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DEVELOPMENT OF TECHNOLOGY INFORMATION SERVICES (TIS)

DP/PHI/86/016

PHILIPPINES

Technical report: Further development of TIS - establishment of databases, of the network, and of procedural regulations*

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

Based on the work of Erik I. Vajda
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United Nations Industrial Development Organization
Vienna

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* This document has not been edited.

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TABLE OF CONTENTS

EXPLANATORY NOTES

Currency

According to the actual UN operational rates 1 US$ is equivalent to 26.50 Pesos of the Philippines what means that the Peso has the value of 0.377 US$s.

Acronyms and other short terms used

(Abbreviations marked by asterisk - * - are used in Annex 4. to the report)

AID*	–	Answered Inquiries' Data (subdatabase of the TIS database; hereinafter: TIS subdatabase)
AIT	–	Asian Institute of Technology
APCTT	–	Asian and Pacific Center for Technology Transfer
BSMBD	–	Bureau of Small and Medium Business Development
CD-ROM	–	Compact disc - read only memory; an opto-electronic medium for the storage of large amount of retrievable data on a special diskette
CDS/ISIS	–	short name of a database management software developed by Unesco for the storage and retrieval of textual data on microcomputers
DATANET	–	Short name of the packet switched data telecommunication network of PT&T
DELDI*	–	Data Element Directory (of the TIS database)
DESIRE*	–	Design Information Retrieval (TIS subdatabase)
DOST	–	Department of Science and Technology
DOT*	–	Descriptions and Offers of Technologies (TIS subdatabase)
DTI	–	Department of Trade and Industry
IIA	–	Industrial Information Adviser
INTIB	–	Industrial and Technological Information Bank (of UNIDO

MINISIS	- Short name of a database management software developed by the International Development Research Centre for the storage and retrieval of textual information on mini-computers
NEDA	- National Economic Development Authority
NGO	- non-governmental organization
NTE	- National Training Expert
PIT*	- Patent Information on Technologies (TIS subdatabase)
PT&T	- Philippine Telegraph and Telephone Corporation
RATIO*	- Research and Technology Information Online (TIS subdatabase)
STAR*	- Standard Retrieval System (TIS subdatabase)
STII	- Science and Technology Information Institute
TIS	- Technology Information Services
TOP*	- Technological Training Opportunities (TIS subdatabase)
TUNE	- Technology Users and their Needs (TIS subdatabase)

ABSTRACT

Personal author:	Erik I. Vajda
Corporate author:	UNIDO
Title of project:	Development of Technology Information Services (TIS)
Number of project:	DP/PHI/86/016
Title of report:	Technical report: Further development of TIS - establishment of databases, of the network and of procedural regulations

   The aim of the third mission of the industrial information adviser was the immediate preparation of regular technology information services. A Planning Workshop was organized and various procedural regulations, plans and reports were prepared and discussed to strengthen the management and planning structure of the system. Local training of TIS staff was continued and training abroad was planned and started. The survey of information needs and the selection of priority areas was continued. The installation of computer hardware and software has been finalized. Experiments were made and the appropriate carrier was selected for the TIS telecommunication network. Further information sources were acquired as a result of the continuous surveying of existing sources. The detailed specification of the TIS database and subdatabases has been prepared, including guidelines for setting up and continuous development of the database. The installation of the database was started. The planning of the content and of the methods of preparation of regular information services was continued by the compilation of detailed guidelines.

INTRODUCTION

This report is based on the activities accomplished during the third mission of the Industrial Information Adviser (hereinafter: IIA; for job description see Annex 1.) from 4 November 1991 to 24 March 1992, including travel and work in the field from 6 November 1991 to 23 March 1992 but excluding briefing and debriefing in Vienna at 31 October 1991 and 26/27 March 1992 respectively.

The **original objectives** of this phase (revision of the work plan, detailed design of the management, planning, coordinating, monitoring, reporting and financing structure of TIS, preparation of organizational and operational guidelines for TIS, provision of local training and organization of training abroad of TIS staff, evaluation of the survey of users' information needs, further development of computer and telecommunication software and hardware, extension of information sources, specification of databases and data conversion, specification of TIS services) **were not modified and were attained** as described in Chapter I. Recommendations were made in the field and are also given in the report.

I. ACTIVITIES

As in the former technical reports on the project, this chapter is organised by activities as planned in the revised and amended work plan, i.e. deviating from the listing of activities in the project document. For the reasons of this approach and for the correspondence of activities listed in the work plan and in the project document see the first technical report of the IIA referred to in Annex 7. For the amended work plan see Annex 6.

A. Organizational, coordinating and planning activities

A TIS **Planning Workshop** was organized in Cebu City from 2 to 4 December 1991 for training purposes and to discuss the organizational, administrative and operational structure of TIS. The participants were project managers and TIS staff members of the central agencies (Department of Science and Technology - Science and Technology Information Institute; DOST - STII and Department of Trade and Industry - Bureau of Small and Medium Business Development; DTI - BSMBD), directors, project leaders and representatives of TIS staff members of regional TIS centres' host and supporting agencies (regional DOST and DTI offices). The **management structure, the roles, cooperation and coordination of TIS agencies, the planning, monitoring, reporting procedures and the principles of financing** were discussed on the basis of the draft Chapter 1. of the **Organizational and Operational Guidelines for TIS** (the title of the first draft was Operational and Administrative Guidelines), prepared by the IIA, based on discussions with and on ideas of the National Project Management and TIS staff. On the basis of the discussions at the Planning Workshop a new version was prepared and circulated for comments and/or approval of the directors of regional centres' host and supporting agencies. The approval of these Guidelines by the Steering Committee of TIS has been recommended.

An **amended version of the work plan** was prepared taking into account the changes in the international project staff i.e.

the involvement of a National Training Expert (NTE) instead of the International Technology Information Training Expert and some other changes caused by various factors. The amended work plan was discussed at the Planning Workshop mentioned above and has been slightly modified on the basis of these discussions. The amended work plan was presented at and approved by the Tripartite Review Meeting. However, **further changes** were recommended because of the extension of the duration of project activities until May 1993, also approved by the Tripartite Review Meeting. This extension became necessary because of the limited availability of the NTE and because of some delays in the establishment of the TIS telecommunication network.

A **Project Performance Evaluation Report** was prepared in December 1991/January 1992. On the basis of this report some **changes were proposed in the project document concerning immediate objectives an outputs.** The proposed changes were discussed at the Tripartite Review Meeting, but the decision was postponed.At the time of the preparation of this report the IIA is not informed about the final decisions concerning these changes.

The **Tripartite Review Meeting** took place at the National Economic Development Authority (NEDA) 20 March 1991. In addition to the input documents mentioned above, further documents (proposal for budget revision, proposal on the extension of the duration of project activities, summary of outputs) were prepared for this meeting.

The IIA was involved in various **talks on cooperation issues** concerning the harmonization of TIS and the DOST-wide Management Information System, the services and activities of the Asian and Pacific Center for Technology Transfer (APCTT) etc.

B. Training of TIS staff

The plans for the fellowship training of TIS staff were finalized. The first group of trainees (one TIS staff member from each regional host and supporting office) attended successfully the **short course of the Asian Institute of Technology (AIT, Bangkok, Thailand) on information repackaging and consolidation.** There were some delays and problems concerning the preparations of this fellowship training but by joint efforts of the project management, the office of the UNDP Resident Representative in the Philippines and UNIDO headquarters we succeeded in resolving these problems.

Further individual fellowship training is planned and has been prepared for the TIS staff members at the central agencies (DOST/STII and DTI/BSMBD) at AIT on **information packaging and desk top publishing,** at UNIDO (Vienna), on **INTIB and related facilities** and at the National Technical Information Centre (Budapest, Hungary) **on online and CD-ROM information retrieval.** This training is scheduled for June/July 1992.

Study tours of the TIS Project Managers of the central agencies on the **management of technology information services** were planned and prepared. In spite of some problems of financing these study tours can hopefully be realized by some savings and realignments of planned expenditures in the budget.

Further proposals were made for the training of TIS staff members on personal computer troubleshooting and maintenance and on PASCAL programming, as well as for a study tour of directors of the host agencies of TIS regional centres. The re-examination of these proposals is recommended after the accomplishment of fellowship training and study tours mentioned above, taking into account the factual expenditures.

For **local training** the Planning Workshop described in Section A. is referred to. In addition **on-the-job training** was

given to the TIS staff by the IIA and by the NTE. Further plans were prepared for the regular training of TIS staff members by the NTE, the IIA and the TIS staff at the central agencies, based on teaching packages and various guidelines for TIS, the preparation of which is in progress. A workshop for TIS users is planned at project end.

C.   Assessment of technology information needs

The **first phase of the continuous survey of the needs of technology information users** was conducted in September/November 1991 by the regional TIS centres, based on the questionnaires and guidelines prepared by the TIS staff at the central agencies and the IIA. In some regional centres the **TUNE (Technology Users' Needs) database** was set up, following its specification prepared in August 1991.

Statistical results were compiled, and **conclusions concerning the priority areas of technology information needs** were drawn on the basis of data supplied by the users. The collected data were also used for the planning and marketing of information services. The regional centres involved reported on the first results of the survey and discussed the methodological aspects of its continuation at the Planning Workshop (see Section A.).

Some extensions and corrections to the **specification of the TUNE database** and guidelines on the use of this CDS/ISIS based database for **statistical analysis** were prepared by the IIA.

D. Acquisition and installation of computer and telecommunication hardware and software

As far as **computer hardware and software** are concerned, **acquisition and installation has been almost finalized**. Additional software (Paradox, Quattro Pro) was delivered and installed at the central agencies and regional centres; some defective parts of computers were repaired. The central HP 3000

computer at DOST/STII was upgraded for networking purposes because this computer will serve as the host of the TIS network and as the main store of the TIS database. The acquisition of a single additional part to the upgraded computer is in progress.

The situation of the acquisition and installation of **telecommunication hardware and software** is by no means as satisfactory as that of the computer hardware and software. The new version of the **electronic mail** software was provided by UNIDO. However, until now the experiments on the use of this software without connection to a packet switched network failed.

On the other hand the selection of the appropriate carrier for the **packet switched network** required a long time because there were some doubts concerning the reliability of the appropriate networks. At the very end a successful experimental file transfer between Davao and Manila, using the channels of DATANET, the packet switched network of the Philippine Telegraph and Telephone Corporation (PT&T) proved the reliability of the connection but the available funds were not sufficient to join this network. The appropriate budget revision was proposed to the Tripartite Review Meeting and hopefully the physical network **can be installed in the third quarter of 1992**. The establishment of the network and the use of electronic mail and file transfer is essential from the point of view of TIS services.

E. Surveying, designing an establishment of information sources, databases

The **survey** of existing information sources and databases which seem appropriate as information sources for TIS was almost finalized during previous phases of project activities. The framework of the use of available sources was outlined, additional information sources were acquired, the use and transformation of present databases and the structure and content of the TIS database has been designed.

The surveying of information sources is a continuous task. On the basis of this survey the **acquisition of some additional information sources** (databases on CD-ROM and diskettes, preliminary project proposals) was requested and the possible **cooperation** with international information sources (UNIDO/INTIB), regional information sources (APCTT) and local sources (Technology Application Promotion Centre - TAPI, other DOST and also DTI institutions) was discussed. The **collection of further data** on available sources was initiated by letters to technology development centres (appropriate technology centres) and international online database distributors (hosts).

The detailed specification for the integrated TIS database, its structural parts and sources, as well as, for its use was prepared in the form of the **TIS Data Element Directory : a complete guide to the establishment and use of the TIS database.** It consists of an Introduction, of the Description of the TIS database (see Annex 4.), of lists (matrices) of data elements (fields and subfields) in the integrated database and in the individual subdatabases, as well as, of data element specification sheets for every field and subfield (samples see Annex 5.). The specification sheets contain all necessary data on the individual data elements (fields and/or subfields), including among others the definition, the status of use in the various subdatabases and for the description of various items, the rules of presentation and use (including retrieval) and the designation of the input sources (fields and/or subfields of existing databases and/or other sources).

The structure and content of the database specification was **discussed with the programmers of DOST/STII and guidance was given for the establishment of the MINISIS and CDS/ISIS variant of the TIS database.**

The MINISIS version will run on the host computer of DOST/STII and the CDS/ISIS version on the personal computers of DTI/BSMBD and the regional TIS centres. The transfer (uploading

and downloading) of files is facilitated by the full compatibility of the database variants mentioned above. The establishment of the TIS database and the starting of direct input and of transfer of records from existing databases (preceded by some editing and record-flagging) is possible and recommended for the forthcoming months. The regular use of the TIS database can probably be started in September 1992. For the details of the content of the database see Annex 4.

The use of **international and regional technological databases** will be realized by the transfer of selected data into the TIS database, by the use of imported databases and by online information retrieval, using the services of international online database hosts. Preparations for all this variants have been made, including inquiries on the services and their conditions at online hosts and requests for free trial passwords.

F. Establishment and provision of technology information services

Guidelines for the preparation and provision of technology information services were prepared as a part of the Organizational and Operational Guidelines for TIS. These guidelines clarify the planned types of services, the process of their preparation, the use of databases and other information sources for the preparation of various services and the ways and means of collecting feedback from the users of services for follow up actions and for the improvement of the quality of services.

The central agencies and the regional centres (host and supporting agencies) **continued the provision of services** to the users of technological information within the traditional framework, but taking into account the planned structure of of TIS services. However, the establishment and regular provision of services depends on the completion of information sources, first of all of the establishment and filling of databases.

G. Marketing of TIS

The full marketing activities of TIS can be started just before **regular services will become operational**. However news in national and local mass media, continuous cooperation with associations, with other organizations of users of technological information, and with non-governmental organizations (NGOs), as well as, personal contacts with individuals made users aware of the existence and advantages of TIS. The best marketing of TIS is the provision of services and technological information. Services, first of all answering inquiries (although on a narrower basis as planned) were offered regularly by the regional centres of TIS (see also Section F). The TIS users' workshop planned for 1993 will strengthen the contacts with users of technological information.

II. CONCLUSIONS

The conclusions drawn from the activities and results during the reporting period are as follows:

a) The **coordinating, planning, management, monitoring and reporting structure** of TIS is rather sophisticated because of the involvement of a set of cooperating agencies. The approval and application of the prepared procedural guidelines is, therefore, an important pre-condition of further development.

b) The effective functioning of TIS needs the **continuous development and use of the information sources** as defined in the various TIS guidelines and obtained by the project. Plans and means for regular acquisition should assure the continuous provision of technological information to end users.

c) The decentralized structure of TIS is based on the activities of the regional centres and on the user-friendliness

of their services. A big part of the available information
sources, however is maintained by the central agencies. Because
of this structure **the appropriate functioning of the network**
(i.e. the downloading of databases to the regional centres, as
far as possible and the fast communication between t' : regions
and the central agencies) is of special importance.

d) The building of **contacts with information users and the
continuous tailoring of information services according to users
needs and requirements** should have a high priority within the
last phase of project activities.

RECOMMENDATIONS

The following recommendations are arranged according to the Work Plan and to the sections of Chapter I. of this report, because the priority of many recommendations is rather similar and recommendations on a given field address the same bodies or persons.

1) The urgent approval of **Chapter 1. of the Organizational and Operational Guidelines for TIS** on co-ordination, management, planning, monitoring, reporting and financing principles, as well as the introduction of new structures and procedures is recommended to the Steering Committee of TIS (in its new composition) and to the Project Management.

2) The circulation and collection of comments on **Chapters 2. and 3. of the Organizational and Operational Guidelines of TIS** on information sources and services is recommended to the Project Management.

3) The preparation and use of a **new version of the amended Work Plan**, taking into account the extension of the duration of project activities as agreed upon at the Tripartite Review Meeting is recommended to the Project Management and to the TIS staff of the central agencies.

4) The **planning of the use of the available funds** as defined in the revised and realigned budget, taking into account the priorities set in the proposals for budget revision and in other relevant documents is recommended to the Project Management.

5) The urgent preparation of the planned **individual fellowships and study tours** is recommended to the Project Management and to the National Training Expert.

6) The preparation of further **training plans and programs**, as well as, of **teaching packages** is recommended to the National Training Expert.

7) The monitoring and **analysis of the results of the ongoing survey of technology information users' needs**, including the use of the TUNE subdatabase and the preparation of priority subject lists of technology information needs is recommended to the Project Management and to the TIS staff at regional centres.

8) The **completion of the installation of computer hardware** (finalizing the upgrading of the HP 3000 host computer, replacement of defective parts etc.) is recommended to the TIS staff.

9) The requisition, the allocation of funds and the placing of the purchase order for the **establishment of the TIS network, using the DATANET facilities of PT&T** is urgently recommended to the Project Management and to the UNDP Resident Representative in the Philippines.

10) The preparation and the pilot (if appropriate the regular) use of the **General Electric electronic mail system**, via long distance calls and/or using the DATANET network is recommended to the TIS staff.

11) The requisitioning (ordering) of **further information sources** including the Micro-Metadex metallurgical database and a CD-ROM on standards is recommended to the Project Management and to the TIS staff at the central agencies.

12) Follow-up actions concerning the inquiries sent to **online database hosts and appropriate technology centres** are recommended to the TIS staff at DOST.

13) The **establishment of the MINISIS and CDS/ISIS variants of the TIS database**, as specified in the Data Element Directory is recommended to the TIS staff and EDP personnel at DOST.

14) The provision of the **CDS/ISIS version of the TIS database** or its relevant subdatabases to the regional centres and to DTI/BSMBD is recommended to the TIS staff at DOST.

15) The **transfer of records from the source databases to the TIS database,** the regular input into the TIS database and the downloading of data to and uploading data from regional centres as specified in the Data Element Directory and in the checklist of tasks concerning databases is recommended to the TIS staff at the central agencies and regional centres.

16) The **continuous provision of information services** to users of technological information with regard to the guidelines on TIS services is recommended to the regional TIS centres.

UNIDO

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

Project in the Republic of the Philippines

JOB DESCRIPTION
DP/PHI/86/016/11-01/J12101

Post title	Industrial Information Adviser
Duration	Twelve months in three split missions (2, 5 and 5 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
Duties	facilitate effective sourcing and usage of scientific and technological information for technology innovation, upgrading and venture syndication in the rural areas.
Duties	The expert will be attached to the DOST and the DTI and will work under the general guidance of the National Coordinators and in close co-operation with the training expert assigned to the project. The expert will specifically be expected to:

1. Elaborate a detailed work plan for the different phases of the missions and prepare a master plan for the organization and operation of the central and regional offices including organizational chart, staff and equipment needed.

2. Establish contacts with current and potential users of industrial, technological information for assessing their information needs. Prepare manuals for TIS Centres.

3. Select the appropriate computer hardware and software required for the establishment of computerized data banks, computerized information and documentation services, networking and supervise its installation and putting into operation.

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Applications and communications regarding this Job Description should be sent to

Project Personnel Recruitment Branch, Department of Industrial Operations
UNIDO, Vienna International Centre, P.O. Box 300, A-1400, Vienna, Austria

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4. Elaborate a permanent machinery for the collection and processing of the data/information.

5. Design and organize information services.

6. Design and develop computerized data banks of technological and techno-economic information.

7. Organize on-the-job training and in co-operation with the training expert prepare fellowship and study tour programmes abroad.

8. Identify the best ways and means of establishing links with other national data banks and international information sources, including UNIDO's INTIB.

9. Initiate the issuance of a periodic publication/newsletter for dissemination of industrial and technological information.

The expert will be expected to prepare two technical reports and a terminal report, setting out the findings of his missions and his recommendations to the Government on further action which might be taken.

Qualifications University degree or equivalent in engineering and/or information science with exclusive experience in the planning and operation of industrial information services. Experience in application of computers in information services is essential. Experience in developing countries, particularly in Asia, is an asset.

Language English

Background Information

 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);

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 COST 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.

SENIOR COUNTERPART STAFF*

Department of Science and Technology - Science and Technology Information Institute (DOST/STII)

Dr. Jose L. Guerrero	Director of STII, Project Manager
Mr. Enrico Florencio	Head of the EDP Division and of the TIS staff of STII
Ms. Imelda O. Casal	Senior Science Research Specialist
Ms. Maribel Palafox	Senior Science Research Specialist

Department of Trade and Industry - Bureau of Small and Medium Business Development (DTI/BSMBD)

Ms. Ma. Fina C. Yonzon	Officer-in-charge of DTI/BSMBD, Project Manager
Ms. Alicia M. Opena	Chief Trade and Industry Development Specialist, Head of TIS staff at BSMBD
Ms. Elvira P. Tan	Supervising Trade and Industry Development Specialist
Ms. Gladina M. Aquino	Senior Trade and Industry Development Specialist

Region I - DTI (host)

Mr. Mario B. Piedad	Senior Trade and Industry Development Specialist, Project Leader at the Regional Centre
Ms. Josefa C. Tayaban	Senior Trade and Industry Development Specialist
Mr. Renato O. Coloma	Senior Trade and Industry Development Specialist

- DOST

Ms. Paulina P. Nebrida	Senior Science Research Specialist

* The Directors of DOST and DTI Regional Offices (host and supporting agencies of TIS Regional Centres) are not included into this list. - Those persons whose function in TIS is not presented are TIS staff members

Region I - DOST - continued

Ms. Alejandra Eslava · Senior Science Research Specialist

Region VII - DOST (host)

Mr. Edilberto L. Paradela · Senior Science Research Specialist, Project Leader at the Regional Centre

Ms. Raquel Peralta · Senior Science Research Specialist

Mr. Jeffrey R. Llanto · Senior Science Research Specialist

    - DTI

Ms. Brenda A. Orosco · Officer-in-charge of the DTI Cebu Provincial Office

Ms. Victoria Diaz · Senior Trade and Industry Development Specialist

Region X - DOST (host)

Ms. Roselyn V. Arellano · Science Research Specialist (considered as senior as) Project Leader at the Regional Centre

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    - DTI

Ms. Emilia A. Lasquites · Senior Trade and Industry Development Specialist

Ms. Elizabeth C. Tagaylo · Senior Trade and Industry Development Specialist

Region XI - DTI (host)

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    - DOST

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Ms. Ma. Christina de Guzman · - (not known)

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Ms. Marme R. Bondal	Account Officer, Philippine Telegraph and Telephone Corporation
Ms. Anette H. Bugarin	Manager, Global Teleprocessing Services, Inc.
Mr. Lito R. Chugani	Systems Officer, International Communications Corporation
Mr. Wilfredo Clemente	Information Manager, UNDP, Rome
Mr. Ronol M. Dela Cruz	Assistant Director, DTI, Bureau of Patents, Trademarks and Technology Transfer
Ms. Rose De La Cruz	Area Sales Manager, Globe-Mackay Cable and Radio Corp.
Mr. Tomas M. Dizon Jr.	Senior Account Manager, Clavecilla Radio Systems, Inc.
Mr. Alfredo F. Go	Client Service Officer, Global Teleprocessing Services, Inc.
Mr. Vadim F. Kotel'nikov	Adviser, Asian and Pacific Center for Technology Transfer
Ms. Beryl Makondekwa	Officer, Library of Centro Investigacao Pesquueira, Luanda, Angola
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Mr. Indu S. Thapa	Project Director, Ministry of Industry, Nepal
Mr. Leo Y. Villarosa	Vice President, Marketing & Sales, International Communications Corporation

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* This selective list does not contain the names of Directors of
DOST and DTI Regional Offices (host and supporting agencies of
TIS Regional Centres), the names of members of the Working Group
for the establishment of a DOST-wide Management Information
System and the names of counterpart staff listed in Annex 2.

DESCRIPTION OF THE TIS DATABASE

The **services of TIS will be primarily based on data entered to, stored in and retrieved from the database of TIS.** The records in the databases can be used directly and/or in a repackaged form for the preparation of inquiry services (answering, servicing inquiries) or for preparing technology/market packages. In other cases these records refer to background documents the copies or the extracted contents of which can be used similarly. Last but not least the data in records can be used for further actions, e.g. for getting in touch with holders of offered technologies selected by the user of services, with training institutions offering technological training opportunities in a given subject field, etc. The only exception is the TUNE (sub)database which is used for the storage and retrieval of the **users of TIS services and their information needs** with the aim to define priority subject areas for the development of information sources and services and to be able to get in touch with users to market TIS services

The following description defines the **place of the TIS database within the databases and other information sources of TIS,** describes the **structure of the database** and gives a general description of sources of and **input/output procedures** for the different subdatabases. The textual description serves general orientation and gives information on the planning and accomplishment of the input to and on the use of the database. Additional information is given by further parts of the Data Element Directory (DELDI) of the TIS database, first of all by the **data element specification sheets** and the synoptic presentation of their standard data in the **data element matrices.**

1. The TIS database and other information sources for TIS

The services of TIS are based on various sources of technological information (and related market oriented information; hereinafter considered as a constituent part of technological information services). These information sources can be printed (in some cases audio-visual) or machine readable.

Printed sources are in most cases primary sources of technological information or compilations of information from various sources. A part of them: directories, handbooks, guides etc. were prepared and will be **used directly for the** retrieval of information for TIS services (e.g. directories of manufacturers of equipment etc.). In most cases however more or less detailed references to these sources will be entered into the TIS database.

Machine readable information sources, called also **databases** can contain **primary (factual) information** if they do not refer to any background document but they contain the total available information (e.g. machine readable records describing offered

technologies or training opportunities), or if they refer to persons or institutions or other objects or facts (in **TIS**: records on avai!able technologies, called item DR in the **DOT** subdatabase, all records of the **TUNE** subdatabase, most records of the **RATIO** and **TOP** subdatabases).

Many machine readable records in the TIS database, however, **refer to background documents** (bibliographic databases), e.g. to news on technologies in serial publications, to technology packages, industry profiles or feasibility studies, to articles or other publications dealing with technological questions, to standards, patent specifications etc.

Machine readable databases other than the TIS database are also used for TIS. Some **imported machine readable databases** are transferred to the TIS database, entirely or selected (e.g. the **UNIDO/INTIB** database of offered technologies or the APCTT/METI database of technologies available for transfer. Other imported databases however are used in their original form, for retrieval and support of TIS services. Such databases are first of all databases recorded on Compact Disc Read Only Memory - **CD-ROM** and imported by the TIS project or available at cooperating agencies. The CD-ROM based databases can also refer to documents (e.g. Food Science and Technology Abstracts or Applied Science and Technology Index) or can contain facts, non-bibliographic data as the Kirk-Othmer Encyclopedia of Chemical Technology.

Other imported databases are recorded on **tape or diskette** and contain as a rule bibliographic information (UNIDO/Industrial Development Abstracts, IDRC/International Development Research System, Micro-Metadex/Foundry). These databases can be used for searches for TIS if this is indicated by the subject.

Databases in the broader TIS environment (i.e. at DOST and DTI agencies) can be used for TIS services. At **DOST/STII** selected records from or the entire content of databases will be transferred to the TIS database. However, other STII databases, from which no data will be transferred to the TIS database: the databases of institutions and that of scientists can also be used by TIS for retrieving referral information. At DTI the **PRODEX/CTIS database of the Bureau for Export Trade Promotion** is extremely important for retrieving the export market information for TIS services by online or offline searches.

Finally information searches for TIS services can be made by **accessing international database hosts and making remote online searches.** This source will be used only, if the available databases and traditional information sources do not contain the necessary information or the acquisition of additional information is extremely important.

2. The structure of the TIS database

The **sites** where the TIS database should be used are: DOST/STII, DTI/BSMBD and the four Regional TIS Centers. The **available computers** are IBM compatible **microcomputers** with a hard disk storage capacity of 80 Mbytes at DTI/BSMBD and at the regional centers, respectively and the same type of microcomputer but also a **Hewlett Packard 3000 (Series 37) minicomputer**, serving as the host computer of the TIS network at DOST/STII. The **application software** is the **MINISIS** software of IDRC at the HP 3000 and the **Micro CDS/ISIS** software of Unesco at the microcomputers.

The TIS database format has its **variants for both MINISIS and CDS/ISIS**, what ensures the compatibility of MINISIS and CDS/ISIS based databases and the possibility of mutual transfer (uploading, downloading).

The TIS database was designed on the basis of the **integrated database approach**. This means that only one single list of data elements (fields and subfields) exists and that the attributes of the data elements are also the same (with one single exception) for all applications, i. e. for different described items, both under MINISIS and CDS/ISIS. Self evidently not all data elements should be used for every kind of described items. Therefore the TIS database consists of **subdatabases**, whereas a subdatabase is used for the description of items belonging to the same type or being closely related.

The **distinction of subdatabases** means that at the HP 3000 under MINISIS the database can be installed as a set of subdatabases or as a single database. On the microcomputers either a single TIS database can be installed or all subdatabases can be installed as individual databases (see CDS/ISIS features below). If no subdatabases are defined under MINISIS or a single database is installed under CDS/ISIS for items belonging to various subdatabases, as defined by the present document, searches will scan the entire database, independent from the type of recorded items. This means that if e.g. a **subject search** is made for a given industrial activity, **any kinds of recorded items** (offered technologies, R & D projects, standards, patents, training opportunities etc.) characterized by the classification code for the given activity will be retrieved. This is **advantageous** in all cases when the type of material (information) is of secondary importance. If, however, only records describing a **given type** or few types of items should be retrieved, a code in field 040 Type of database and item can be added with a boolean "and" to other search criteria and this will limit the search results to the given subdatabase or even to a given specific item within the subdatabase.

In **MINISIS** the above mentioned possibilities exist also if subdatabases are defined in the database and therefore this

approach was suggested for the installation of the TIS database under MINISIS. In CDS/ISIS an integrated database can be set up defining a single Field Definition Table and Field Select Table for all subdatabases but defining special input work sheets for every subdatabase or even for selected types of items within a single subdatabase.

The **integrated design** of the TIS database is also **advantageous**, because

* it is easier for those maintaining the databases (i. e. preparing records for input and making searches for output) to deal with and "learn" a **single set of data elements** (tags, subfield identifiers, rules of presentation and use) than to work with different rules for different databases;

* the present DELDI can be used as the **only documentation** for all subdatabases (databases).

The **subdatabases of the TIS database** are the following:

DOT - Descriptions and Offers of Technologies (types of items see below)

RATIO - Research and Technology Information Online (records describing ongoing or completed technological R & D projects)

PIT - Patent Information on Technologies (records describing Philippine patents or applications for them)

STAR - Standard Retrieval System (records describing Philippine and adopted foreign/international standards)

DESIRE - Design Information Retrieval (records describing industrial designs)

TOP - Technological Training Opportunities

AID - Answered Inquiries' Data

TUNE - Technology Users and their Needs (records describing enterprises, other institutions, individual users and their needs).

The **DOT, RATIO, PIT, STAR, DESIRE, TOP** and **AID** databases are individual subdatabases within the TIS database at the HP host computer under MINISIS. This database is be used for retrieval by the central agencies. There exists also an installation of the same TIS database for CDS/ISIS as a single database. For CDS/ISIS further installations of separate TUNE and AID databases were prepared.

The **TUNE** databases are individual databases at the regional centers. They can be eventually uploaded to the host computer. For this a MINISIS installation of the TUNE database exists.

A part of the input to the **DOT** database should be prepared by the regional centers. These are records on locally available technologies, primarily entered into DOT databases at the regional centers. Therefore an installation of DOT (or of a common DOT and AID database) for CDS/ISIS exists. The **regional DOT records should be uploaded to the host computer** and the entire, **merged and updated DOT database should be downloaded to regional centers.**

Regional **AID** databases can be set up separately or integrated with the regional DOT database.

Permanent and/or transitory CDS/ISIS based subdatabases at DTI/BSMBD shall be installed and/or modified according to actual needs.

It shall be decided by mutual agreements which central agency will hold, maintain and use for output the **CD-ROM** based and similar imported databases.

The use of (**output from**) databases consists of searches and display (or transfer) of search results. Searches can and shall be made in the TUNE databases and, if appropriate, in downloaded DOT databases by the regional centers, in all other cases by the central agencies (remote searches using the TIS network are not planned at present). Searches in the TIS database at the central agencies should be made, as a rule, in the MINISIS version at STII. Special searches can be made in subdatabases of the TIS database at DTI/BSMBD. Searches in all other databases (imported databases, STII databases, Prodex/CTIS database should be made by the holder or by the agency directly connected to the holder of the database.

3. Input and output characteristics of the TIS database and its subdatabases

In spite of the integration of the database, the sources and input procedures for various subdatabases are different. It is, therefore, necessary to present these details (sources, input procedures for various items) for every subdatabase.

3.1 DOT

The subdatabase contains descriptions and offers of technologies.

The offered technologies can be described by **machine readable records only**, without any background or source documents. These records belong to the type of item within the DOT database called **data records (DR)**. At present they are

* records transferred from the UNIDO/INTIB OFFR database,

* records transferred from the APCTT/METI database

* records on locally available technologies uploaded from regional DOT databases.

The next item in the DOT database is that of **news in serials** (journals, periodicals; **NS**). These are short (less than a page) news on technologies (often offered technologies) and the full or near the full content of them can be entered in the record. The initial records are transferred from the **TECHTIPS** database of STII, further input is based on the selection of news from the former serial sources of TECHTIPS, excluding items available in machine readable form, too (APCTT/METI) and items with limited value (e.g. many news in UNDP/TIPS). This item (and other items) of the DOT database can and should **replace the use of the former TECHTIPS database**.

The sources of input for records on the **articles in periodicals (AP) and articles in books (AP)** are the databases **Filipina and Foranal** of STII. A selection should be made both from the backfiles and from the current updates to these databases, because only a minor part of abstracted publications is dealing with technology. The selected records shall be marked and transferred to DOT. Direct input on behalf of central and regional TIS staff should be made only in the case of exceptionally relevant publications.

The source of records on **dissertations (theses; DI)** and **books (BO)** is the **Bookdata** database of STII. Data of dissertations can be selected and transferred also from the Filipina and Foranal databases. The principles and techniques of selection, marking, transfer and direct input are identical with those mentioned above for articles.

Technological documents (TE) is the item in DOT to which any description of technology belongs if it is not covered by any of the above listed items. These are first of all **industry profiles, technology packages, feasibility studies, "How to start..." series, preliminary project proposals, short descriptions** like recipes etc. They may be single (monographic) documents or parts of a larger entity (volume, folder, collection). In the later case the record should always be prepared on the smaller entity (individual technology). Descriptions (records) of technological documents can be prepared on the basis of documents **available at TIS agencies** or

on the basis of lists, catalogues and other sources acquired from institutions preparing such documents. In the latter case no background documents are available but they **must be acquired** if necessary (if asked for by users or needed for preparation of services. At present the entire input of records belonging to the item shall be directly prepared by TIS staff at the central agencies. **Regional centers** can also prepare and send to the central database records on technological documents for input, but these should be matched against the content of the database to avoid duplication.

DOT is the main source of searches **(output)** for the preparation of services. For inquiry services the search can be made by the regional centers but if they asks further searches from the central agencies, the search results should be communicated to avoid duplication. For technology packages the searches shall be made by the central agencies.

3.2 RATIO

The subdatabase contains records on ongoing and completed technological R & D projects in the Philippines. Its main **source** is the **R & D projects database** of STII. Records of projects with a technological or closely related subject shall be selected, marked and transferred to the RATIO a subdatabase of the TIS database within STII. This concerns both the backfiles and the regular updates. Note, that the TIS/RATIO records do not cover all the administrative, planning and similar data entered to the STII/R & D projects database. The source records can be always retrieved on the basis of data in field 020 of the TIS database.

Taking into account the more or less limited coverage of the STII/R & D projects database **additional direct input** can be done by the TIS staff, if sources are or can be made available. It is recommended, however, to provide the responsible STII unit with the appropriate data for inclusion into their R & D projects database, from where the transfer can be made to TIS/RATIO as indicated above.

Output actions (searches) are limited to the MINISIS version of the TIS database at STII.

3.3 PIT

The subdatabase contains records describing **Philippine patents**, striving for complete coverage if the patent has any relevance to fields covered by TIS services. The described items are in most cases granted patents (containing application data) but filed patent applications can be described, too. The initial source of records for this subdatabase is the **Patents database of STII**,

the records of which shall be transferred to the TIS/PIT subdatabase. Further input shall be made on the basis of the direct description of the specifications (applications) and their entering into the **PIT subdatabase**, which can and shall replace in the future the Patents database of STII.

Searches for **output** are made in the MINISIS version of the TIS database. However, if DTI maintains a special CDS/ISIS based PIT database, it can be used for special searches.

3.4 STAR

The subdatabase contains records describing **Philippine standards** (called product standards) and foreign or international standard adopted by the Philippine star.dards body (Bureau of Product Standards) for use in the country.

The **input** is made by TIS staff at DTI/BSMBD on the basis of the standards and/or their data in the standards' catalogues to a CDS/ISIS database version and the content of this database shall be uploaded to the MINISIS version. The initial inpu shall be transferred by a prymary standards' database established by DTI.

Searches for **output** are made in the MINISIS version of the TIS database. However, the CDS/ISIS based STAR database at DTI/BSMBD can be used for special searches.

3.5 DESIRE

The subdatabase will contain records describing **industrial designs** made by the Design Center of the Philippines or, if available by other design centers. Designs available to the public and designs owned by a given company are distinguished in the subdatabase for special handling of the output.

The **input** will be made either by TIS staff or by the staff of the Design Center on the basis of selected background documents into a CDS/ISIS version of the subdatabase. This will be uploaded to the minisis VERSION.

Searches for **output** will be made in the MINISIS version of the TIS database. However, if DTI/BSMBD and/or the Design Center maintains a special CDS/ISIS based PIT database, it can be used for special searches.

3.6 TOP

The subdatabase contains records describing **technological training opportunities** based on lists or other publications or direct communications from training institutions. The **input** shall be prepared by TIS staff, as a rule directly to the MINISIS version

of the TIS database. In some cases (e.g. on re' ional training opportunities) records can be entered in CDS/IS₁S versions and uploaded to MINISIS, but this can be replaced by sending the written information to the TIS staff at ST₁I.

Searches for **output** shall be made in the MINISIS version.

3.7 AID

This subdatabase (used at regional centers as single CDS/ISIS database) contains records describing **inquiries** made to the center by users and also the answers (services) given by the center. It rerfers, as a rule, to written/typed/printed files or other machine readable files containing further details, e.g. the hit lists of searches (listing of printed records found by the search) or copies of the service as submitted to the user.

Input shall be made by regional centers if they decided to maintain (combined with their DOT database or separate) a CDS/ISIS based AID database. The use of the AID subdatabase in the MINISIS version of the TIS database for inquirfies made by the regional centers and/or by others to the central agaencies depends on the decision of the TIS management. However, the reqional AID databases will be independent from the central one (if any) and of each other. No uploading or downloading should be made. Note ythat the input to AID records will have to phases: some data should be entered when the inquiry was received and others when it was answered.

Searches for **output** can be made to retrieve a certain inquiry, to retrieve the inquiries made by a given person or institution or for subjects to make the repeated use of anwers possible. For the later reason combined searches in regional DOT/AID databases or overall searches including AID in the central database might be appropriate.

3.8 TUNE

This subdatabase (or rather a database because, however it is designed as a subdatabase of the integrated database it was set up and will be maintained by regional centers as a separate database) contains records describing **general data, information needs and related data of users** and/or potential users of TIS (enterprises, non-profit organizations, associations and individuals).

The **input** to TUNE is based on filled in survey questionnaires circulated among users or presented to them by the regional centers. The TUNE databases of each regicnal center are independent of each other. However, an uploading of TUNE databases to the central TIS database can be considered by the management of TIS.

- DESC#10 -

Because of the special character of this database (see also below) and because of its stand alone existence at the regional centers a **special set of guidelines** for its installation and use has been prepared (including the specification of data elements and guidelines for the use of this database for statistical analysis). However, the characteristics and rules concerning TUNE are included into the present document (DELDI), too.

The TUNE databases can be used to store, retrieve and list data of TIS users for marketing reasons or any other contacts. The other main aim of establishing this database is the statistical and subject-oriented evaluation of users' needs for the definiyion of priority areas of information needs. This has an effect on the development of information sources and on the planning of services, first of all the preparation of technologyh (and market) information packages for priority areas. The **outputs** are, consequently, adfdress lists of users and evaluated data of users information needs, as well as lists of priority subjects.

SAMPLE PAGES OF DATA ELEMENT SPECIFICATIONS

DATA ELEMENT DIRECTORY OF THE TIS DATABASE

FIELD LEVEL

TAG: 040   SUBFIELDS - MINISIS: -
CDS/ISIS: -

NAME: Type of subdatabase/item

LENGTH OF FIELD - MINISIS: 4   - CDS/ISIS: 4

LENGTH OF MINISIS SUBFIELDS: -

REPEATABILITY: -   INDEXING   - MINISIS: E   CDS/ISIS: 0

DEFINITION: The designation of the subdatabase in which the record is entered and, if more than one type of items can be is described within the subdatabase, designation of the type of the described item.

STATUS:

							R A T I	P I T	S T A	D E S R E	T O P	A I D	T	U	N	E
D	O	T											I P	E N	N P	A S
D	N	A	A	D	B	T	I			R	I		I	E	N	A
R	S	P	B	I	O	E	O			R			P	N	P	S
										E						
M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M

For conditions of mandatory presentation ("C" - if any) see the rules on presentation and use.

SOURCES: The selected subdatabase and the described item as identified by the PPR. The type of item can be defined also on the basis of field D150 of records transferred from thew Bookdata, Filipina and Foranal databasews

PRESENTATION AND USE: The data element should be presented in coded form, using the four letter codes given in Annex 3. It must be included into the search formula, whenever only particular types of items are needed as results of the search. Whenever a subdatabase

of TIS is used as independent database the data element is used only for distinguishing various types of items described in the same database (if any).

DATA ELEMENT DIRECTORY OF THE TIS DATABASE

FIELD LEVEL

TAG: 130 SUBFIELDS - MINISIS: 131, 132
                    CDS/ISIS: ^a, ^b

NAME: Patent numbers

LENGTH OF FIELD - MINISIS: 40   **- CDS/ISIS:** 40

LENGTH OF MINISIS SUBFIELDS: 20, 20

REPEATABILITY: -   **INDEXING** - **MINISIS:** subf. **CDS/ISIS:** subf.

DEFINITION: The unique identification number assigned by the patent office (patent granting agency) to a granted patent and/or to a filed patent application. It may contain in addition codes of the country of application or granting the patent and of the type of the patent document.

STATUS: (only the occurrence is indicated by "X"; for details see the status of subfields):

	D		O		T		R A T I O	P I T T	S T A T A	D E S I R E	T O P	A I D	T U N E			
D R	N S	A P	A B	D I	B O	T E	I O		S T A R	R E	I		I P	E N	N P	A S
							X									

SOURCES: The patent document (description) concerning the granted patent or the application or a record from the Patents database (see also subfields)

PRESENTATION AND USE: As on the described item. See also subfields.

SUBFIELD LEVEL

SUBFIELD IDENTIFIER - MINISIS: 131   **- CDS/ISIS:** ^a

NAME: Number of patent

INDEXING   - MINISIS: E   **CDS/ISIS:** 1

DEFINITION: See also field level. The number of the granted patent.

STATUS:

	D	O		T			R A T	P I T	S T A	D E S	T O P	A I D	T	U	N	E
D R	N S	A P	A B	D I	B O	T E	I O		R	I R R E			I P	E N	N P	A S

A

For conditions of mandatory presentation ("C" - if any) see the rules on presentation and use.

SOURCES: See field level. In case of transferred records the source field is P 300.

PRESENTATION   AND USE: See field level. The presentation is mandatory if the data is available, i.e. in any case, when a g\the described item is a granted patent.

-.-

SUBFIELD IDENTIFIER - MINISIS: 132   **- CDS/ISIS:** ^b

NAME: Number of application.

INDEXING   - MINISIS: E   **CDS/ISIS:** 1

DEFINITION: See also field level. The filing number of application.

STATUS:

	C		O		T		R	P	S	D	T	A	T	U	N	E
							A	I	T	E	O	I				
							T	T	A	S	P	D				
D	N	A	A	D	B	T	I		R	T			I	E	N	A
R	S	P	B	I	O	E	O		R	R			P	N	P	S
										E						

C

Fc. conditions of mandatory presentation ("C" - if any) see the rules on presentation and use.

SOURCES: See field level. In case of transferred records the source field is P 700.

PRESENTATION AND USE: See field level. The presentation of the application number is only mandatory if the described item is the patent application. Its presentation for granted patents is optional.

WORK PLAN

Project Number: DP/PHI/86/016
Projec: Title: **Development of Technology Information Services**

Version: 1991-12-20

Introductory Remarks

This work plan is the **revised version** of the project's work plan prepared at **1990-11-21**, which replaced the original (tentative) work plan attached to the Project Document, as well as the revised (intermediate) work plan prepared in 1990 for twelve months. The version from 1991-11-21 followed a new structure and it has been prepared instead of the earlier versions, because of reasons mentioned in the introductory remarks to it. It served as the official version of the work plan to the project and it was used as the basis for all project activities.

The present version **does not differ essentially** from the former one, referred to above. It has been prepared to reflect changes in the composition of the international project team (withdrawal of the Technology Information Training Expert and selection of a National Training Expert). Some other changes became necessary because of external circumstances or taking into account the present stage of accomplishing project tasks. The planned outputs and final deadlines are not affected by these changes. The work plan consists of a textuaL part and a flowchart calendar plan.

A first draft of the flowchart part of the revised version has been sent by the Project Management to the central and regional TIS staff for consideration in September 1991. The present version was **discussed at the Planning Workshop** of the Project (1991-12-02/04) and has been amended based on the comments of the participants. In the case of changes in the schedule of the services of international and national experts the necessary planning and operative measures will be taken without further modifications. It will serve as the interim version of the work plan until its final approval by the Management Board of the project and UNIDO .

In the textual part of the work plan the following mnemonic codes indicate the persons participating in the various activities (the participation of the Project Management is not indicated in points describing activities subject to its regular decisions).

PM	- Project Management (National)
HS	- Staff members at DOST and DTI Headquarters
RS	- Staff members of Regional TIS Centers
IIA	- (UNIDO) Industrial Information Adviser
TITE	- (UNIDO) Technology Information Training Expert
NTE	- (UNIDO) National Training Expert.

The arrow (->) sign indicates continuing activities.

1. Organizational, coordinating and planning activities

1.1 Selection and fielding of international personnel. PM - 1990-04/09, 1991-11. IIA - 1990-11/12, 1991-06/08, 1991-11/1992-03, 1992-08/12. TITE - 1990-07/08. NTE - 1992-01/10,

1.2 Establishment of coordination and management mechanisms for TIS. PM - 1990-03/12 ->. RS - 1991-11/12 ->.

1.3 Preparation of manuals, guidelines on coordination and cooperation features (including cost sharing). HS, RS, IIA (preparation), PM (approval) - 1991-10/1992-03.

1.4 Establishment and functioning of TIS regional centers. PM, HS, RS - 1990-07/12 ->.

1.5 Preparation of manuals, guidelines on TIS regional centers' operations. HS, RS, IIA (preparation), PM (approval) - 1991-08, 1991-11/1992-03, 1992-08/10.

1.6 Building relations with GOs, NGOs, associations and the private sector. See 3.1.

1.7 Preparation of medium- and long-range plans, including alternative schemes for sustaining and development of TIS. PM, HS, RS, IIA - 1992-08/12 ->.

2. Selection and training of TIS staff

2.1 Selection of international personnel. See 1.1.

2.2 Selection of TIS personnel for DOST and DTI Headquarters, as well as for regional centers. PM - 1990-06/12.

2.3 Training of TIS staff members at local courses and workshops (planning, organization and conduct of training). HS, RS, IIA, TITE, NTE - 1990-07/08, 1990-11, 1991-02/05, 1991-06/07, 1991-11/12, 1992-08/11.

2.4 Preparation of training packages and other training and reference material for in service training and for the training and orientation of TIS users. HS, IIA, NTE, - 1992-01/10 ,

2.5 Fellowship training and study tours for TIS staff (organization and conduct). PM, HS, RS, IIA, NTE - 1991-07, 1991-10/11, 1992-02/03, 1992-06/08.

2.6 Continuous assessment of the training needs and on-the-job training of TIS staff. HS, RS, IIA, NTE - 1990-11/12, 1991-06/08, 1991-11/1992-12.

3. Assessment of technology information needs

3.1 Building and sustaining relations with Gos, NGOs, associations and the private sector, to survey and update information needs of TIS users. HS, RS - 1990-07/1992-12 ->.

3.2 Assessment of information needs of TIS users. HS, RS, IIA - 1991-06/1992-12 ->.

3.3 Preparation of a manual on the continuous surveying and assessment of TIS users' information needs. HS, RS, IIA - 1991-07/08, 1991-12/1992-03.

3.4 Definition of priority areas for technology information services. PM, HS, RS, IIA - 1990-07/08, 1991-06/12 ->.

4. Acquisition and installation of computer and telecommunication hardware and software

4.1 Selection, requisition and installation of computer and telecommunication hardware for the headquarters and regional centers. HS, RS, TITE, IIA (preparation, installation and use), PM (approval) - 1990-07/08, 1990-11/1992-06.

4.2 Design, leasing and installation of telecommunication connections between the headquarters and the regional centers, as well as, to access international database hosts. HS, IIA (preparation, installation and use), PM (approval) - 1991-07/08, 1991-10/1992-06.

4.3 Selection, requisition and installation of application oriented software for database management, information retrieval, electronic mail, text processing and desk-top publication. RS, HS, TITE (preparation, installation and use), PM (approval) - 1990-07/08, 1991-01/03, 1992-07/12.

4.4 Development of user interfaces and guidelines for remote information retrieval, file transfer and electronic mail. HS, RS, IIA - 1991-08, 1991-12/1992-11.

5. Surveying, designing and establishment of information, sources, databases

5.1 Survey and analysis of existing indigenous (including central and regional) and international information sources, including technology information packages, prepared by other networks, services. HS, IIA - 1990-11, 1991-06/08 ->.

5.2 Extension of information sources by collection and acquisition. HS, RS, IIA - 1990-11/1992-12 ->.

5.3 Establishment and upgrading of technological and market-oriented databases at DOST and DTI headquarters. HS, IIA - 1990-11, 1991-06/1992-12 ->.

5.4 Establishment and upgrading of technological and user oriented databases at the regional centers. RS, IIA - 1990-11/1992-10 ->.

5.5 Linking of databases (including up- and downloading). HS, RS, IIA - 1991-06/08, 1991-11/1992-12 ->.

5.6 Selection of and access to online accessible and imported international/foreign databases. HS, IIA (preparation, use) PM (approval) 1991-06/1992-12 ->.

5.7 Preparation of guidelines and manuals for the development and use of databases. HS, IIA - 1991-06/08, 1991-11/1992-03, 1992-08/09.

6. Establishment and provision of technology information services

6.1 Definition of types of services for the clientele. HS, RS, IIA - 1990-11/12, 1991-06/08.

6.2 Linking services to databases. HS, RS, IIA - 1991-06/08, 1991-11/1992-08.

6.3 Designing and starting of inquiry services and publications. HS, RS, IIA - 1991-06/1992-12 ->.

6.4 Designing and starting services providing technology and market profiles (information packages). HS, RS, IIA - 1991-06/08, 1992-02/12 ->.

6.5 Development of extension services by visiting users for technological·problem solving. RS - 1992-02/11 ->.

6.6 Preparations of manuals, guidelines on the preparation and provision of services. HS, RS, IIA, NTE - 1991-07, 1991-11/1992-06, 1992-08/09.

7. Marketing of TIS

7.1 Marketing of information services by means of local (and, if appropriate, nation-wide) mass communication media. HS, RS - 1991-09/1992-12 ->.

7.2 Marketing of information services by means of maintaining contacts with other GOs, NGOs, associations. HS, RS - 1990-11/1992-12
->.

7.3 Marketing information services and servicing queries at trade exhibitions and fairs. HS, RS - 1991-09/1992-12 ->.

7.4 Maintaining databases of potential users and approaching them by circular letters, visits, provision of information packages etc. HS, RS - 1991-10/1992-12 ->.

**FLOWCHART TO THE WORKPLAN
PROJECT DP/PHI/88/016**

4. SIGNS DESIGNATING THE PARTICIPATION OF INTERNATIONAL AND NATIONAL STAFF

Sign	Code	Description
....	PM	(National Project Management)
------------	RS	(Staff members at DOST/DTI Headquarters)
;;;;;;;;;;;;	RS	(Staff members at TIS Regional Center)
============	IIA	(Industrial Information Adviser)
++++++++++++	TITE	(Technology Information Trainer/Expert)
xxxxxxxxx	NTE	(National Trainer Expert)

3. FLOWCHART

No.	Short Description	1990 Quarters				1991 Quarters				1992 Quarters		
		I	II	III	IV	I	II	III	IV	I	II	III
1	Organisation, Coordination, Planning											
1.1	Selection & Fielding of International & National Expert											
1.2	Coordination & Management Mechanisms											
1.3	Coordination Cooperation Manuals											
1.4	Regional Centers Establishment											

ACTIVITIES		1990 Quarters				1991 Quarters				1992 Quarters		
No.	Short Description	I	II	III	IV	I	II	III	IV	I	II	III	IV
1.5	TIS Regional Centers Manual												
1.6	Building Relations with NGOs, Associations; See 3.1												
1.7	Medium & Long Term Plan for TIS												
2	Selection & Training of TIS Staff												
2.1	Selection of International Personnel; See 1.1												
2.2	Selection of TIS Personnel (Headquarters & Regions)												
2.3	TIS Local Courses, Workshops												
2.4	Training Plans, Packages												
2.5	Fellowships & Study Tours												

A C T I V I T I E S		1990 Quarters				1991 Quarters				1992 Quarters			
N.o.	Short Description	I	II	III	IV	I	II	III	IV	I	II	III	IV
2.6	On-the-Job Training												
3	Assessment of Technology Information Needs												
3.1	Building Relations with NGOs, associations, private sectors: Survey Needs												
3.2	Assessment of Information needs												
3.3	Manual on Survey & Assessment Needs												
3.4	Definition of Priority Areas for TIS												
4	Computer & Telecommunications Hardware & Software												
	Selection, Requisition & Installation of Hardware												

ACTIVITIES		1990 Quarters				1991 Quarters				1992 Quarters			
No.	Short Description	I	II	III	IV	I	II	III	IV	I	II	III	IV
4.2	Telecommunication Connections between Regions & Headquarters												
4.3	Selection & Installation of Application Softwares												
)4	User Interfaces & Guidelines for Remote Retrieval & Electronic Mail												
5	Information Sources Databases												
5.1	Survey of Existing Sources												
5.2	Extension of Information Sources												
5.3	Establishment & Upgrading of Databases at Headquarters												
5.4	Establishment & Upgrading of Databases at Regional Centers												
5.5	Linking of Databases, Upgrading & Downloading												

ACTIVITIES		1990 Quarters				1991 Quarters				1992 Quarters			
No.	Short Description	I	II	III	IV	I	II	III	IV	I	II	III	IV
5.6	Selection of & Access to International Databases						$$$$	.....	....	$$$$$$$			.... $$$$$$$$
5.7	Guidelines & Manuals for Databases						$$$$$$$$$	.... $$$$$$$$$	$$$$$$$	$$$$$$$			..... $$$$$$$$
6	Technology Information Services												
6.1	Definition of Types of Services			..... $$$			???? ????? $$$$ $$$$$	..... ????? $$$$$					
6.2	Linking Services to Databases						$$$$$$$$	$$$$$$$	.... $$$$$$	.... $$$$$$$$$$		.... $$$$$	
6.3	Designing Starting Inquiry Services & Publication						???? ?????? $$$$$$$$	.... $$$$$$$	.... $$$$$$$$	.... $$$$$$$$$		.... $$$$$$	
6.4	Designing & Starting Technology & Market Profile Services						$$$$ $$$$$$	..... $$$$$$		.... $$$$$$$$		.... $$$$$	
6.5	Development of Extension Services									....		....	
5.6	Preparation of Manuals & Guidelines on Services							$$$$	$$$$$$$	.... $$$$$$$$$ XXXXX		.... $$$$$$$ XXXX	

ACTIVITIES		1990 Quarters				1991 Quarters				1992 Quarters			
No.	Short Description	I	II	III	IV	I	II	III	IV	I	II	III	IV
7 Marketing of TIS													
7.1 Marketing by Mass Communication Media									---- ¦¦¦¦	--------- ¦¦¦¦¦¦¦¦¦	--------- ¦¦¦¦¦¦¦¦¦	--------- ¦¦¦¦¦¦¦¦¦	--------- ¦¦¦¦¦¦¦¦¦
7.2 Marketing by Maintaining Contacts with NGOs, assocs., etc.						--------- ¦¦¦¦¦¦¦¦¦	--------- ¦¦¦¦¦¦¦¦¦	--------- ¦¦¦¦¦¦¦¦¦	--------- ¦¦¦¦¦¦¦¦¦	--------- ¦¦¦¦¦¦¦¦¦	--------- ¦¦¦¦¦¦¦¦¦	--------- ¦¦¦¦¦¦¦¦¦	--------- ¦¦¦¦¦¦¦¦¦
7.3 Marketing & Servicing Queries at Trade Fairs									---- ¦¦¦¦	--------- ¦¦¦¦¦¦¦¦¦	--------- ¦¦¦¦¦¦¦¦¦	--------- ¦¦¦¦¦¦¦¦¦	--------- ¦¦¦¦¦¦¦¦¦
7.4 Databases of Potential Users; Approaching by Circulars, Visits & Services									--------- ¦¦¦¦¦¦¦¦¦	--------- ¦¦¦¦¦¦¦¦¦	--------- ¦¦¦¦¦¦¦¦¦	--------- ¦¦¦¦¦¦¦¦¦	--------- ¦¦¦¦¦¦¦¦¦

- 51 -

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