking, regular publications, broadcast media, training seminars, and technology forums.

Close cooperation among the regional offices of both DTI and DOST at each region has been emphasized for the effective implementation of these activities. The databanks required for this program include investment data, market information data, and import-export data. This depends heavily on exchanging data with the headquarter offices in Manila. It was stressed that there is a need for up-to-date data on standards, specifications, trade requirements, and outside barriers to trade and information about the international market. In general, a need for international technological and business information is an important aspect of the program.

It was also stressed that the staff at the regional offices need exposure to what DOST and DTI at the headquarter offices in Manila can offer as information sources and services. At present, there is little awareness of the activities done at the main offices and the information sources available there. These and other findings are discussed in more details in Chapter II. Annex E includes description of some activities of the information services in the two regions.

D. Visits to Other Agencies

The project document envisioned linking this project to other major global technology information networks, such as TIPS, TIES and INTIB which are supported by UNDP and UNIDO. On the other hand, other units of DTI, such as the Bureau of Export Trade Promotion (BETP) and the Bureau of Patents are involved in technology dissemination services. The training expert visited both the TIPS office in Manila and the BETP office of DTI to identify the related activities to this project. It was found that BETP is conducting a pilot project on Computerized Trade Information System (called EXPONET CTIS),[4] which is funded by UNDP. The project aims to provide trade information from international online databases and provide a link to some overseas trade offices/foreign trade service offices abroad. Under this project DTI Regional Offices in Cebu, Davao and San Fernando will also be connected. This project is also providing online access to DIALOG databases and Datastar. The TIS should take advantage of these activities, and the training component should provide the necessary skills to allow the project staff to participate in these activities.

E. Participation in the National Workshop

The training expert participated in the "National Workshop on Information Needs for Technology Developed" which was held in Manila 1-3 August. He made a presentation on "Current Trends in Information Technology and its Challenges to

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[4]See: a) EXPONET CTIS: Global Trade Information Network of the Bureau of Export Trade Promotion.
        b) Report on the Telecommunication System Network for PRODEX II (PHI/87/005), Feb' 90.
        c) The DTI Communication Plan.

Information Managers in Developing Countries." During the workshop, a meeting was arranged between the participants from the regions involved in the project and the training expert. The workshop program is attached as Annex F.

II. FINDINGS AND CONCLUSIONS

1. Present information activities at DOST and DTI have concentrated on the collection, organization and systematization of information and data generated in the Philippines and/or pertaining to the Philippines. The agencies have concentrated on husbanding domestic information resources. Lack of resources and finances have led to less than satisfactory situation to access to foreign databases. A World Bank study reported that the small- and medium-size firms which comprise 80 percent of the Philippine's production system suffer from lack of adequate technological input to produce the much-needed value-added to their products to compete in the export market.[5] To improve the rural-based industries to compete in the export market, adequate technological input from the international information resources is a must. The global number of public machine-readable databases exceeds two thousand, and their growth since the 1970's continue to be quite remarkable. This project cannot ignore accessing foreign source databases, including bibliographic databases in applied science and technology and directory and numeric databases in business, specifications, trade, market, etc.

    This conclusion has considerable implications, particularly on the staffing and personnel training.

2. There is a lack of awareness among regional staff of the range of information resources and services available to them at the headquarter offices. This suggests the need for conducting an orientation workshop for the regional staff involved in the project on the activities, resources, and information available at the headquarter offices at DOST and DTI.

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[5]A paper presented by Benjamin Milano, Philippine, Director of UNDP-TIPS, at the National Workshop, August 1-3, Manila.

3. There is a lack of knowledge among the staff at the regional offices on the various types of information sources, including secondary and tertiary sources, such as Agricola, Compendex, standard directories, etc. This suggests the necessity of conducting some training on basic information sources and services and its uses.

4. While the cooperation among the staff of DOST and DTI at the regional offices is remarkable, there is a need to promote maximum communication and interaction among the project team members at the headquarters of DOST and DTI, and among the headquarter and the regional offices.

5. There is a need to strengthen the staff training in modern information technology. This is a major factor that has the most profound impact on the problem solving sector and the dissemination of technological information. Modern information management cannot be cost-effective without the use of information technology. Recent advances in this technology and development in hardware/software and their combined efforts renders the technology usable and attainable economically in developing countries. The dramatic advances in the ease of application of information technology should be exploited by the TIS project.

6. As present, there are several information projects being conducted by DOST and DTI agencies, such as EXPONET and PRODEX II at the Bureau of Export Trade Promotion, which is providing online access to foreign databases (DIALOG and DataStar) and other trade information. DTI is also implementing an integrated data communication network to link regional and national offices. In addition, access to Agris and Medline is available in Manila at no cost from regional input centers to these databases. Most of these projects are sponsored by UN agencies, and the TIS project should be linked to these projects and benefit from these resources.

III. SELECTION OF PROSPECTIVE TRAINEES

The project document stipulated that the project core staff involved in the training will consists of:

2 personnel at DOST headquarters
2 personnel at DTI headquarters
2 personnel at DOST Regional Office VII
2 personnel at DOST Regional Office X
2 personnel at DTI Regional Office I
* 2 personnel at DTI Regional Office XI

That is a total of 12 personnel. This is based on the premises that only the personnel from the Regional Offices managing the project (either DOST or DTI) are involved in the project and the training activities. Analysis of the activities of the two regional offices visited by the training expert indicate that close cooperation and involvement of the staff of both DOST and DTI offices at each region is essential for providing effective information service. Accordingly, it is recommended that the core staff selected for the basic training would consist at least of four personnel from each region (2 from DOST and 2 from DTI), with a total of 20 personnel instead of 12. However, it should be mentioned that the actual number of the project personnel will be determined by the master plan developed by the Industrial Information Adviser based on the planned activities of the project.

The selection of the personnel designated for the project and the training was completed by most of the regional offices. The CV's of the designated staff were collected by the training expert. Analysis of the background and experience of the nominated staff indicate a wide disparity among them in their preparation in information services and technology, especially at the regional offices. A list of the nominated trainees is given in Annex G.

IV. ESTABLISHING TRAINING CENTER/UNIT

Continuing education and training is a learning process which builds on and updates previously acquired knowledge and skill. While the TIS project has a major training component, it is essential to continue the training efforts after completing the training activities sponsored by UNIDO. This is important for the objective of maintaining the trainee's motivation, refreshing their basic knowledge of new concepts in a constantly changing environment, and keeping up with new knowledge and skills required to perform specific new activities in the future.

At present it seems that the training activities at DOST and DTI are being conducted on ad hoc basis. A more formal, planning-based approach to inhouse and external training is much desirable. The most effective approach is to establish a training center, with permanent staff, which would perform needs assessment for training, determine types of training programs and activities and develop and maintain the required training packages for the different units of the STI program. However, the feasibility of establishing such unit at present is not possible with the present budget and resources of the project. It is rather recommended that:

1. A training coordinator would be assigned at present, preferably on a part time bases, to handle the administrative aspects and the organization of the project training.

2. The training program of the project would include one component to train the training coordinator in modern training techniques and technology.

3. With the experience of the STII of DOST in developing several training programs, including seminars, workshops and courses for information specialists, the training coordinator would be attached to STII and work closely with its staff. The STII is probably the most appropriate agent and its delegation of this function is logical in the absence of enough resources to develop a separate center.

4. The activities of the training coordinator would include the collection and organization of the training material and training packages developed for the project and would be responsible for its maintenance.

5. Future plans should be developed to establish a training center at STII to meet the future training needs of the STI activities.

V. PROPOSED TRAINING PROGRAM

One approach for developing training programs is the system approach model which has been the outgrowth of many years of research into the learning process.[6] It is based on the premises that training is a highly complex system, composed of several interactive components, which needs planning and control so that training goals are achieved efficiently and effectively. The present proposed system is guided by this approach.

A. Elements and Strategies of Training

There are several factors which were taken into consideration in designing the STI training program:

1. Most of the trainees had no previous formal education in information science. They were drawn from other disciplines and lack the core knowledge and techniques of information services.

2. The trainees lack experience with modern information methods and practices, including operational skills in modern information technology, online technology, telecommunications, and techniques of sourcing and packaging information.

3. The varied background of the individual trainees, some of whom are science-oriented (DOST) and the others are business-oriented (DTI).

4. The scope and elements of training is mainly controlled by training objectives, trainee's qualifications and backgrounds, the number of trainees, available resources and facilities, time and costs.

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[6]El-Hadidy, Bahaa "Training of Egyptian Information Specialists: A Multifaceted System Approach. Final Report to the National Science Foundation, Washington, DC, 1982. 222p.

Taking these factors into consideration, it is proposed that the training program consists of several elements, utilizing several learning strategies. These elements are:

1. An orientation workshop to introduce all the trainees to the program and acquaint them with the basic resources and services available at the headquarter offices of DOST and DTI. This workshop would also include an introduction to basic information sources and services, including primary, secondary and tertiar, sources and computer-based services available from commerical online and CD-ROM vendors.

2. Fellowships of two month each to the senior staff of the project for training abroad. The number of the participants in these fellowships should be as follows:

    1   from DOST headquarter
    1   from DTI headquarter
    8   two from each of the four regional offices (one from DOST and one from DTI)
    _1_ Training Coordinator
    11 Total

    The objective of the fellowship training is to provide the trainees with specialized knowledge and skills in information needs assessment, including tools and techniques for determining individual and organizational information needs; information organization, processing and packaging; and electronic information delivery systems. Details of these programs will be developed after completing the design study. The scope of the training fellowship is discussed under section B.

3. Short courses, workshops and seminars in specialized topics to provide the trainees with the basic knowledge and technical skills required for satisfactory initial performance on the job. The scope of the courses is given in section B. These would be organized by international experts and given locally.

4. Field visits (study tours) overseas to provide first hand observation of several operations, processes and situations related to their work. This should be arranged after the basic courses so that the trainees would have . the conceptual understanding of the field operations and get the maximum benefit from their visits.

5. In service training to provide the trainees with the practical experience necessary to increase their professional skills to the point where proficiency in performance is attained.

B. Scope of Training

The following summarizes the proposed areas of the short courses, workshops and seminars, of varying duration, as well as the fellowships.

1. Information Sources and Services. To acquaint the trainees with the range of data/information sources, including those in science and technology, trade and business, and include commercially available online and CD-ROM databases from the information industry.

2. Technology information support for project management. To impart an appreciation and understanding of the value and utility of data/information in project management, and an overview of micro-computer information systems and services for managing and using data/information.

3. Information needs assessment. To provide understanding of the nature of information, factors that influence human need for information, and tools for determining individual and organizational information needs.

4. Computer-based online and CD-ROM database searching. To introduce the trainees to all facets of online and CD-ROM searching, including determining user information needs, mechanics of searching databases, and the range of online services and CD-ROM systems.

5. Data base management. To gain competencies in modern techniques of designing and implementing cost-effective database systems, including

organization, creation, and maintenance, evaluation criteria, standardization and packaged data management systems.

6. . Information service marketing. To gain competencies in identifying target markets and different needs assessment, planning and development products and services that meet the needs of target market, techniques of promoting information products and services.

7. Microcomputer systems and applications. To understand the basic capabilities of microcomputer based work stations and its applications in word processing, spread sheets, electronic mail and database management.

8. Telecommunication/Network overview. To understand application issues in telecommunication systems, voice, video and data transmission, packet switching systems and networks.

9. Desk top publishing. To develop skills and understanding of the technology of contemporary publishing.

10. Training services design. To gain competencies in identifying training needs, curriculum planning, design and development, workshop and seminar planning and organization, and instructional media design and development.

C. Implementation and Schedule of Training

In order to effectively and efficiently implement the training program discussed above, attention should be given to:

1. Completion of the design study by the Industrial Information Adviser, including project organization and management, and indicating the project team structure and the role each will play in the conduct of the project.

2. A meeting should be planned between the Industrial Information Adviser and the Training Expert to:

a) Discuss and review the proposed training program in the light of the design plan.

. b) Coordinate the implementation and scheduling of the different elements of the training program with the different phases of the organization and operation of the project.

3. For the purpose of continuing the momemtum of the project, it is recommended that the orientation workshop discussed under "Elements and Strategies of Training" would be organized at the earliest possible time.

wpc/UNIDO:A/October 31, 1990

UNIDO

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

Project in the Republic of the Philippines

JOB DESCRIPTION
DP/PHI/86/016/11-02/J12101

Post title	Technology Information Training Expert
Duration	Four months in two split missions (1.0 and 3.0 months respectively)
Date required	As soon as possible
Duty station	Manila with travel within the country
Purpose of project	Linking existing technology data banks at the Department of Science and Technology (DOST) and the Department of Trade and Industry (DTI) and establishing of Technological Information Service Centres at four regional offices of DOST and DTI to facilitate effective sourcing and usage of scientific and technological information for technology innovation, upgrading and venture syndication in the rural areas.
Duties	

Duties   The expert will be attached to the DOST and the DTI and will work under the general guidance of the National Co-ordinators and the Industrial Information Adviser assigned to the project. The expert will specifically be expected to:

1. Study the need for and the feasibility of establishing a Training Centre/Unit within DOST or DTI. The Centre/Unit would be responsible for training on design and implementation of data bases, particularly computerized ones.

2. Prepare plans and assist in taking organizational measures for the establishment and operation of the regular activities of the Training Centre Unit.

3. Assist the Project Management in identifying training requirements of staff at DOST, DTI and 4 regional TIS Centres; and in the establishment and development of training programmes with emphasis on extension services.

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4. Assist in organizing and conducting of one or more training courses and prepare teaching packages consisting of subject-oriented modules to be used for conducting regular training courses.

5. Conduct training of TIS staff, in co-operation with the International Information Adviser, on design, development and use of computerized data bases local and international.

6. Advise on place and duration of individual fellowships and assist in selecting fellows as well as identifying appropriate training programmes.

The expert will also be expected to prepare technical reports upon completion of each mission, setting out the findings and recommendations to the Government on further action which might be taken.

ifications   University degree or equivalent in engineering and/or information science with extensive experience in planning, organizing training activities in the field of industrial information. Experience in developing countries, preferably Asia/Pacific region, would be an asset.

uage   English

ground
rmation

    This project is primarily envisioned as a follow-up to the completed UNDP-assisted project PHI/79/018 Strengthening the National Scientific Information System which had laid the groundwork for the establishment of a national information system for science and technology (NISST). Among the achievements of this project are:

a.   The establishment of the NISST with 116 member-participating institutions linked to the main base, i.e., Scientific Clearinghouse and Documentation Services Division of the National Science and Technology Authority (NSTA) now the Department of Science and Technology (DOST);

b. Mission-oriented specialized networks have been established such as HERDIN for health, based at PCHRD; PASFIS for aquatic science and fisheries based at UPV; agriculture at PCARRD; industry and energy information network based at PCIERD; EINET based at National Engineering Center; NUTRINET based at FNRI; rootcrop information network at VISCA;

c. The capacity of the Clearinghouse has been strengthened to play a central and effective role in the NISST and to respond to the variety of information needs of the different categories of personnel in the system;

d. Substantial development of the components of the information infrastructure; and

e. Substantial development in science information services and products namely: on-going research information; current awareness and SDI; data bases of documents; information clearing and referral services document delivery services tailored to user needs; S & T experts profiles; and S & T institutions profiles.

While the activities of the completed project were faithfully complied with, it was found that an effective science and technology information system has remained incomplete, since the outputs have not reached the desired target groups. A second phase was deemed necessary not only because of the importance of a strong infrastructure for technology information utilization, but also in view of the importance of technology information in the light of the Philippine's needs to recover economically in the coming

years. Thus, this new project will follow a different approach as it will link DOST with DTI and will aim to develop and strengthen the science and technology information infrastructure in the countryside, combining the demand and supply sides of the

S & T information system through innovative ways of sourcing, processing, packaging, disseminating and servicing of information. It shall identify outputs which would find immediate application in trade and industry, and it shall be demand-oriented. The focus shall be on commercial technologies, with a view to developing local capability for adaptation and use.

The project is also envisioned to be linked to the major technology information network globally, including the Technology Information Pilot System (TIPS) of United Nations Fund for Science and Technology for Development; the UNISISTS and ASTINFO of UNESCO; the Technology Information Exchange System (TIES) and Industrial Technological and Information Bank (INTIB) of UNIDO and others.

SCIENCE & TECHNOLOGY INFORMATION INSTITUTE
Organizational Chart

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                    ┌─────────────────────────────────┐
                    │  OFFICE OF THE DEPUTY DIRECTOR  │
                    │      Dr. Irene D. Amores         │
                    └─────────────────────────────────┘
                                                        ┌──────────────────┐
                                                        │  Planning Staff  │
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Finance & Administrative Division (FAD) Rosa Ma. R. Tamayo Chief	Abstracting & Indexing Division (A&ID) Felipe M. Cababa OIC, Chief	Library & Technical Services Division (LTSD) Manuel P. Garcia Jr. Chief	Electronic Data Processing Division (EDPD) Enrico F. Florencio OIC, Chief
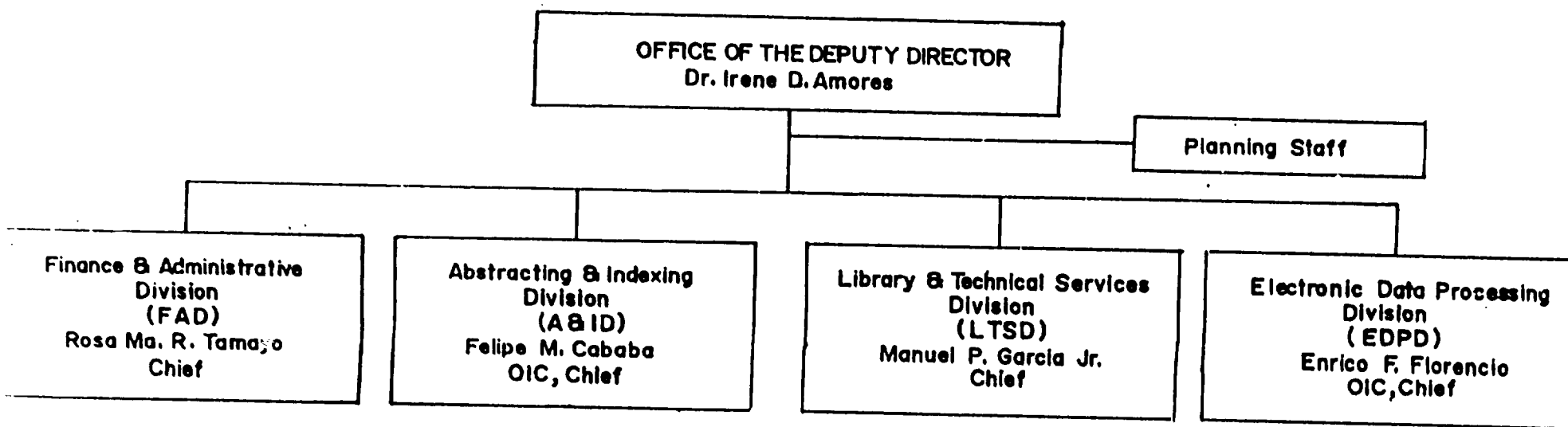
Regular publications.

STII has 10 regular publications produced in different frequencies and for different target readers. These publications are:

1. PHILIPPINE JOURNAL OF SCIENCE

   (quarterly publication on basic sciences designed for technical audience, with international circulation)

2. PHILIPPINE TECHNOLOGY JOURNAL

   (quarterly organ on applied research, with international circulation)

3. PHILIPPINE SCIENCE AND TECHNOLOGY ABSTRACTS

   (bimonthly publication of most recent scientific and technological studies in the country)

4. R & D PHILIPPINES

   (annual cumulation of completed, ongoing and pipeline R & D's with complete bibliographical information)

5. BULLETIN OF RESEARCHES

   (quarterly classified list of research titles entered in the R&D databases)

6. PHILIPPINE MEN OF SCIENCE

   (annual compilation of bio-bibliographic information of local experts in different disciplines of science and technology)

7. SOUTHEAST ASIA ABSTRACTS

   (bimonthly compilation of abstracts/ summaries of the latest scientific and technical studies in Southeast Asia, excluding the Philippines)

8. TECH TIPS

   (monthly profile of current technological breakthroughs)

9. S&T POST

   (monthly tabloid newspaper reporting events, activities, issues, policies, personalities within the science community)

10. INFOSCIENCE

   (journal on S&T information, development, management, and policy)

BUREAU OF SMALL AND MEDIUM BUSINESS DEVELOPMENT
ORGANIZATIONAL CHART

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                    │  OFFICE OF THE│
                    │   DIRECTOR   │
                    └──────┬───────┘
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                           │          ┌──────────────┐    o SELF-EMPLOYMENT LOAN ASSISTANCE
                           │          │  TULONG SA   │    o SUBCONTRACTING FINANCING PROGRAM
                           ├──────────│ TAO PROJECT  │    o NGO-MICRO CREDIT PROGRAM
                           │          │   OFFICE     │
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| POLICY, PLANNING AND RESEARCH DIVISION | PROGRAM DEVELOPMENT & COORDINATION DIVISION | MANAGEMENT SERVICES DIVISION | RESOURCE GENERATION DIVISION |

o SME DEVELOPMENT STRATEGY
o POLICY REVIEW AND FORMULATION
o RESEARCH
o INFORMATION DISSEMINATION
o INTER-AGENCY COORDINATION

o PROGRAM DEVELOPMENT
o PROGRAM COORDINATION
o PROGRAM MONITORING

o CLIENTS TRAINING
o STAFF TRAINING
o LIVELIHOOD/INVEST-MENT OPPORTUNITIES SEMINAR
o TRAINING SYLLABUS

o FUND SOURCING
o PROJECT AND FUND SOURCING MATCHING
o FUND MANAGEMENT
o COTTAGE ENTERPRISE FINANCE PROGRAM

INVENTORY OF DTI PUBLICATIONS
AS OF MAY 1990

Bureau / Agency   : BUREAU OF SMALL AND MEDIUM BUSINESS DEVELOPMENT

Region / Province   :

Name of Publication / Frequency	Objectives	Distribution (By Reader Category)	No. of Copies	No. of Pages	Cost / Copy	Remarks
Ang Masikap	To inform CSMEs on current news events relating to SME sector.	DTI Community CSMEs	6,000		P 1.30	
Directory of Non-Government Organization	Directory guide for government and private service organizations to possible conduits for delivery of certain services such as credit skills, technical and organizational assistance to low income manufacturing & service groups.	DTI Reg'l. Offices NICSMED Council Members TIIC	14 15 1	321 pp.	P 190.00	
Bibliography of Publications, Materials and Videos of NICSMED Agencies	To develop an information exchange project for the different private and government entities involved in the development of the NICSME sector.	DTI Reg'l. Offices NICSMED Council Members TIIC	14 15 1	449 pp.	P 202.00	
Directory of Major Industry Associations	To provide agencies involved in institutional development the profiles of national/ regional/provincial - based associations.	DTI Regional and Provincial Offices TIIC	89 1		P 20.20	
Compilation of Export Packaging Notes	To provide existing and potential exporters information on packaging	DTI Reg'l. Offices TIIC BETP	14 1 1	Vol.1-126 Vol.2-148 Vol.3-150	P 192.90 (for 3 volumes)	

INVENTORY OF DTI PUBLICATIONS
OF MAY 1990

: Bureau / Agency   : BUREAU OF SMALL AND MEDIUM BUSINESS DEVELOPMENT

Region / Province   :

Name of Publication / Frequency	:	Objectives	:	Distribution (By Reader Category)	: No. of : Copies	: No. of : Pages	: Cost / : Copy	:	Remarks
Directory of Trainors / Resource Speakers of MICSMED Agencies	:	To provide CSME and other institutions a list of resource speakers of MICSMED Agencies.	:	MICSMED Agencies DTi Reg'l. Offices	: 1	: 73 pp.	:P 43.07	:	The directory was dissiemated to MICSMED agencies in diskette form. For DTI Reg'l. offices, we intend to disseminate the said information in diskette form. (DTI Reg'l. office will provide their own diskettes.)
Production / Industrial Utilities	:	To provide CSMES and would-be investors a ready index of the various production / industrial utility rates available in the region.	:	DTI Regional and Provincial Offices Contributors to the manual CSME clients	: 180 20 800	: 73 pp.	:P 56.20	:	

Profiles of Selected Regions

*Region I. Maximum use of the region's resources to attain sustained social, economic and physical well-being for its people:

Problems of the region are identified as:
- (1) unequal distribution of income;
- (2) scarce employment opportunities;
- (3) low level of social development;
- (4) inadequate infrastructure support;
- (5) substandard environmental conditions;

**Region VII. Limited agricultural resources have led planners to concentrate on rapid industrialization to achieve socio-economic development. The regions' land area is only 5% of the total national area, but its population is about to hit the 4 million mark which would place it at 8% of total production. Density is 60% higher than the national figure. Corrective measures are called for: (1) population management and restoration of ecological balance; (2) expansion and equitable distribution of public services and economic opportunities.

***Region X. or Northern Mindanao is envisioned as the major industrial center of Mindanao. It has relatively cheap electric power and stable peace and order conditions which contribute greatly to achieving the region's development goals. These are:

- (1) a livelihood program based on self-reliance;

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*DTI adopted region for TIS project
**DOST adopted region for TIS project
***DOST adopted region for TIS project

(2)   acceleration of its agri-based industries for raw materials such as the metallic and non-metallic minerals mostly found in Surigao del Norte; the processing of coconut products, grains and tomato in Misamis Oriental, Misamis Occidental, Bukidnon, Agusan del Norte, and Surigao del Norte, and the development of an industrial estate within the 3,000 hectare Phil. Veterans Industrial Development corporation area at Tagaloon, Misamis Oriental;

(3)   The region has to continue expansion and diversification of commerical crops such as coffee and sugar while maintaining production capabilities in corn and root. Crops and encouraging meat source production.

(4)   It is rich in natural resources, fisheries, forests which need to be judicially used, conserved and developed.

****<u>Region XI</u>.   Enjoys a year-round typhoon - free weather suited to the propagation of plantation crops like banana, coconut, pineapple, rice, corn and citrus. A gradual shift to an industrialized economy in the next 25 years is planned. Industrial development will be resource based and oriented to both domestic and foreign markets.

****DTI adopted region for TIS project

INFORMATION   SERVICES   ORGANIZATIONAL   STRUCTURE
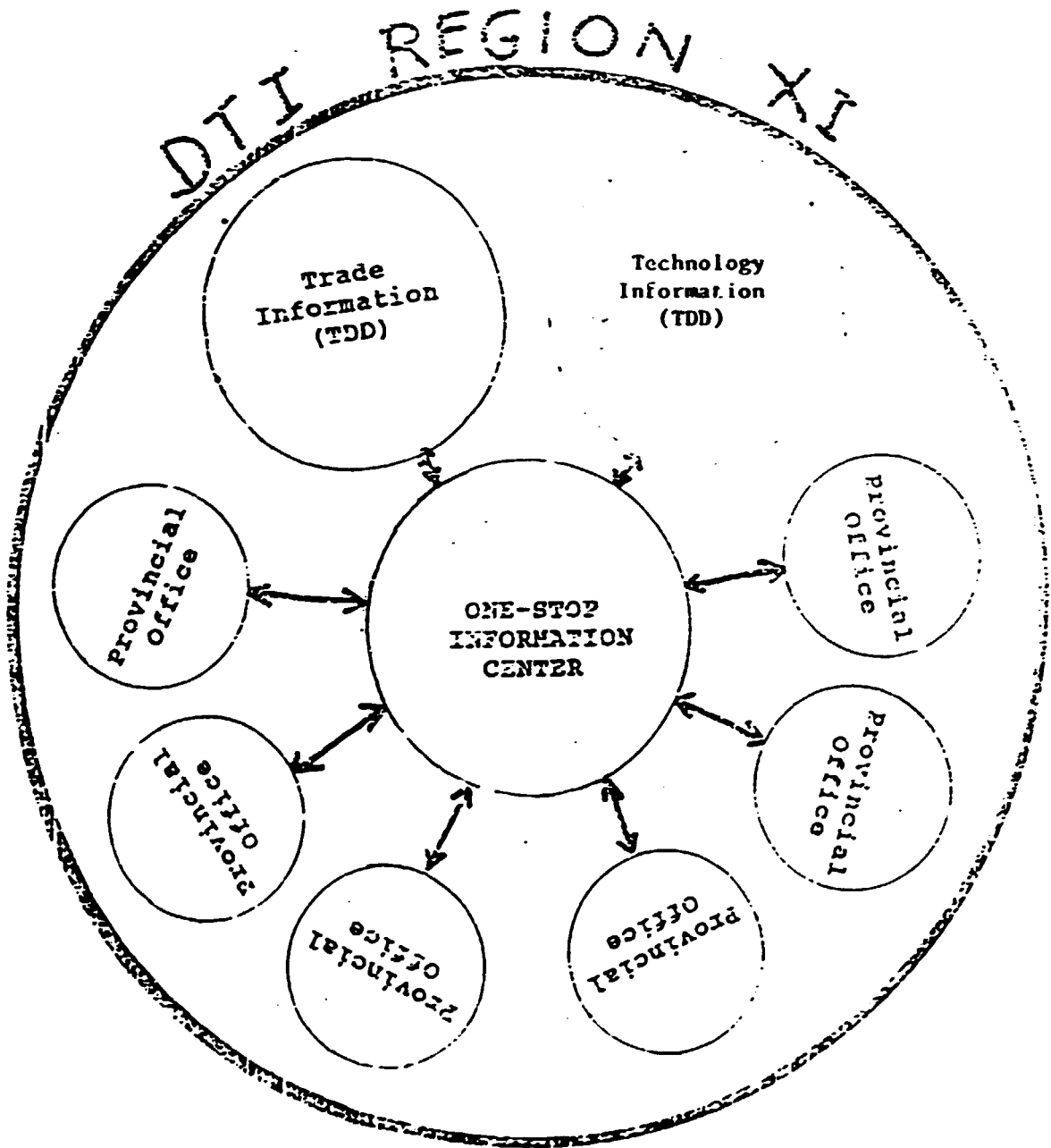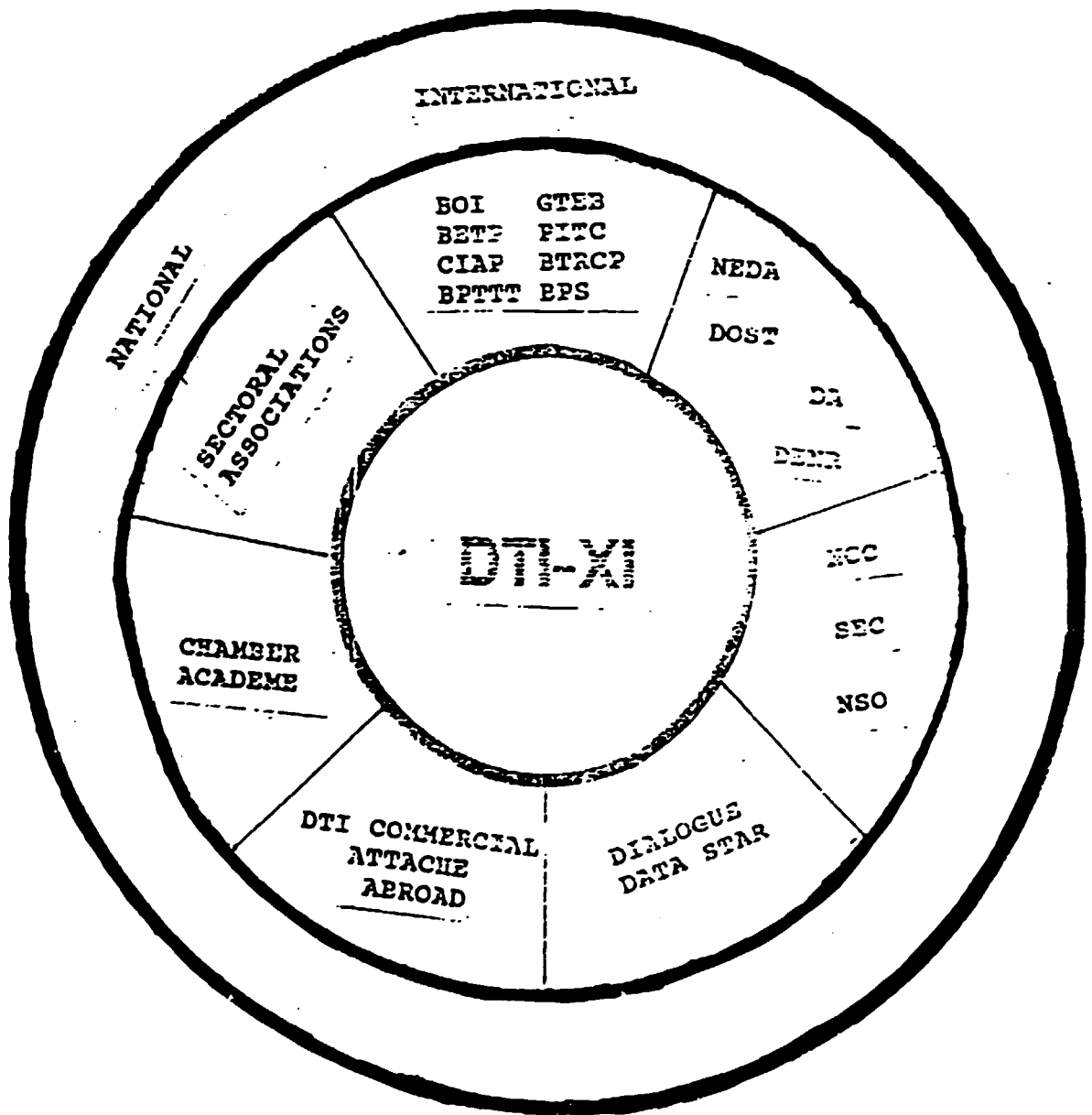
SCOPE OF SERVICES :

1. Technical Information

2. Market Information

3. Development in
   Institutional Networks

6. In coordination with DOST and other technology resource agencies e.g. DENR, DA to conduct technology fora
7. Conduct local study mission
8. Conduct of trade fairs
9. Delivery of product development assistance
10. Craft demonstration
11. Extension of consultancy services

Project No.   : 2-3

Project Title   : Establishment and Operation of the DOST 7
                             Science and Technology Information System

Project Proponent   : DOST 7

Implementing Agency   : DOST 7

Cooperating Agencies: STII, FCHRD, PCARRD, NCC, other DOST
                           Councils/Institutes, Regional Offices of
                           all line agencies

Duration & Status   : 5 years, 5th of 5 years

Target Beneficiaries: Regional/National Planners, researchers,
                           students, entrepreneurs, teachers,
                           professionals

Brief Description   :

The DOST 7 Science and Technology Information Systems (STIS)
is a computer based information processing system which
supports the regional office program planning, monitoring
and evaluation functions and that of other agencies in the
region. It provides a complete record of all DOST 7
activities, inventories and needed regional information on
S&T activities, inventories and needed regional information
on S&T such as R & D projects, S & T manpower technologies
transferred/utilized in the region and S & T infrastructure
for industry, schools and government agencies.

The project includes communication network system that can
access to Central Office, DOST Councils and other DOST
Institutes and Regional Offices. A radio network system will
be established to link the provincial offices with the DOST
7 Regional Office.

The project is envisioned to accomodate all S&T data in both
local and foreign sources that can be easily channeled to
users.

Background/Rationale:

The project started in 1985 with the conventional method of
collation and distribution of necessary information to
users. In this concept, new technologies developed in the
national level or abroad will need more time before it can
be disseminated to the rural community.

In the advancement of electronics and computer technology,
delivery of new technologies to the rural community will be
readily available.

The DOST 7 initially established its primary data such as

Technology and Administrative information system compilation of technologies generated by the DOST system, other local and foreign sources, etc.

There is a plan for expansion of DOST 7 Information System into DOST 7 Integrated System Digital Network to serve all S&T needs in the region. In this set-up sourcing/dissemination of S&t information can easily be channeled.

Justification :

A science technology information is basic to planning and evaluation, decision making at the regional level and to the coordination of all S&T activities in the region and elsewhere.

Objectives :

1. Establishment of improved information sytem.
2. Establishment of linkages of foreign S&T data bank
3. Establishment of linkages of local S&T data banks, and DOST system data banks
4. Establishment/maintenance of DOST 7 database management

Target Output :

1. Improvement of storage media and other capabilities of 2 existing PCXt computers
2. 3 provincial Centers provided with communication devices
3. 1 unit of telephone system (direct dialling)
4. 1 or 2 foreign S&T data banks linkage are approved/ materialized
5. 3 or 4 local S&T data banks linkage are approved/ materialized
6. 8 existing database maintained
7. 3 or 4 S&T database established

Expected Impact :

1. Timely distribution/access of new S&T developments
2. Faster & more efficient technology transfers and delivery of S&T services resulting in increased productivity

Project Sites: Cebu City
Dumaguete City
Tagbilaran City and Cortes, Bohol
Siquijor, Siquijor

SCHEDULE OF ACTIVITIES (1990)

Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Output
1. acq. of additional info./ communication devices				xx	xxxx	xxxx							
2. facilities build-up, upgrading and installation			xx	xxxx									
3. application for member- ship of foreign S&T data bank	xxxx												
4. consultation/meeting of known local S&T data banks for possible link-up		xx	xx	xx	xx								
5. establishment and maintenance of regional access, storage and retrieval system on:													
a) on going & completed S&T researches in the regional including sources of funds, bibliographic data of scientific literature available in the reg'l. office library.	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx												
b) documentation of tech. available in the diff. sectors of the region	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx												
c) compilation of tech. generated by the DOST system & other local & foreign sources to support technology dev. tech. transfer; verification & dissem. activities	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx xxxxxxxxxx												
d) inv.of S&T manpower resources, lab., equipt., facilities & S&T inst. in the region	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx												
e) the DOST 7 adm. & tech. support services information system	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx												
6. dissemination of S&T info to end users			x			x			x			x	project report

Project Personnel   : 1 Project Leader
                           2 Project Members

Project Cost   :

    Capital Outlay:

2 40MB hardisk with controller @ 13000 each	. . . . P26,000
1 color monitor 14"	 11,000
1 modem gadget	 5,000
1 FAX machine	 85,000
Comm. equiptments including antenna	 75,000
	P202,000
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       MOE

1 programmer/system analyst @3,800/mos. for 12 mos.	. . . .P 45,600
1 encoder w/ programming background @2500/mo.	 30,000
supplies	 65,000
freight	 6,000
installation/payment of additional tel. system	 5,750
labor costs for install. of comm. equipt. in the reg'l. office & prov'l. centers	 15,000
labor cost for upgrading of comm. facilities	 8,500
travelling expenses	 6,000
	P181,850
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Project Personnel   :

      E.I. Paradela
      J.R. Llanto
      S.A. Parcon
      C.S. Laborte
      J.A. Rivas
      C. E. Oliveros
      C.M. Cueme
      L.Z. Gabayan

Programme of the National Workshop on
Information Needs for Technology Development

1 - 3 August, 1990

Wednesday, 1 August 1990

8:30 - 9:30	Registration
9:30 - 10:30	Opening Ceremonies
10:30- 11:00	Technology Development and Transfer in the Countryside Mrs. Guillerma Manalac, Regional Director DOST III
11:00 - 11:30	Information Needs of Technology Management Mr. Nilyardi Kahar, Adviser on Technology Management, APCTT
11:30 - 12:30	Open Forum
1:30 - 2:00	Information Required for Technology Capabilities and Needs Assessment - Dr. K. Ramanathan, Associate Prof. AIT Bangkok
2:00 - 2:30	Technology Information: Status and Needs - Mr. Benjamin Milano, Director, TIPS
2:30 - 3:00	Reorientation of Technology Information System Dr. Junaid Zaidi, Advisor on Technology Information, APCCT
3:00 - 4:30	Open Forum

Thursday, 2 August 1990

8:30 - 10:00	Philippine Scenario: Technology Development and Transfer - Prof. Fortunato dela Pena, Director IV, TAPI
10:00 - 10:30	The National Information System for S. and T. - Dr. Irene D. Amores, Director III, STII
10:30 - 11:00	Present Trends in Information Technology and Its Challenges to Information Managers Dr. B. Hadidy, UNDP Consultant

11:00 - 12:30	Open Forum
1:30 - 4:30	Workshop (Discussion)
	<u>Friday, 3 August 1990</u>
8:30 - 10:30	Findings/Recommendations
10:30 - 11:30	Plenary Session
11:30 - 12:30	Closing Ceremonies

List of Nominated Trainees

1. DOST Headquarter Office
   - Virginia P. Dolotina, Science Research Specialist II
   - Remedios S. Lozano, Science Research Specialist
2. DTI Headquarter Office
   - Alicia M. Opena, Division Chief, Policy Planning & Research Division
   - Elvira P. Tan, Sr. Trade & Industry Development Specialist
   - Gladina M. Aquino, Sr. Trade & Industry Development Specialist
3. Region I: DOST
   - No nominations received yet
4. Region I: DTI
   - Mario B. Piedad, Planning Officer
   - Renavo O. Coloma, Sr. Trade and Development Specialists
   - Joseph C. Tayaban, Graduate Student
5. Region VII: DOST
   - Jeffery R. N. Clanto, Computer Programmer
   - Edilberto L. Paradela, Science Research Specialist I
   - Samuel A. Parcon, Science Research Assistant
   - Imelda T. Villaester, DOST Information Officer
6. Regional VII: DTI
   - Brenda A. Orosco, Officer-in-charge
   - Roberto A. Varquez, Division Chief
   - Victoria M. Diaz, Specialist
7. Region X: DOST
   - No nominations received yet
8. Region X: DTI
   - Elizabeth Cabaraban-Tagaylo, Specialist
   - Josephine T. Turrecha, Specialist
9. Region XI: DOST
   - Christina S. deGuzman, Graduate Student
   - Maria R. C. Melliza, Science Research Specialist I
10. Region XI: DTI
    - Evelyn Albano-Perin, Trade-Industry Specialist I
    - Joy C. Rubillar, Municipal Trade & Industry Officer