OCCASION

This publication has been made available to the public on the occasion of the 50th anniversary of the United Nations Industrial Development Organisation.

DISCLAIMER

This document has been produced without formal United Nations editing. The designations employed and the presentation of the material in this document do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations Industrial Development Organization (UNIDO) concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries, or its economic system or degree of development. Designations such as "developed", "industrialized" and "developing" are intended for statistical convenience and do not necessarily express a judgment about the stage reached by a particular country or area in the development process. Mention of firm names or commercial products does not constitute an endorsement by UNIDO.

FAIR USE POLICY

Any part of this publication may be quoted and referenced for educational and research purposes without additional permission from UNIDO. However, those who make use of quoting and referencing this publication are requested to follow the Fair Use Policy of giving due credit to UNIDO.

CONTACT

Please contact publications@unido.org for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at www.unido.org

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria
Tel: (+43-1) 26026-0 · www.unido.org · unido@unido.org

Distr.
RESTRICTED
UNIDO/IS/R.23
28 February 1986

UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

ENGLISH

NATIONAL COUNTERPART REPORT ON THE INDUSTRIAL AND TECHNOLOGICAL INFORMATION SYSTEMS IN EGYPT*

Prepared by

M. Ezz Eldin El-Toukhy**

* The views expressed in this paper are those of the author and do not necessarily reflect the views of the secretariat of UNIDO. This document has been reproduced without formal editing.

** Academy of Scientific Research and Techology, Cairo, Egypt.

V.86-52757

CONTENTS

SUMMARY AND RECOMMENDATIONS

The survey assigned to the writer was completed within the limited time stated in the Job Describtion, inspite of the crop information collected came out to be, in our judgement, not as complete as we had hoped for. In fact, in a country like Egypt, where the realization of the importance of "Information" as an essential necessity for national socio-economic and political development, planning, and programming, is booming at a fast rate, information centres, systems and networks, were quickly building up in both Government and Private Sectors, A precise and careful survey, under these circumstances, and at this stage of its development, would need more time for static survey, and continuity for dynamic follow-up studies. In other words, the findings of this study should only be considered a "start" and not an "end". In this respect, the concept of relevant "continuous dynamic follow-up studies", is to be accepted and adopted by UNIDO and INTIB.

However, the results of the survey recorded in this study may be enough to assist UNIDO in allocating suitable focal points to be directly linked to INTIB. The direct communication in the proposed one or two selected focal points may be enough-temporarily-at this stage as indicated the static study submitted. The survey covered more than twenty five institutions in both the Government and Private Sectors and fourteen reports of these institutions were appended giving enough guidelines for the reader.

Finally, the following two recommendations could be proposed:

1. The two focal points suggested are: the International Scientific and Technological Information Network of Egypt (ENSTINET)and Military Factories Computer Centre (MFCC).
2. The present static study should be followed by continuous dynamic follow-up studies at intervals to cope with the increasing development in the information systems in Egypt.

INTRODUCTION

The background information stated in the job description, although very concise, yet shed enough light in the course of building up the structure of the requested study.

It offered several useful guidelines for the writer in his development of such structure. The links between the Lagos Plan of Action and its role in the Industrial Development Decade for Africa (IDDA) was clearly defined on one side and UNIDO's Plan establishing INTIB, was also well defined.

The role of this latter Central Institution and its links on international, regional, and national levels, gave full explanation of the pathways of the flow of information and the dissemination of such information; thus the mechanism of the whole information flow, up and down, and in several directions became clear in the minds of the givers and recipients, i.e. between the information bank and the end users.

The Lagos Plan of Action for the economic development of Africa (1980 - 2000) was extremely comprehensive. Chapter V. of the Plan covering resolutions related to Science and Technology detailed all programme elements relevant to this subject matter, including programmes for development and transfer of technology, (programme element 3.1), aquisition, processing and dissemination of technological information, (programme element 3.2). This latter programme, in particular, gave additional explanation to UNIDO's current activity establishing an appropriate machinary for industrial and technological flow of information through a well tailored network, topped by INTIB, and moving down to national centers focal points, through clear flow channels bonding national, regional, and international focal points for information exchange. The Lagos "Plan of Action", though available on request, yet we believe the inclusion in the text of this "Introduction", of programme element 3.2 of such Plan of Action will be expressive and helpful:

Quote:

"Programme element 3.2 Acquisition, processing and dissemination of technological information.

Lack of information is one of the most serious obstacles to selection, acquisition and use of appropriate technology options. An understending of the local environment, character and orientation of the transferees is as important as information on the technology to be supplied. Care should therefore be taken no ensure that the technology supplies match the local needs identified. Machinery should be established to assess and promote the acquisition and dissemination of information on the range of alternative technologies, processes and products available for a particular application. The following measures are proposed:

(a) establishment or strengthening of a national centre for technology information dealing with:

i. importation of technology: identification of subsidiaries of foreign firms in the region and elsewhere; compilation of information on the operation of transnational corporation and regular dissemination of such information to the business sectors of the economy; compilation of data on low-cost and other adapted technology within the country or available from other developing countries and regions; compilation of data on foreign investments, imports raw materials, prices of products on the international market, standards and related matters, etc...

ii. data and statistics on local technological capabilities and infrastructure: data on local capability to obtain, adapt or generate the required technology, information on the relationship between demand for

goods and services and efforts to supply adequate technology (and the related problems of understanding the character and orientation of transferees); information on centres capable of providing technical advice and information, existing engineering consulting firms, standard institutions, etc....

iii. the provision of the above services to various sectors of the economy, but especially to the production system.

(b) the organisation jointly by African and Third World governments of programmes to provide fellowships and/or scholarships to enable science and technology students to study and visit centres of technology development in countries such as China, Japan, India, the Rebuplic of Korea, etc., to gain experience and collect information on the history of technology development in these countries. Such programmes should be planned by interdisciplinary teams of experts drawn from Third World and participating African countries and African national training programmes involving universities, research and development institutions, industry; management and business institutions;

(c) encouragement of the establishment and/or strengthening of local scientific and technological associations and societies. National technology information centres should establish or strengthen ties with other regional technology information systems and technology information centres of Third World countries to facilitate the flow and exchange of information in all fields relevant to socio-economic development;

(d) With the assistance of ECA, regional institutions and other Third World country institutions pilot studies on agricultural and industrial extension services so as to establish an improved framework for feed-back from them to the research and development and productive centres;

(e) actively supporting and strengthening African regional organisations in the field of patent documentation and information, such as ESARIPO and ESAPADIC, CAPI and PADIS." Unquote

The United Nations General Assembly, in addition, had passed a resolution on the establishment of a network for the exchange of technological information, particularly concerning the establishment of the "Industrial and Technological Bank (INTIB)" in UNIDO. Furthermore, the General Assembly had also passed another resolution on the needs to enable developing countries to have access to specific information on advanced and other technologies, new developments, and the possibility of adapting them to local needs which meet their requirments.

With the a/m General Assembly's resolutions in mind, and guided by the quoted expressive text of the Lagos Plan of Action - Programme element 3.2., - the establishment of INTIB in UNIDO became a crucial step in the course of putting the Lagos Plan of Action into operation,

The establishment of a network for the exchange of technological information, to be formly linked with INTIB was a vital necessity for complementing the function of that bank, hence the establishment of formal channels of communications through which the flow of information to INTIB users for their proper selection of appropriate technology and aquipment through strong and capable INTIB network system. This said network system should - by necessity - consist of regional and national networks, tightly knitted together to function as complete big machines whose components (to be considered as focal points) should be able to provide industrial information services to small and medium industries, chamber of commerce, federations of industry, national productivity centers...etc., Such services should assiest in the generation, collection, selection, analysis, annotation, storge, dissemination and the supply of needed information to small nd medium industries and relevant institutions and organizations on a national and regional levels. Dissemination and exchange of regular and periodical publications should

also be considered a main service to be carried out by the participating national and regional focal points.

In order to establish such networks through survey of existing and potential institutions on national and regional levels leading to identification of those selected to be focal points in the structure of the networks linked with INTIB.

The Assignment

In the Course of carrying out the above mention survey in Egypt the UNIDO's Industrial Information Section, had appionted the writer for a job (post title: National expert on industrial information service), the job description (RP/RAF/85/621/17-08), was as follows:

Quote:

"Purpose of project:

To assisst selected countries of Africa in the establisnment of INTIB national focal points as well as in strengthening national information systems and services.

Duties:

The expert will identify in the home country, at national level, the followings:

(a) existing and potential information systems, services and networks;

(b) Identification of existing and Potential users of industrial and statistics information;

(c) Identification of the nature of information needs and services required by INTIB users;

(d) assessment of manpower requirments and training needs for the national information systems; and

(e) preparation of schedule of the UNIDO experts field mission in the country" Unquote

The scope of work done in the preparation of this study, accordingly was guidelined by these duties.

FINDINGS

1. INTRODUCTION:

Due to the limited 1.5 month duration of the assignment - as stated in the Job Description - the crop of information collected came out to be, in our judgement, not as complete as we had hoped for. In fact, in a country like Egypt, where the realization of the importance of "information" as an essential necessity for national socio-economic and political development, planning, and programming, is booming at a fast rate, information centres, systems and networks, were quickly building up in both Government and Private sectors. A precise and careful survey, under these circumstances, and at this stage of its development, would need more time for careful static survey, and continuousity for dynamic follow-up studies. In other words, the findings of this study should only be considered a "start" and not an "end" and in this respect, the concept of relevant "continuous dynamic follow-up studies", is to be accepted and adopted by UNIDO and INTIB.

Realising, however, that the job assigned to the writer was mainly oriented to the specific functions of INTIB networks (industrial and technological information services), this study focussed primarily on this particular sector, inspite of the fact that information for several other sectors and services could not be detached, such as agricultural, drug and pharmaceutical, health services, energy, transportation and communication, education.... etc. Even the information needed for effecting social changes in communities, cannot be isolated from those which are obtained from a science and technology information bank. In general information banks should avail their services to all such interlocking sectors, which act harmoniously together to achieve the targets of development, whether nationally or regionally, and whether the information exchange takes place among local centres, or via communication channels in local, regional, or international networks. In all cases, the information exchange should be carefully designed

to function smoothly, and professionally, in tight linkages with the components of a well designed organization structure, with these facts in mind, this survey study, by necessity, included a limited expose of a number of existing and potential information systems, services and networks, other than those serving the industrial sector. Agriculture, transportation & energy sectors were cases exposed as examples.

2. Work done:

As previously mentioned, the survey coverage was limited to what could be obtained during the limited duration of the assignment, which was - in itself - affected by local bureaucratic delays and shortage of helpers. However, we believe that the material collected will hopefully be enough - at least temporarily - to serve your purpose, in the way of identifying / selecting the "Focal Points" to be linked with INTIB.

2.1. Our first approach was with:
"The General Agency For Public Mobilization & Statistics"

being the Central Government body where one can feel the pulses of any developments in information systems in both Government and Private Sectors. Their brief reply was as stated in "Appendix (1)". The information provided though brief - but obviously useful as a guideline shedding some light on the overall situation in the country. Nevertheless, it did not restrict itself to information systems and services in the industrial sector.

2.2. The survey made, covered studies of the following "information systems and services", whether existing or potential, and whether in the form of centres or networks in public and private sectors.

2.2.1. "The National Scientific and Technical Information Network of Egypt - ENSTINET" - Report dated August 16, 1985, about the implementation of ENSTINET, prepared by Mr. Ahmad Abdel Bassit, Director of ENSTINET. APPENDIX (2)

2.2.2. "Developmental Guidelines For Sectoral Information Services", Report dated May 1983, prepared by the Academy of Scientific Research and Technology, Cairo, Egypt, APPENDIX (3)

The above two study reports, amounting to about 60 pages together, may seem to be too voluminous as attachments of our concise survey study. But we purposely meant to avail to you a reasonably detailed account of the development of this national institution (ENSTINET), with its five specialized nodes (which are currently functioning), and which we can foresee that it will be, in the near future, the main "Focal Point" with INTIB.

The following three appendices will briefly give an exposé of three ENSTINET nodes, namely, Industry Agriculture and Energy planning.

2.2.3. "Industry Node, Hosted By the Engineering and Industrial Design Development Centre". Report prepared partially by ENSTINET and partially by EIDDC. (in 12 pages).

APPENDIX (4)

2.2.4. "The Activities of the Agricultural Documentation and Information Centre: Service Centre for the Agricultural Sector in the National Information Network".

Report prepared by Eng. Ibrahim Zaki, Director, Agricultural Node, ENSTINET. (in 11 pages).

APPENDIX (5)

2.2.5. "Organization For Energy Planning - OEP" - Report prepared by Dr. Hussein Abdallah, Chairman and Chief Executive of OEP.
In this report we draw the attention to the section describing the "Information Services" activities at OEP. (in 9 pages).

APPENDIX (6)

2.2.6. "Industrial Technology Application Programme - ITAP".
A paper prepared by EIDDC describing and introducing one of their activity programmes, including a resume about the Centre's "Information Services". (in 8 pages).

APPENDIX (7)

2.2.7. "A Resume of Information Facilities available at the Nasr Automotive Co. premises".
A short report prepared by Eng. Ms. Haydi Kamal.

APPENDIX (8)

2.2.8. "Information Systems and Services Rendered by the National Organization for Military Production".
Report dated 13.8.1985 prepared by the "Computer Centre" of the Organization.
This is a composite report consisting of 5 sections:

A: Background Information

B: Systems applied by the "Centre".

C: Users of the Centre's services:

- The 15 specialized industrial production companies belonging to the National Organization for Military Production.

- The 12 institutions not belonging to the Organization (9 industrial production companies, + 1 national organization + 1 institute + 1 Ministry). The 12 users are currently communication with the "Centre".

- The 31 users which previously communicated with the Centre, included: 8 industrial manufacturing companies + 3 petroleum companies + 6 national organizations + 2 universities + 2 building contracting companies + 2 information centres + 1 bank + 1 insurance company + 1 engineering consulting office + 5 companies in other business activities.

- Regional Information Services:
  A five year contract will the IRAKI "General Organization for Technical Industries", for rending the needed assistance for establishing in Irak computer centres and information systems, and for training and manpower development needed.

D: A two pages chapter describing and explaining the philosophy behind what has been called the "Complemented Information System" linking together the functions of the existing computer centre and the Information System and Services.

E: A short statement about the existing training administration and its considerable achivements in the last ten years - Explanatory.
attached showing the programs planned in advance for 1985.
Obviously, the activities of the Computer Centre and the Information facilities, existing within the premises of the National Organization For Military Production became a stable and highly organized institution, and we believe a suggestion for considering it a "Focal Point" in the INTIB network will be Justifiable.

2.2.9. "Egyptian Drug Information Centre". A 4-pages report prepared by the Ministry of Health, Cairo.

APPENDIX (10)

2.2.10. "Drug Information News & Highlights" A 4-pages report prepared by the Ministry of Health, Cairo.

APPENDIX (11)

Both the last two appendices aim primarily to draw the attention to the fact that organized Information facilities for drugs and pharmaceutical production and products was given great care by the health administration in the country.

2.2.11. A two page memorandum, as an outline, to briefly describe the ongoing work aiming to establishing an Information Centre by the Ministry of Electricity and Energy to assist the efforts currently invested for using and benefiting from available renewable energy sources.

APPENDIX (12)

2.2.12. "Terms of Reference For a National Transport Information System".

An light report prepared by the Ministry of Transport and Communication, outlining the Ministry's plans for establishing their potential "Information System".

APPENDIX (13)

2.2.13. "Accomplishments Record of DPS in designing, establishing and operating Data Processing and Information Centres".

As previously stated, Data Processing and Information Systems, had been growing as business in the last few years in the private sector, Dozens of companies and specialized offices were established

and became very instrumental in offering cources and on-the-job training in computer sciences, data processing and information systems/services.
The report appended was obtained from a selected company among a number of those in the private which were covered by our survey. The selection of DPS was based on its suitability for prentaition in this study as random sample representing the private sector activity in this field

APPENDIX (14)

2.3. Our survey coverage, was in fact, not limited to the areas and institutions whose reports are appended to this study. The scope was much wider than that. At least ten more institutions were covered, among which were the following:

- Al Ahram (Daily paper), computer and Information centres.
- The Iron & Steel Co. computer centre and data processing facilities.
- The National Information and Documentation Centre of Egypt, which is infact, one of the five Nodes of the Egyptian National Scientific and Technical Information Network (ENSTINET).
- The Egyptian Federation of Industries: A potential Information Network.
- The General Organization For Petroleum: Computer Centre, Data Base Bank, Microwave network. ...etc.
- The Industrial Development Bank: Computer Centre.
- CIMAF company for manufacturing railroad wagons & equipment: Computer Centre .
- The General Organization For Food Commodities and refrigeration, Ministry of Supplies: A potential plan for establishing a computer centre and Information System.

These institutions and several others, were surveyed but reports about them were not appended in avoidance to overloading. In this respect, we again recommend that this study should be continued dynamically at reasonable future intervals, to secure its completion and to observe and analyse its development.

3. Existing and Potential Users of Industrial and Statistics Information:

The study of the reports appended, will guide the reader, partially if not totally, to the information to be identified. However, the following may assist as an addition:

Potential Users:

3.1. Managers, planners, decision-makers who are engaged in co-ordinating development activities in S&T at the local, national or international level of wide private and public.

3.2. Scientific and Engineers engaged in:
- Teaching scientific & engineering students in Universities.
- Research in higher education sector, research or technical Institutions, research and development in industrial firms and government institutions.

3.3. Individuals, practicuers and technicians engaged in development and/or operational activities in the various fields of technology and industry.

4. Nature & Type of Information Needs, and services Required by INTIB Users:

From the analyses of the survey results, and from the reports appended, one can come to the following statements:

4.1. Type of Information Needs:

In general, the type of information needs should logically cover all aspects of industrial activities, and in particular, the following:

- Identification of products
- market & marketing.
- manufacturing technology.
- equipment & material
- standardization & standards
- Administration and managements

4.2. The Nature of Information Needs:

Although the meaning of the word "nature" could be misleading in this text, yet we may guess that the information requested could be the following:

- Uptodate books,
- Indexes
- Technical reports
- Egyptian manufacturing catalog
- Reports & circular.
- Directories
- Graphics.
- Other miscellaneous publications.

4.3. Services Required:

Here again the word services has a very broad spectrum, even within the context of the functions of INTIB. The meaning of the word is too general to enable giving a sensible answer. Any and all INTIB functions, when operated, could be translated as services required by INTIB users. We would have preferred to have a limited and clearer definition of the word services, to facilitate the task of giving a limited and clearer list of the services to be identified.

5. Assessment of the Manpower Requirements and Training Needs for the "National Information Systems".

The examination of appendices Nos. 2,3 and 9, will obviate that:

- The only "National" information network, by its were definition, design and planning, is the "EGSTINET".

- The Computer Centre and Information system belonging to the "National Organization For Military Production", may - in a sense - be considered a "National" Information System, though limited mainly to industrial activities.
The careful study of the relevant reports appended, should clearly prove that their training and manpower development plans for their own needs and for other institutions in the country, could be judged as being satisfactory enough to secure their own present and foreseable needs. However, if we consider skill and ability as being "limitless", which is a fact, then, we may also state that training and development of skill and abilities are"limitless".
Apart from the assessment of manpower requirements of these specific two "National" information systems, and stepping into a wider scope of ongoing training activities in the country, in almost all disciplines related to computer science and information systems and networks, we may judge the training situation, in general, in an optimistic sense.

6. Preparation of Schedule of the UNIDO experts field mission in Egypt

This job will be done soonest and telexed to the United Nations Industrial Development Organization (UNIDO), Vienna International Centre (VIC), P.O. Box 300, A-1400 Vienna, Austria, Telex: 135612.

APPENDICES

CENTRAL AGENCY FOR PUBLIC MOBILISATION AND STATISTICS

APPENDIX (1)

INFORMATION NETWORKS IN EGYPT

1 - GOVERNMENT :

1.1 - Existing Networks(1)

1.1.1 - Scientific & Technological Information network (STI) sponsored by Scientific Research Accademy.

1.1.2 - Military Medical Accademy Node(2):
This node does not have data stored inhouse, but could access Databanks ABROAD.

1.2 - Potential Networks :

1.2.1 - The National Statistical INFORMATION Network :
This network is in the "IMPLEMENTATION FEASIBILITY STUDY" phase, and this phase is financed already by the USAID. This phase is expected to end December 1986. The NSIN Project is sponsored by CAPMAS.

1.2.2 - FACTUAL DATA BANKS :

1.2.2.1- Prime Minister Office to support the CABINET.

1.2.2.2- Public Sector Information Center, sponsored by Prime Minister's Office to support the public sector's Industrial and the Sectorial activities.

---

(1) Gives service to any one in charge of fees.

(2) Connection is achieved through satellite communication.

1.2.3 - CADASTRAL INFORMATION BANK, sponsored by CAPMAS, Survaillance Authority and Ministry of Justice.

1.2.4 - SPATIAL INFORMATION BANK, sponsored by CAPMAS, Survaillance Authority.

2. - ORGANIZATIONS :

2.1 - Existing Networks :

2.1.1 - EGYPTAIR airlines and many others.

2.1.2 - Misrbank and many others.

2.2 - Potential Networks:

Encouraged by ARENTO's Packet Switching Network (PSN) which is expected to be operational by 1986, there will be a boom in developing information networks. The only restricting constraint will be MANPOWER.

3. - PRIVATE SECTOR :

3.1 - Existing Networks :

3.1.1.- I. B. M. is connected to its own worldwide network.

3.1.2 - Some petroleum companies.

3.2 - Potential Networks:

Please refer to 2.2.

APPENDIX (2)

IMPLEMENTATION OF THE NATIONAL SCIENTIFIC AND TECHNICAL INFORMATION NETWORK OF EGYPT

Ahmed Abdel Bassit
ENSTINET
Academy of Scientific Research and Technology
Cairo, Egypt

I. INTRODUCTION

1. Importance of STI

As a developing country, Egypt is striving to cope with the ever-changing era of science and technology. Despite the economic problems facing it, the country has not lost faith in the importance of research and development as a vehicle of progress. To the contrary: Egypt has allocated, for each of the next five years, about 1.2 percent of its annual gross national product to research and development. With the information explosion occurring today, Egypt is equally clear as to what it must do: to make maximum use of the accummulated experiences gained by other countries in the area of information; thoroughly study our environmental conditions and constraints; and develop our own national information system.

We know that most of the scientific and technical information is produced by the industrialized countries; therefore, we must plan to avail ourselves of it. In parallel, we are aiming at organizing the literature produced by Egypt, to make it useful at both the national and the international level. Egypt recognizes that the information service industry of developing countries needs subsidizing, and it intends to do so along with other urgent priorities and basic needs that must be subsidized.

The Egyptian National Scientific and Technical Information Network (ENSTINET) is a component of a larger program called the Applied Science and Technology Program (Attachment 1). Most components of this program have a tangible outcome which could be considered more important than information by the Egyptian layman: more and better foods, bio-gas technology for rural development, Red Sea fisheries development, and so on. Such projects are viewed favorably by decision makers who allocate the funds. This notwithstanding, the strong belief of Egyptians in the importance of information led to the allocation of U.S.$5 million for the so-called "STI Project" which led to the implementation of ENSTINET.

2. Background of ENSTINET

The idea of developing a national STI system, rather than a centralized national STI agency, was first raised and discussed in Egypt in the early 1970's. A number of persons, not all being information workers, had this idea in their minds, and some of them in their hearts. Most of these individuals were highly respected members of the scientific community.

Following several years of discussions and planning, the idea materialized in 1979 in the form of the STI Project, under the mentioned bilateral Applied Science and Technology Program. The STI Project is a joint effort of the Egyptian and the United States governments. The Egyptian counter-part is the Academy of Scientific Research and Technology (ASRT); the American counter-part is the U.S. Agency for International Development (A.I.D.).

The School of Information and Computer Science, Georgia Institute of Technology (Atlanta, Georgia, U.S.A.), was contracted by the A.I.D. to carry out the STI Project over a five-year period starting in 1980.

The STI Project was divided into two phases: the analysis and design phase, and the implementation phase. The first phase extended over a two-year period through 1981. It consisted of extensive, diversified surveys analyzing the current information situation of Egypt, and laying the foundations for the design of the national system. A number of technical reports produced during this phase are available through ENSTINET in Cairo or the National Technical Information Service (NTIS) in the U.S.

The major product of this first phase was the conceptual and physical design of a national STI network. The design was based on the findings of the analyses, the study of national and international information services (existing and planned), an assessment of developments in the discipline of information system engineering, and on a careful extrapolation of the trends in information technology developments.

The second, current phase of the STI Project is devoted to the implementation of the proposed design. It began in late 1982 and will be completed in 1986. The implementation phase includes a massive training project which will be discussed later in this paper.

II. ENSTINET DESIGN

This section discusses the purpose, functions, and structure of the Egyptian National STI Network.

1. Purpose of ENSTINET

The overall purpose of ENSTINET is to bring knowledge to bear on human problem solving in the socio-economic development of Egypt.

It behooves the information community of Egypt to help its country to develop, grow and flourish by supporting decision making and problem solving with quality data and information. It is time for this developing country to minimize decision making based on intuititon, and to base decisions on facts and knowledge.

2. Functions of ENSTINET

The main functions of ENSTINET are:

- o To raise public awareness of the utility of information
- o To organize Egypt-produced S&T literature
- o To facilitate access to available information resources in Egypt and abroad
- o To market information services
- o To train Egyptian manpower in information work and technology
- o To coordinate international programs in the information field.

2. Principles of ENSTINET Structure

The overall structure of ENSTINET was guided by a number of principles. Some of these are:

- o ENSTINET is a network of information services, not resources
- o ENSTINET is based on the sectoral principle, with each network node serving a specific socio-political community
- o Each sectoral information service node is autonomous
- o Each sectoral node is an independent cost center
- o A coordinating body ("focal point") manages the network
- o Public services are rendered through the sectoral nodes, not the coordinating body
- o Within the general guidelines, each sectoral node has the prerogative of setting its own organizational structure, depending on type of activities, the size and capacity of the node, the size of the target community, etc.
- o ENSTINET operations should conform to international standards and practices.

3. The Structure of ENSTINET

Structurally, ENSTINET is a network of distributed information services, not a centralized system. Its components are a) sectoral information services, and b) the coordinating agency.

a. Selection of Sectors

The selection of the initial economic sectors of ENSTINET was based on the country's Five-Year Plan and on priorities set by the Ministry of Planning. The following five sectors were selected for the initial phase of ENSTINET's development: agriculture; energy; industry; medicine and health care; and science and technology. The information needs of these five sectors were considered most crucial to the country's socioeconomic development.

b. Selection of Sectoral Host Organizations

The selection of the appropriate organization in each sector to incubate and host the ENSTINET information service node was carried out by means of a survey of candidate organizations. The selection criteria included: the organization's attitude toward public service; its ability to host an information service (personnel, premises, budget, etc.); user-related factors (accessibility, etc.); previous work in information; and other.

The five organizations selected to host information services in their respective sectors are shown in Attachment 2.

Each of the service nodes has a staff of 10-20 persons, depending on its size and scope of activities, housed on a well prepared site. Attachment 3 is a typical layout of the site; Attachment 4 shows the organizational chart of a typical node.

c. The Coordinating Body

The coordinating body of ENSTINET performs a network management function. It is responsible for coordinating network-wide activities and services so that they appear transparent to sectoral ENSTINET users; developing standards and measures of compatibility at the levels of policy, procedures, and technology; and for performing network-wide administration. The coordinating body is furthermore responsible for carrying out certain activities centrally, such as technical and marketing support of the nodes, publishing, and training; it does not, however, compete with the nodes in provision of public information services.

Attachment 5 show the proposed chart of the network management body. Currently being institutionalized as a legal entity, this coordinating agency is seen as an independent institution, with its own basic budget, and freedom to generate additional income.

Attachment 6 is an overview of the ENSTINET concept of sectoral information services and their coordinating agency.

4. Information Technology

A thorough study of the state-of-art of information technology and its future trends was begun during the system design phase and has continued throughout the STI Project. Some of the principles annunciated as regards the application of this technology in ENSTINET include the following:

- o ENSTINET does not support hardware standardization; instead, it standardizes at the level of the operating system software
- o From a technology standpoint, ENSTINET is an open-ended network capable of expansion in terms of number of nodes, volumes of data and traffic, and types of devices
- o Hardware capacities allow for prudent expansion but anticipates the introduction of new technologies

- o Network communications support international (CCITT) standards and utilize both unconditioned (local dial-up) and packet-switched lines

- o Software used by end-users must support the generation and querying of databases in Arabic and Latin

- o A single bilingual query language supports all natural-language databases, both Egyptian and leased

- o ENSTINET is a sectorally distributed, communications-based database network, with no plans for a single, central database vendor or site.

The operating system selected for ENSTINET is UNIX (trademark of Bell Laboratories). The information management software that supports the database applications of ENSTINET is BRS/Search (Mini-Micro Version), a multi-user, full text storage and retrieval system featuring fully automatic indexing.

The hardware that supports these applications consists, at each sectoral node, of an AT&T 3b5 minicomputer with 2Mb central memory (expandable to 8Mb), 500Mb disc storage, a magnetic tape drive, 2 dual-speed printers, 10 bilingual terminals (expandable to 24), 3 ports dedicated to telecommunications, and an external power supply source.

III. ENSTINET SERVICES

The basic public services supported by all ENSTINET nodes are database building, retrospective and current-awareness database searching, and document delivery.

1. Database Building

A major function of the STI Project was to capture Egyptian literature in science and technology in the form of electr databases. The database effort is now underway with respect to both iographic and non-bibliographic databases.

The bibliographic databases contain bibliographic description of documents, with associated indicative abstracts. The databases, built in a distributed, sector-based manner, covers the following types of primary literature: books, monographs, periodicals, theses, technical reports, conference proceedings, patents, standards, and norms. It is intended to issue a composite extract of the sectoral databases in printed form, as an abstracting journal.

The STI Project has developed a common national bibliographic record format for these databases, with associated directories and manuals.

Nonbibliographic databases cover on-going research projects, Egyptian experts, scientific and industrial organizations, as well as selected other statistical and numeric data. These are in varying stages of planning or development.

2. Retrospective Database Searching

Online searching of both domestic and foreign-located databases is supported by all ENSTINET nodes. Searching of foreign databases located overseas utilizes a newly installed packet-switched connection. Domestic online searching of Egyptian and leased databases uses unconditioned 300 or 1200 cps telephone lines.

In the last three years, over 4,000 retrospective searches have been carried out by ENSTINET on over 100 databases located abroad.

3. Current Awareness Service

ENSTINET is bringing to Egypt updates of a small number of several large international databases, against which its sectoral services will provide a monthly current awareness (SDI) service to organizational and individual clients. Beginning September this year, such services will be based on the following databases: AGRICOLA (agriculture sector), COMPENDEX (industry and engineering), ISI/DB+ (science), and MEDLINE (medicine and health care). The total number of citations added by these databases each month is about 100,000.

4. Document Delivery

To achieve a maximum use of information resources available in Egypt, a union list of the holdings of selected Egyptian libraries has been compiled and distributed in both electronic and printed forms. Copies of documents not available or easily accessible in Egypt are secured from international repositories, notably the British Library Lending Division. The average turn-around time is 3-4 weeks.

IV. MANPOWER DEVELOPMENT

The STI Project has strongly emphasized manpower training in information related fields. During the earlier analysis/design phase of the Project, a significant portion of the financial resources was devoted to training. The duration of training missions abroad varied between 3 and 9 months.

In the present, implementation phase of the project, the following forms of training proceed in parallel.

1. ENSTINET In-House Training

The ENSTINET team of professionals and consultants carrying out the implementation of the STI Project has organized and taught numerous courses for staffs of the information service nodes. Frequent offering in areas such as database search techniques, computer-related subjects, and marketing have been attended by several hundred participants.

2. National Training Program

The STI Project is sponsoring, via a subcontract to an Egyptian firm, a

massive training program for 1,000 persons. The program focuses on managers, professionals, and paraprofessionals in information-related fields from all sectors, and it is conducted at no cost to the trainees or their organizations. A carefully structured complex of courses of varying duration has been designed (Attachment 7). The program began in January 1984 and is slated to finish this October.

Following the end of this broad training effort, ENSTINET intends to continue this program in a modified form under its own auspices and on a commercial basis.

3. Training Overseas

Although a concerted effort has been made to provide all needed training domestically in Egypt under ENSTINET auspices, selected senior members of ENSTINET organizations have available to them advanced training abroad, in the form of short courses, site visits, and the like.

4. On-The-Job Training

Skill-related training, both professional and paraprofessional, is supported through the sectoral information service nodes themselves, with some assistance from ENSTINET staff. It is envisaged that the nodes will formalize this function.

V. INFORMATION MARKETING

A long-term marketing plan was developed under ENSTINET leadership, and marketing teams from all nodes selected and extensively trained.

The promotion of ENSTINET information services is based on several strategies: personal visits and presentations to key executives and large organizations; mass mailings of promotional materials; use of professional and mass communication media for advertizing; presentations at meetings and conferences; and other means such as posters.

Each ENSTINET sectoral node is staffed with marketing specialists, while the ENSTINET coordinating body assists in developing generic marketing strategies and tools.

VI. IMPLEMENTATION DIFFICULTIES

The STI Project, in implementing ENSTINET, has faced a number of obstacles. Similarly, ENSTINET must be prepared to deal with a variety of difficulties, some of which are specific to Egypt, other to developing countries in general. Among such difficulties are the following:

1. Manpower-Related Problems

The availability and mobility of skilled manpower is a generic problem in Egypt. The country suffers from a serious brain-drain of skilled professionals, which affects the staffing and remuneration of all nodes.

The problem is made more difficult because ENSTINET is a government agency, and its employees are constantly tempted by offers from the private sector and other Arab countries.

2. Perception of Public Information Systems

Some high governmental officials have a tendency to view information systems as tools of management rather than as public utilities. The concept of public information service is not always viewed favorably by officials accustomed to having privileged access to data and information as a decision-making resource.

3. Availability of Data

To create and maintain current domestic databases, an effective system must be implemented for regular data capture, quality control, and processing. In developing countries, this is a major source of difficulty. As much as the tradition of information flow and husbanding is absent, one must look to legislation to institutionalize information flows.

4. Infrastructure

Other impediments to quality service are aspects of the domestic infrastructure such as telephone and mail service. When using public telephone services for data communications, as is the case in ENSTINET, the reliability and stability of the telephone system plays an important part. Similarly, rapid delivery of search output and other mails depends on a responsive, reliable postal service.

5. Finances

It is well known that information services of developing countries need financial subsidies. Even though these subsidies come largely from governmental sources, they tend to fluctuate, and as a result affect the stability of information services as well as the building of information resources. A campaign to raise the awareness of information user communities about the importance of these services might mitigate this problem.

6. Standardization

National systems like ENSTINET, with their networking philosophy, need to link, integrate and coordinate a number of discrete service organizations. Some of the latter may already have certain commitments or established standards which may not be compatible with the requirements and standards of the network. Resolution of these issues can be time consuming.

VII. THE FUTURE OF ENSTINET

Two aspects may be mentioned in this paper regarding the future development of ENSTINET, as follows.

1. Internal Development

Perceiving the future of ENSTINET, we expect the growth of the network to take place along four dimensions: sectoral, geographical, service, and technological.

It is expected that other sectors will join the information service network. Education, reconstruction and land reclamation, and financial investment are examples of such sectors.

Geographical extension of ENSTINET services will cover large settlement areas other than Cairo, notably Alexandria, Assiut, and other university communities.

ENSTINET also foresees the gradual introduction of more sophisticated public services, depending on the sectoral needs and the capabilities of the nodes. Particular needs exists as regards information analysis services, and rapid-response reference questions in a wide variety of situations faced by decision makers.

Along the technological dimension, ENSTINET anticipates to accommodate the optical disc database medium, developments in economical electronic document delivery, integration of database and electronic mail services, and a strong growth in Arabic-language information processing. A domestic packet-switched network, when it is established in Egypt, will offer the challenge of integration of ENSTINET with other information services and networks.

2. Regional and International Aspects

With respect to regional networks, ENSTINET would be pleased to explore mutual cooperation and coordination with existing projects such as the Pan-African Documentation and Information Centre (PADIS) and the Arab League Network. Preliminary contacts have been made with both these efforts.

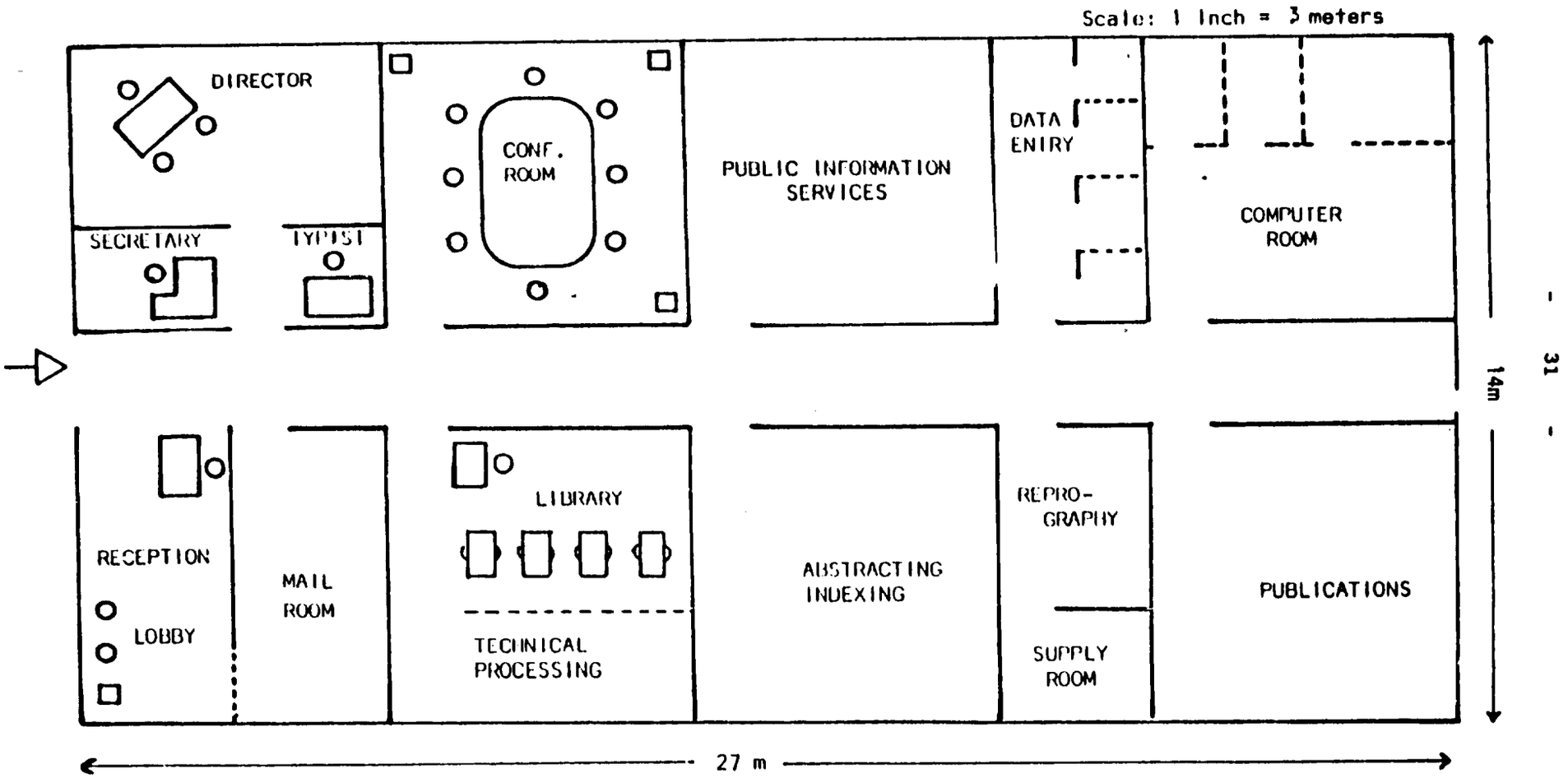
As regards the "global network", it remains of course to be seen what would be the form and purpose of this concept. ENSTINET can be viewed as incorporating a number of properties and characteristics that would seem indispensable to a global network. Among these are: compatibility with international information processing, interface, and communications standards; adoption of frontier technology, and compatibility with technology now in testing stages; and a commitment to the philosophy of distributed networking in which Egypt is spearheading the evolution of complex public information utilities in developing countries.

Attachment 1. Applied Science and Technology Program

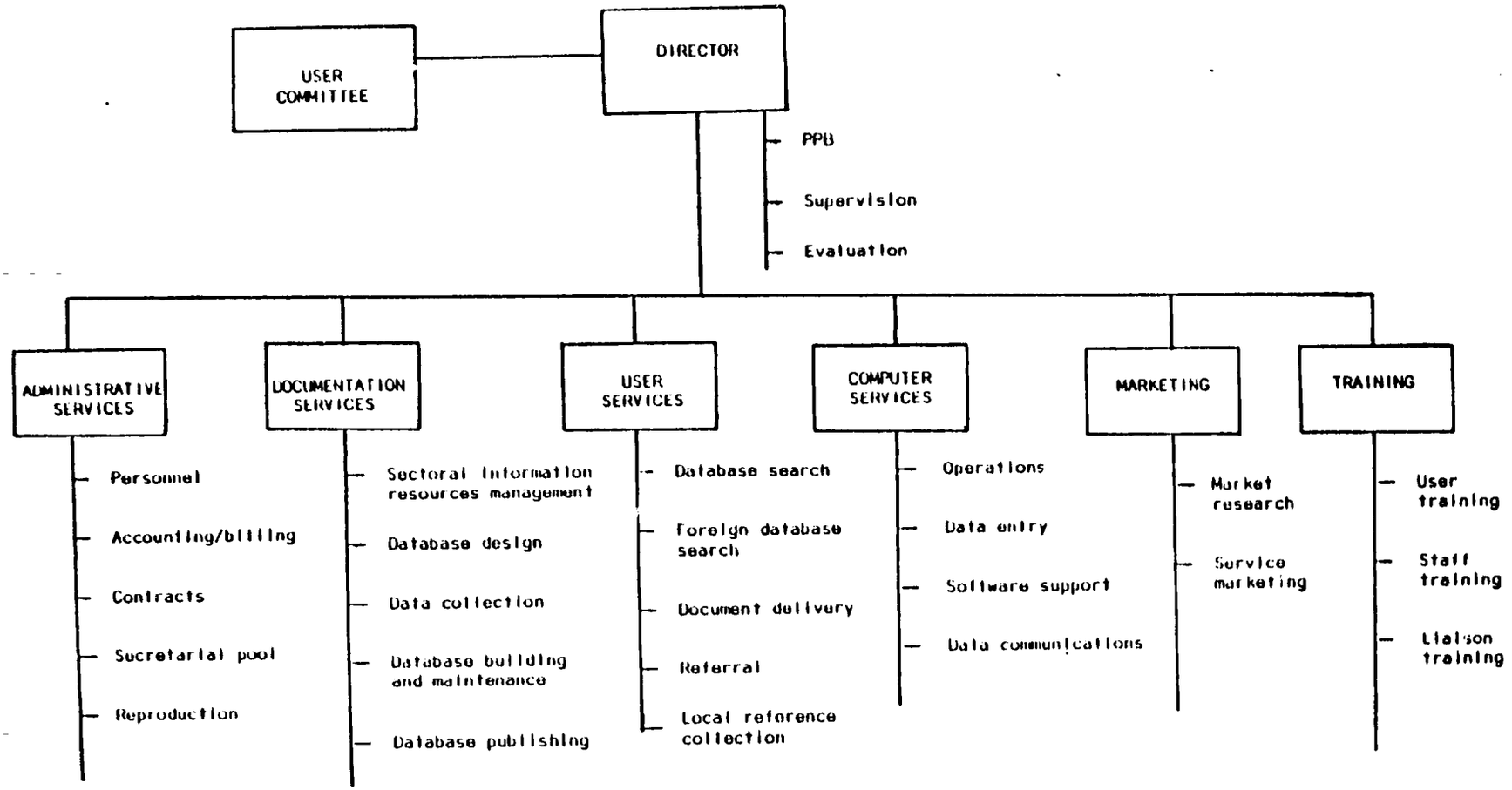
1.	More and Better Food
2.	Bio-Gas Technology for Rural Development
3.	Land Reclamation and Land Use
4.	Phosphate Ore Beneficiation
5.	Corrosion in Petroleum Refineries
6.	Wool Wax Scouring
7.	Pharmaceutical Chemicals
8.	Red Sea Fisheries
9.	Utilization of Bentonite Ore
10.	Scientific and Technical Information (STI) Project
11.	Standards, Measurements and Quality Control
12.	Repair and Maintenance of Scientific Equipment
13.	Towards a National S&T Policy for Egypt

Attachment 2. Host Organizations of ENSTINET
Sectoral Information Service Nodes

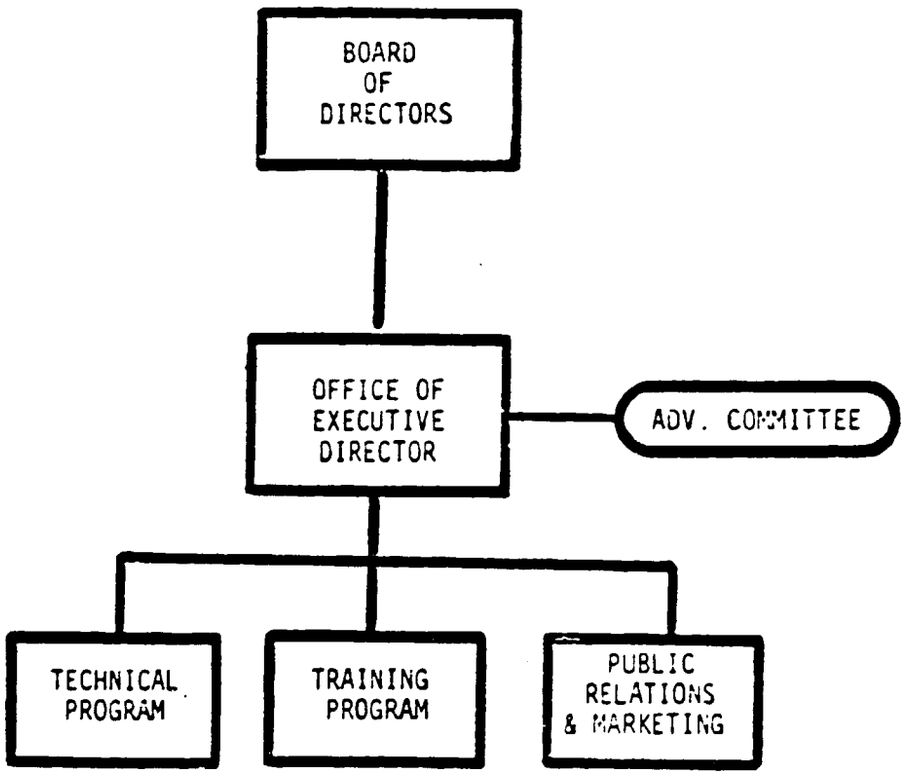
SECTOR	HOST ORGANIZATION	ABBREVIATION
Agriculture	Egyptian Documentation and Information Centre for Agriculture (Ministry of Agriculture)	EDICA
Energy	Organization for Energy Planning (Ministry of Petroleum)	OEP
Industry	Engineering and Industrial Design and Development Centre (Ministry of Industry)	EIDDC
Medicine, Health Care	Center for Educational Technology (Ministry of Health)	CET
Science and Technology	National Information and Documentation Centre (ASRT - Ministry of Sci. Research)	NIDOC



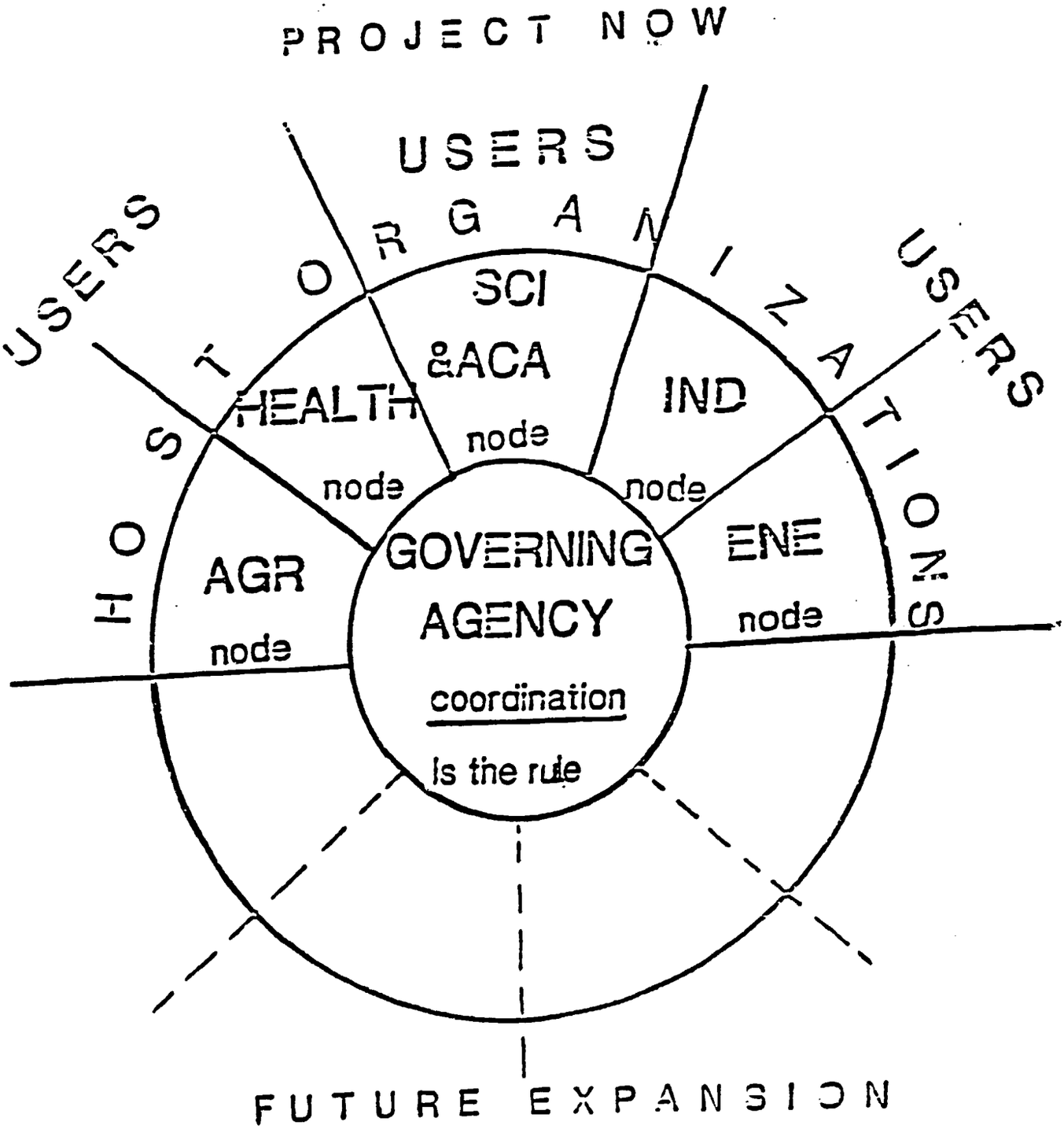
Attach. 3 SECTORAL INFORMATION SERVICE: TYPICAL FLOOR PLAN



Attach. 4 ORGANIZATION AND FUNCTIONS OF SIS NODE.



Attach. 5 Suggested Organizational Structure of Governance Agency.



Attach. 6 ENSTINET Concept of Sectoral Information Services and their Coordinating Agency

THE TRAINING PLAN

SERIAL NO.	PROGRAM CODE	TITLE	FREQUENCY	DURATION (DAYS)	AUDIENCE
1	M2	INFORMATION SUPPORT FOR MANAGEMENT	9	3	TOP MANAGEMENT/EXECUTIVE DIRECTORS
2	P1	INFORMATION SERVICE DEVELOPMENT	4	60	UNIVERSITY GRADUATES SEEKING CAREERS IN INFORMATION SERVICES.
3	P2	INFORMATION SYSTEMS & DATABASE	3	50	UNIVERSITY GRADUATES WITH COMPUTERS AND DATA BASE EXPERIENCE.
4	P3	"UNIX" SOFTWARE PROGRAMMING	2	35	UNIVERSITY GRADUATES WITH COMPUTER AND PROGRAMMING EXPERIENCE.
5	P4	COMPUTER OPERATION, MAINTENANCE AND TROUBLESHOOTING	3	20	ELECTRONIC ENGINEERS.
6	C1	BASIC LIBRARY SKILLS	6	20	SECONDARY AND VOCATIONAL SCHOOL GRADUATES
7	C2	TEXT PROCESSING & DOCUMENT PREPARATION	6	10	SKILLED TYPISTS WITH GOOD KNOWLEDGE OF ENGLISH
8	C3	DATA ENTRY	16	5	SKILLED TYPISTS WITH KNOWLEDGE OF ENGLISH

Attach. 7 Structured complex of the courses and duration

Adams, S., Madkour, M.A.K., Slamecka, V. A proposed National Information Policy of Egypt. Atlanta, Georgia Institute of Technology; Cairo, Academy of Scientific Research and Technology, September 1981.

Dodd, J. B. Computer-Accessed Information Services. Final Report, NSF Contract INT-7924178, Project 3. Atlanta, Georgia Institute of Technology Price Gilbert Library, October 1982.

ENSTINET. Guidelines for Searching Foreign Databases. Cairo, Academy of Scientific Research and Technology; Atlanta, Georgia Institute of Technology. July 1983.

Georgia Institute of Technology. Computers for the National Scientific and Technical Information System of Egypt. Request for Proposal. USAID Contract NEB-0016-C- 00-2092-00. Atlanta, Georgia, Georgia Institute of Technology. October 1983.

Georgia Institute of Technology. National Program of Training for Careers in Information Services and Technology. Request for Proposal, USAID Contract NEB-0016-C-00-2092-00. Atlanta, Georgia, Georgia Institute of Technology. March 1983.

Sarasohn, H.M. Information Use and Needs in Egypt. Atlanta, Georgia Institute of Technology; Cairo, Academy of Scientific Research and Technology, 1981.

Slamecka, V. Database Software Selection for the Egyptian National STI Network. Atlanta, Georgia Institute of Technology; Cairo, Academy of Scientific Research and Technology, June 1984.

Slamecka, V. Developmental Guidelines for Sectoral Information Services. Cairo, Academy of Scientific Research and Technology, May 1983.

Willenbrock, F.K. The National STI System of Egypt. Report of an Evaluation Team. NSF Contract 82-SP-0648. March 31, 1982.

ENSTINET. Egyptian National STI Network, National Information Policy, A Bibliography. Academy of Scientific Research and Technology. September 1984.

Meshally, H., El-Hefni, G. Fact Finding Guide for Conducting a field survey of Candidate Organizations To Host the Information Service Nodes. Academy of Scientific Research and Technology. 1982.

APPENDIX (3)

DEVELOPMENTAL GUIDELINES

FOR SECTORAL INFORMATION SERVICES

May 1983

Academy of Scientific Research and Technology
Cairo, Egypt

PREFACE

This document contains a set of policies and guidelines intended to assist the establishment of information service units in various sectors of Egypt. These "sectoral information services" are a key element of the national system of scientific and technical information being developed in Egypt under the leadership of the Egyptian Academy of Scientific Research and Technology.

Partial support for the preparation of this document was provided by the U.S. Agency for International Development, as part of the U.S.-Egyptian Agreement on Cooperation in Science and Technology. The Georgia Institute of Technology is the primary contractor for this project.

TABLE OF CONTENTS

Tables

Figures

1. INTRODUCTION

This document contains a set of policies and operational guidelines intended to assist the establishment of the Sectoral Information Service (SIS) nodes of the Egyptian National STI Network.

The SIS nodes are the basic organizational element of the Network. Established in carefully chosen "host" institutions or agencies of selected socioeconomic sectors of Egypt, SIS nodes provide the sectoral clientele with a range of information services and facilitate its access to and use of problem solving knowledge. SIS nodes are ultimately responsible for their performance to sector Ministries which in turn guarantee their existence and financing.

Horizontal coordination among SIS nodes is provided by a "Governance Agency" of the National STI Network. This body, now in a formative stage, is a policy and planning organization whose principal function is to assure the stable performance of the National STI Network and its further evolution in a planned, coordinated and compatible manner. Until the establishment of this body, the leadership function is being performed by a high-level "Executive Committee" appointed for this purpose by the Academy of Scientific Research and Technology. The ASRT is the facilitating agent for the establishment of the National STI Network, acting under the auspices of a U.S.-Egyptian Agreement on Cooperation in Science and Technology.

The selection and appointment of SIS nodes is a careful, documented process which begins by opening a dialog with the Minister of each sector

The first step is the identification, by the ASRT and the respective Ministry, of suitable candidate organizations within the sector for hosting the SIS node; these are typically although not mandatorily agencies or institutions from the public sector, including government agencies. Having ascertained interest on the part of the organizations so identified, each is extensively evaluated as to its suitability and potential for hosting an SIS node. The rigorous evaluation process ends with the tentative selection of the best qualified candidate agency; at this point the ASRT opens direct negotiations with that agency's management. If successful, the negotiations result in the joint execution of an Agreement of Understanding, the principal purpose of which is to formalize the responsibilities of the host organization. If appropriate, the Agreement is ratified by the sectoral Minister.

The guidelines outlined in this document address themselves to the following structural and behavioral aspects of SIS nodes: Objectives and Functions; Organization and Management; Information Services; Database Development; Information Technology; Marketing; Training; and Governance Agency Support. Under each of these headings, the guidelines address two sets of issues: policies, and operational guidelines. Policies are understood to be generic principles governing the existence of SIS nodes as elements of the National STI Network; they should, at this stage, be viewed as propositions subject to ratification. Operational guidelines expand on the policies in a pragmatic way, so as to facilitate the development of practices and procedures for the day-to-day functioning of SIS nodes.

The policies and operational guidelines are presented at a level that renders them common to all sectoral information services. The mapping of these guidelines into situations specific to a given sector is the responsibility of individual SIS node management.

public (nonprivate) information groups.

2.1.6 Each SIS node shall be considered its sector's representative and lead agency vis-a-vis international information agencies and programs pertaining to that sector.

2.2. Operational Guidelines

2.2.1 The minimal functions of each SIS node are described in sections 4-8 of these Guidelines.

2.2.2 In principle, all citizens of Egypt are eligible to be potential users of the public information services offered through the National STI System of Egypt. Pragmatic factors dictate, however, that priorities be allocated to certain classes of users, in the interest of maximizing the effect of information services on the social and economic development of the country. In this spirit, a relative priority should be accorded to serving users whose activities have a broad or significant potential effect on the country's development. Such categories are a) high echelon decision makers and executives in the service, production, and research sectors, whether in privately or publicly owned organizations and institutions; and b) the professional strata of the public, comprised of individuals with training and expertise in problem solving and decision making. These individuals are usually active in technical, economic or social fields that require the application of state-of-the-art

2. OBJECTIVES AND FUNCTIONS

2.1 Policies

2.1.1 Each SIS node shall plan for and provide high-quality public information services to its clientele. "Public information services" are defined as information-centered activities that assist citizens of Egypt engaged in purposive problem solving and decision making.

2.1.2 Each SIS node shall manage and/or provide access only to data and information in the public domain. Public-domain data excludes classified, proprietary, and otherwise restricted information.

2.1.3 Each SIS node shall give highest priority to serving the clientele of sectoral decision makers and professional problem solvers in all domains of social and economic development.

2.1.4 Each SIS node shall actively contribute to the systematic development of a National STI Network by participating in activities conducted under the auspices of the Network's Governance Agency.

2.1.5 Each SIS node shall be responsible for and promote the development of a healthy information infrastructure within its sector. Informally, the node shall be considered the lead agency of the sector's

methodologies, are characterized by incomplete problem definitions and descriptions, and often involve selection of alternatives. Managers, economists, physical and social scientists, research and development engineers and technologists, heads of production facilities in industry and agriculture, staffs of health care institutions, population and settlement planners, and senior education personnel including graduate university students are major examples of this category of high-priority users.

2.2.3 Considerations of effectiveness of sectoral information services argue strongly that each node also give priority attention to serving clients within the substantive domain of its sector. This principle does not absolutely preclude the marketing of information services to a given clientele by more than one SIS node; it should make such marketing, and subsequent provision of services, an exception rather than a rule, however. The objective of the principle of sectoral orientation is to strive for a stable, relatively homogeneous clientele and a predictable direction of growth of each SIS node.

2.2.4 The sectoral information service nodes shall collect, manage, and provide access only to data and information that is in the public domain. Classified information, such as data related to national security; proprietary or corporation-private information, such as details of a confidential industrial process, or internal agency or firm data; and any data violating existing personal privacy laws, regulations, or common sense practices must not be collected, comingled with, or made available by sectoral information services. This principle implies that the SIS nodes

must not comingle their public-service function with other, non-public functions (such as operating a management information system for its host organization).

2.2.5 The relationship of SIS nodes to the Governance Agency is characterized as participatory and supportive of the latter's responsibility for developing national information policies and programs, planning and coordinating the implementation and evolution of the National STI Network, and monitoring the overall effectiveness of the Egyptian public information service sector. A strong, two-way channel of communication between the national and sectoral levels is essential. Each SIS node is to have voting representatives on the Governance Agency's policy and technical boards or committees. In turn, SIS nodes are expected to abide by democratically-reached decisions and operating guidelines released by the Governance Agency. A decision of a node not to participate in the National STI Network and/or to disregard agreed-upon policies and practices of the Network will cause the node to be dropped as a sectoral service. Specific forms of assistance given to SIS nodes from the Governance Agency are described in section 9 of this document.

2.2.6 Each SIS node is the main mechanism for the building of the information infrastructure of its sectors. In this context, sectoral infrastructure activities are comprised of a) the identification, stratification and development of sectoral information communities; b) the definition and development of an intrasectoral network of information liaison personnel; c) a sector-specific program of manpower development and

inhouse training; and d) the initiation and coordination of a systematic program for the organization and development of selected sectoral information resources.

2.2.7 The SIS responsibilities for sectoral infrastructure and international relations, and the plans for executing them, must be closely coordinated with the related activities of the Governance Agency. The responsibility of the Governance Agency in these two areas includes nationwide information awareness programs, nationwide programs of professional education at university level, continuing education programs, national information policy, and Egyptian national representation at international information forums. The governance agency needs to be kept informed of sectoral plans, so as to help maximize their impact and reduce unnecessary duplication or competition.

3. ORGANIZATIONAL STRUCTURE AND MANAGEMENT

3.1 Policies

3.1.1 Each sectoral SIS node shall be an autonomous organization, or a unit within an autonomous host organization. The term "autonomous" implies a line (reporting) relationship between the SIS node and the management of its host organization.

3.1.2 If accommodated within a host organization, the SIS node shall have a distinct and separate organizational identity as a division, department or similar major, named unit of that organization.

3.1.3 Each SIS node shall be headed by a Director who is a senior officer of the host organization. The Director's rank shall be approximately equivalent to the civil service rank of _____.

3.1.4 The regular staff of the SIS node shall be permanent, full-time employees of the host organization; they shall be carried on its payroll. This policy is not intended to preclude employment of temporary personnel, full- or part-time consultants, individuals seconded from other organizations, and similar persons in professional or clerical positions.

3.1.5. The minimum senior staff positions to be filled by each SIS node shall include at least the following: Director; Manager of Information Services; Manager of Database Operations; Marketing Manager; Training Manager; and Manager of Computing Services. This is not to imply that these positions comprise the full staff of the node.

3.1.6 Each SIS node shall regularly develop a formal Annual Plan of proposed activities, schedules, and an annual budget. This formal document shall be submitted for approval to the management of the host organization. A copy of the approved Plan shall be provided to the Governance Agency.

3.1.7 The host organization shall be responsible for regularly providing the SIS node with a budget sufficient to cover regular staff positions and operating expenses, in accordance with the adopted salary scales.

3.1.8 Budget requests shall be presented by the node Director to the host organization management. All major budget categories of the SIS node shall be carried as line items in the budget instrument of the host organization. The SIS node shall disburse the budget allocations in conformity with the budgeting and accounting principles and practices of the host organization. Within these principles and practices, the SIS node Director shall have full authority for the management and expenditure of allocated funds.

3.1.9 The host organization shall house the operations and administration of the SIS node in adequate, air-conditioned physical space, and at no cost to the node. A direct international telephone line shall be installed on the SIS node premises.

3.1.10 A permanent advisory SIS User Committee of no less than six persons shall be appointed to advise the SIS node Director on issues relating to user services and client relations.

3.2. Procedural Guidelines

3.2.1 Each SIS node will select a unique designation with the following common syntax: National [Sectoral] Information Service (for example, National Agricultural Information Service, National Science Information Service, National Energy Information Service). An appropriate acronym, suitable for use as a coded designation on forms and in data processing, is desirable. The name and the acronym should not include the designation or reference to the name of the host organization.

3.2.2 The highly desirable if not mandatory qualifications of the SIS node Director include: an advanced university education in a discipline relevant to the concerns of the sector; demonstrable commitment to a permanent career in the information sector; familiarity with both policy-level and technical issues and processes of the information sector; minimum of five years of prior successful managerial responsibility; high

entrepreneurship within a service-oriented domain; and maturity and integrity in dealing with the public.

3.2.3 Table 1 presents an estimate of the minimum staff required at a typical sectoral information service node at the end the initial startup period (approximately one year).

3.2.4 Figure 1 is a suggested organizational structure of a fully developed and operational SIS node. Details of the organization may vary with local circumstances or specialized functions of different SIS nodes.

3.2.5 Figure 2 shows an estimate of the physical space required by an SIS node in the early phases of its operation. Again, details of physical arrangements will vary with local circumstances.

3.2.6 Table 2 presents an example of an annual operating budget for an SIS node of the size represented by Table 1, in 1983 currency.

3.2.7 IMPORTANT: Tables 1-2 and Figures 1-2 do not account for the effort that may be needed to organize and convert large backlogs of data into machine-readable form. The magnitude and cost of this effort may vary considerably from node to node.

3.2.8 In providing the budget the host organization may avail itself of internal as well as external sources of funds, including income generated by the node's information and consulting services, allocations

from administrative organs such as ministries, grants-in-aid and foreign donor funds. The host organization is expected to endorse a uniform policy on salary incentives, as promulgated by the National STI Network.

3.2.9 Services that involve physical contact with the public should be located in contiguous, conveniently accessed premises, with attention to need for privacy of client interviews. Stable electric power to operate electronic devices and air conditioning, safe wiring, quality furnishing, maximum dust protection, and efficient janitorial services are mandatory. Security requirements in effect must conform to those customary for modern computer centers and databanks.

3.2.10 The Committee members, appointed on a rotating basis, should represent key client organizations or user groups of the sector. The Committee should meet periodically and regularly with the management and senior professional staff of the SIS node. Members of the Committee serve without salary.

4. INFORMATION SERVICES

4.1. Policies

4.1.1 The minimum level of information services provided by SIS nodes shall have as their objective the coupling of users with existing sources of data and information. "Information sources" are understood to be human experts, machine-readable databanks of public information, and organized collections of documents in the public domain. The definition of minimum level of services is not intended to preclude SIS nodes from offering other, or more advanced, services; indeed, introduction of such services at a later time should constitute a norm.

4.1.2 As the principal operating agencies of the National STI Network, SIS nodes shall observe and conform to an agreed-upon set of common Network policies, standards, and practices. The purpose of this policy is to assure, on behalf of all users, a systematic and compatible operation of the nation's information services. The policies, standards, and practices shall be elaborated, proposed for discussion, and when agreed upon formally issued by the Governance Agency of the National STI Network. The Egyptian National Information Policy, when formulated and enacted, shall form the overall guiding principles for the long-term development of sectoral information services.

4.1.3 The complement of common standards and practices shall cover, as a minimum, the following categories of issues; SIS job categories and salary levels, including incentives; manpower certification; information technology; methodology of work processes; service quality standards and pricing guidelines; performance/activity monitoring; and relations with international organizations in the information field.

4.1.4 A national, Network-wide user service quality assurance program shall be put into effect and adopted by all SIS nodes. The program shall include, but not necessarily be limited to, a common statistical reporting system, and a periodic appraisal of the node performance. The latter shall be carried out annually during the first 3 years of a node's operation, and be performed jointly by the SIS node, its host organization, and the Governance Agency.

4.2 Procedural Guidelines

4.2.1 The systematic development of sectoral information services involves the following sequence of activities: a) an assessment of the sectoral clientele and of its requirements vis-a-vis repositories of scientific and technical data and information; b) the identification of principal sources and repositories of information relevant to the sectoral clientele and its requirements; and c) the development of user access mechanisms to existing data and information repositories and stores.

4.2.2 The first step involves the identification of the major clusters of potential users in the sector. Since users are invariably affiliated with some formal or semiformal organizations, this activity implies an organizational study of the sector, with a focus on the mission, configuration of decision-making and problem-solving staffs, and size of large and/or important organizations.

4.2.3 Identification of existing information sources and repositories takes into account domestic and foreign commercial database services (the latter are conveniently cataloged in several up-to-date directories); organized collections of public documents within the sector, in Egyptian libraries and in foreign stores; and existing catalogs and directories of human experts. This analysis should produce a sectoral directory of information sources currently available in Egypt, briefly describing their nature, availability, means of access, and similar parameters.

4.2.4 The information service which provides access to existing data and information sources has three elements: searching of existing "databases" (electronic or printed catalogs, directories, etc. of information and/or data); delivery of physical documents; and user evaluation of both functions. All three elements must be available simultaneously.

4.2.5 Each SIS node is intended to offer its clients the ability to search foreign and domestic databases. In the temporary absence of economical telecommunications between Egypt and foreign database vendors, a

system of "delayed online" database searching has been developed (1) and should be implemented at each SIS node. The U.S.-based contractor for this service is the Georgia Institute of Technology.

4.2.6 Document delivery is complementary to the database search service. Whereas the latter typically informs about the existence of recorded knowledge, the document delivery service actually procures for the user physical copies of the records desired. The document delivery service design is described in (1). The vendor currently used by the National STI Network to supply documents not available in Egypt is the British Library.

4.2.7 The third component of the initial user services is a mechanism for gathering users' feedback regarding the effectiveness and quality of the database search and document delivery services. This mechanism of feedback collection is also described in (1). Instructions for feedback analysis and generation of performance statistics will be provided presently by the Governance Agency of the National STI Network.

4.2.8 The operation of database search and document delivery services will require each SIS node to establish and maintain a number of administrative registers or files. When computers are installed in the SIS nodes, these files will be maintained in electronic form as part of the SIS node's

---

(1) ASRT. Manual for Foreign Database Search and Document Delivery. Cairo, ASRT, 1983.

administrative database. Meanwhile, the files consist of manually completed forms (designed, however, for conversion to electronic form). The complement of administrative files required by each SIS node includes the following: a user file; a database search request file; a document request file; a user feedback file; and a billing/accounting log. Samples of the forms of each of these files, as well as of a temporary telex transmittal form, are included in (1).

4.2.9 A number of user questions likely to reach an SIS node may not require either database searching or document delivery; rather, the expected response is in the form of names, places or contacts that will be helpful to the user. This type of service is typical of the reference function in public and academic libraries. While the SIS nodes will not intend to duplicate the library reference function, the inevitable occurrence of user requests of this type suggests strongly that each SIS node have available on the premises a core list of reference materials (primarily various types of directories of information sources to which the user can be directed). The organization and conduct of this "referral service" is decribed in (2).

---

(2) Unisist. Guidelines on Referral Centres. Paris, Unesco, 1979. PGI/79/WS/4.

5. DATABASE DEVELOPMENT

5.1 Policies

5.1.1 Each SIS node shall participate in the creation of a national information utility of Egypt by identifying, collecting (or assisting others in the gathering of), and organizing public sectoral data and information of high utility in the form of electronic databanks, to be made available to the node's clientele. Public data and information gathering is not intended to be an exclusive prerogative of the National STI Network.

5.1.2 No a priori restrictions are imposed on the SIS nodes' rights to build Egyptian databases of public information except that, in order to minimize undesirable duplication of data collection and storage, and to avoid overlap with other agencies and organizationns in the public and private sectors that engage in public data gathering and its provision to the public, the database building activities of the SIS nodes shall be coordinated with, and are subject to approval by, the Governance Agency of the National STI Network. This policy pertains to databases of Egyptian information as well as to foreign-owned databases licensed to be run by SIS nodes.

5.1.3 For each Egyptian database the SIS nodes shall design, or assist in designing, a viable system and procedures for regular database

updating, including assurance of data quality and integrity. These systems may be implemented and operated by organizations other than SIS nodes; the latter must, however, have means of monitoring their quality and effectiveness.

5.1.4 Copyright ownership of a public database created by an SIS node shall reside with the host organization of that node. Ownership of copyright of databases created by an SIS node in partnership with other organizations, within or outside the National STI Network, shall be agreed upon a priori among the parties involved. The database copyright owner shall have the sole authority to copy the database, generate byproducts from it, and authorize others -- in Egypt or elsewhere -- to use and otherwise exploit the database in a mutually agreed upon manner.

5.1.5 A public Egyptian database created and maintained by an SIS node shall be accessible to all qualified users of the National STI Network. Such access can be facilitated by providing, upon request, electronic copies of the database, with updates, to other SIS nodes that demonstrate a demand for it. Copies of databases generated with public funding shall be offered to SIS nodes at cost of reproduction. The recipient nodes shall agree to pricing, availability, and other conditions that may be stipulated by the copyright holder of the Egyptian database in question. Such stipulations shall be non-discriminatory to either party.

5.2 Procedural Guidelines

5.2.1 SIS nodes planning to create an Egyptian database should not enter into agreements with other organizations or data repositories until their plan is endorsed by the Governance Agency.

5.2.2 The National STI Network proposes that initial priority be given to the development of electronic stores of the following categories of public information: a) sectoral organizational resources, consisting of descriptions of legal bodies and their public characteristics, whether publicly and privately owned; b) publicly funded projects and activities of sectoral organizations, institutions and firms, especially those related to the country's Five-Year Plan; c) human resources, consisting of directories of names and public information of various types of experts related to each sector; d) bibliographic resources, consisting of the country's intellectual products published in various document types available to the public.

5.2.3 Data or information that is typically organized and distributed along sectoral lines (such as directories of organizations) is likely to be collected in parallel by most or all SIS nodes; data or information that cuts across sectors (such as the scholarly literature) is preferably processed on a more centralized basis.

5.2.4 Conditions that should be satisfied before an SIS node proposes to create an Egyptian database include the following: a) the data must be

in the public domain and be available and collectable; b) no similar database exists in the public sector, or if in the private sector, its public availability is restricted regardless of cost of access; c) there is evidence of a reasonably intensive, long-term demand for the data by a numerically non-trivial clientele; d) the design of a permanent mechanism for database updating has been explored and found feasible; and e) the financial resources needed to create the database and to support its updating have been assessed and found available.

5.2.5 In addition, for each Egyptian database proposed to be generated under the auspices of the National STI Network the proposing SIS node should assess the following factors: a) the existence of ready data in the sector; b) the volume of existing data; c) the approximate degree of coverage completeness; and d) the apparent quality of such data. If the coverage is found to be very incomplete, or if no ready data is available, a study needs to be undertaken to identify means of data collection, assess the needed human and financial resources, and estimate the schedules for data capture, quality control, and transcription.

5.2.6 In the frequent instances when the data source is partially or fully outside the SIS node, the latter should execute a memorandum of agreement with the data source organization(s), clearly specifying the mutual commitments, responsibilities, conditions such as data access rights and privileges, copyright arrangements, and the duration of the agreement.

5.2.7 The data sharing policy of the National STI Network implies that databases containing the same type of information must employ highly uniform data-collection and entry forms or instruments, comparable data integrity checking procedures, and highly uniform file formats. The Governance Agency is coordinating with SIS nodes the design of the data collection instruments and file formats for the four database categories mentioned in 5.2.2.

5.2.8 SIS nodes are encouraged to explore prudently the licensing of foreign databases relevant to their sectoral clientele, whenever the combined advantages of licensing outweigh the actual cost of online search via foreign vendor. The Governance Agency's endorsement is required; in seeking it, the SIS node should provide evidence of having studied the economics of licensing, including probable usage rates; implications for its operations, including staffing, computer processing, and computer memory requirements; copyright conditions; and sources of funds, including hard currency. Arrangements for payment of license fees are negotiable with the Governance Agency.

6. INFORMATION TECHNOLOGY

6.1 Policies

6.1.1 SIS nodes shall strive to utilize prudently state-of-the-art computer and communications technologies appropriate to their functions.

6.1.2 SIS nodes shall acquire and utilize such technology in a planned manner, and in conformity with principles and directives issued by the Governance Agency, in the interests of systemwide compatibility and ease of use of the National STI Network.

6.1.3 The mandatory network-wide technological compatibility requirements shall apply to, at a minimum, a) the executive computer software; b) the Arabic and English common command language for user interface to all databases; and c) data communications protocols.

6.1.4 SIS nodes whose information processing equipment has been provided by or purchased with the subsidy of the Governance Agency must dedicate this equipment fully to support the information service of the nodes.

6.1.5 The information processing equipment of the SIS node shall be under the full control of that node. In turn, the node shall be

responsible for the staffing, operation and maintenance of the equipment.

6.1.6 Information processing equipment provided to an SIS node and paid for through the Governance Agency shall be considered to be on loan to the node's host organization for a period of two years from the installation date. After two years, such equipment passes into ownership of the node or its host organization. During the 2-year period the Governance Agency may, however, retrieve such equipment if the node is found unable to provide quality information service to the sector, or if it renounces or otherwise loses its sectoral function within the National STI Network.

6.2 Operational Guidelines

6.2.1 Initial delivery of computer equipment into sectoral nodes is expected in early 1984. The computer system will initially accommodate about a dozen simultaneous users (onsite and remote). Peripherals (video display terminals and printers) will have both Arabic and ASCII character capability. The capacity of mass storage devices will initially exceed 150 megabytes. Telecommunications capabilities will utilize public data and voice networks. Power stabilizer, gradual power-down, and automatic restart will be standard. The processor, number of ports, and mass storage capacities of the initial system will be expendable, when needed, by at least 300 percent.

6.2.2 Each SIS node is responsible for preparing the site to house the computing equipment. Site preparation instructions shall be made available by the Governance Agency in early fall 1983. A single room, 50 square meters, is adequate to house the computer cabinet and disc, a console, a printer, supplies, and working space of two staff members. A dust protected, air conditioned environment is essential, as is adequate power supply. No other preparation such as false floors is required.

6.2.3 The standard, common operating system of the National STI Network is UNIX (trademark of Bell Laboratories), Version 5.0. A separate software license will be obtained by the Governance Agency for each CPU. The license is non-transferrable; attempts to copy the code are illegal and will cause the license to be suspended.

6.2.4 The hardware and operating system at each SIS node shall be maintained under contract by a branch or a representative of the computer manufacturer. The contract will be executed and prepaid for a period of at least two years by the Governance Agency on behalf of all nodes existing by 1985.

6.2.5 The computer facility will be modified to allow the following bilingual (Arabic and English) user functions: database generation and maintenance, database search and output report generation, electronic mail, and document preparation. The bilingual facilities will cover user commands, system messages, and character sets. Programmer oriented facilities will be English-language only.

6.2.6 The database management system software supporting all database activities at each SIS node will be of the relational type. A single, bilingual database query language for user access to all databases is planned. The language will conform as much as possible to the international Common Command Language standard, under development by the International Standards Organization, but be able to retrieve data from both factual ("factographic") and bibliographic (full-text) databases. A fully automatic, free-text data indexing facility and inverted index generator will be standard for providing database access mechanisms. Automatic file reformatting will be supported, so that ready-made databases of any format can be automatically recast into the standard relational file structure of the National STI Network.

6.2.7 Computer system staff at each SIS node will consist of two computer professionals trained to become fully conversant with the operating system and the database software. These individuals should be identified and employed by each SIS node at least five months prior to the scheduled equipment installation. Their primary responsibility is to facilitate smooth operation of the entire computer system. This responsibility encompasses computer operations, including diagnostic hardware functions, and assistance to SIS node staff and users in the usage of the system. The computer facility should operate in a largely unattended mode; minor programming routines will be performed as needed by the inhouse staff. Systems programming software support shall be provided externally, under the auspices of the Governance Agency maintenance agreements.

7. MARKETING

7.1 Policies

7.1.1 Each SIS node shall mount and operate an intensive, dynamic information service marketing program. The principal objectives of the marketing program are a) identification of the user markets, b) expansion of the volume of information service sales; c) training of sectoral liaison personnel in marketing skills; and d) improving information services via indirect feedback from the user community.

7.1.2 Each SIS node shall develop and maintain up-to-date a sectoral marketing plan, including an itemized budget. The marketing plan is an integral part of the SIS node's developmental planning process.

7.1.3 Each SIS node shall periodically review and evaluate the performance of its marketing program, and include such assessments in the joint Governance Agency-SIS node performance review.

7.2 Procedural Guidelines

7.2.1 In preparing the sectoral marketing plan, SIS nodes should anticipate methodological assistance and training from the Governance Agency with respect to the planning of market analyses, design of publicity

materials, general development of marketing strategies, and marketing cost estimation.

7.2.2 A full-time marketing specialist should be engaged as early as possible in the SIS node planning stage, and directed to familiarize himself with the structure and clientele of the sector. The sector-assessment activities described in Section 3 will provide useful input and introduction.

7.2.3 The initial priority of the service marketing program is to inform as broad a potential clientele in the sector as possible about the existence of the SIS node and about its information services. It should be assumed that the vast majority of the potential clientele will not have been introduced to such services before. Effective approaches include a poster campaign, advertisements in strategic media, mailings to "gatekeepers" such as libraries and corporate information units, and personal presentations to selected decision makers.

7.2.4 Next in priority and parallel in execution is systematic development of user markets in key and/or large organizations. The effective way to harness these user communities is to identify, recruit and train employees of these organizations to function as "information liaison officers." Each SIS node should seek to cultivate a "club" of several dozen such officers, and offer incentives and privileges to motivate them to promote systematic usage of the node's information services.

7.2.5 Close collaboration should be established between the service-evaluation and marketing staffs and activities at each SIS node. The marketing staff is an effective mechanism for gathering a variety of opinions and comments about users' needs as well as the degree to which they are met by the information services. These comments should be forwarded systematically to the SIS node management for consideration and action. On the other hand, formal feedback instruments measuring user satisfaction should be available to the marketing staff, to allow it to anticipate user reactions encountered in face-to-face conversation, and respond to them effectively.

8. TRAINING

8.1 Policies

8.1.1 SIS nodes shall participate in and assume responsibility for specific components of the overall training program of the National STI Network. The specific sectoral responsibility is for the training of a) sectoral liaison officers, and b) users with facilities for online database access. In concert with policies of the National STI Network, sectoral training shall be conducted, whenever possible, in Egypt.

8.1.2 SIS nodes shall organize and implement programs of continuing education of their technical and management staff through a) inhouse training, and b) participation in external training programs.

8.1.3 Each SIS node shall formulate a training plan, with schedules and an itemized budget. The plan is an integral component of the node's development plan.

8.1.4 Each SIS node shall periodically summarize and evaluate its performance against the training plan, and include such evaluation in the joint Governance Agency-SIS node performance assessment.

8.2 Procedural Guidelines

8.2.1 SIS nodes must anticipate considerable requirement for initial training of their staffs, prior to and shortly after its establishment. This early training need will be met through external training programs organized for this purpose by the Governance Agency and carried out by means of intensive short courses, seminars, laboratory practicums, and visits. Participating in providing this training will be the following: a "national information training center," an Egyptian contractor-operated program of short courses in key professional and paraprofessional areas; the technical staff of the Governance Agency, who will conduct executive level courses for top management of agencies, institutions and firms, intensive short courses for SIS managers, and training sessions in the organization of information services; and hardware/software vendor(s), offering courses in both Egypt and the U.S., in skills needed to manage, use and maintain the computational facilities of SIS nodes. SIS node directors will be invited to study and visit service installations in Europe and the U.S. The schedules for these categories of training will be gradually made available by the Governance Agency.

8.2.2 SIS nodes should assume that staff training will be the dominant initial activity for a period of at least three months. For a subsequent period of perhaps another 3 months, training and service activities will consume approximately even amounts of time. In normal, operational circumstances, training needs will vary with the caliber of the node staff; nevertheless, it is good practice to anticipate that staff

training will regularly consume about 20 percent of the total man-effort of a typical information service node.

8.2.3 The growth of demand for SIS node services is likely to be proportional to the effectiveness of the sectoral liaison officers in large agencies and corporations. To assure such effectiveness, each SIS node should conduct regular short courses and refresher seminars for liaison officers. These courses and seminars should be team-taught by the node's information service and marketing specialists, and address sector-specific information scenaria. No fee should be charged to attendees of these courses.

8.2.4 As used here, the term "user training" is distinct and different from endeavors to increase the users' awareness of resources and services. The latter is to be accomplished partly through nationwide programs organized under the auspices of the Governance Agency and conducted through different avenues, partly through the day-to-day activity of the SIS marketing efforts. User training, as used here, has to do with the set of skills necessary for effective use of information services provided by the nodes. In this area, some of these skills can be transferred via the liaison officers; others, such as online access and use of specific sectoral databases, or the use of electronic mail, should be imparted or demonstrated by the technical personnel of the SIS nodes.

9. GOVERNANCE AGENCY SUPPORT

9.1 Remarks on Policy

9.1.1 It is likely that the Governance Agency, when established, shall as a matter of policy provide various forms of guidance and support to the SIS node. This support is to be of two kinds: a) short term, intended to bootstrap SIS nodes from the initial to an operational stage; and b) continuing, the purpose of which will be principally that of coordination, performance improvement, and assistance in planning.

9.1.2 The support role of the Governance Agency remains to be defined. In the interim, several types of short-term assistance are available to assist SIS nodes in their initial development. This assistance, described below and available under the auspices of the U.S.-Egyptian Agreement on Cooperation in Science and Technology, will cease by the summer of 1985. Presumably it will then be supplanted with more permanent policies and arrangements regarding this function.

9.2 Operational Guidelines

9.2.1 Methodological Assistance. The technical staff and consulting resources of the national STI program, the latter being facilitated by the Academy of Scientific Research and Technology, are available to assist the

incipient SIS nodes in their work organization, and in the definition of systems and procedures of the information services. Various types of guidelines are being developed, such as those contained in this document, that on the one hand free the SIS nodes and their host organizations from much of the detailed systems analysis and design that normally precede the development of services; and on the other hand, they assure compatibility of policies, procedures, and operations throughout the National STI Network. Other guidelines to be provided will deal with: operator and user guidelines; pricing of information services; sectoral marketing guidelines; collection of performance statistics; instructions for computer site preparation; and perhaps others. The methodological assistance and technical consulting staff will be provided for a reasonable period of time both prior to and following the establishment of SIS nodes.

9.2.2 Salary Supplementation. Salaries of the regular staff of SIS nodes are to be covered from internal resources of the host organization. Given the need for an extraordinary initial effort on the part of this staff, the ASTT is prepared to supplement, if desired by the host organization, these regular staff salaries with salary incentives in the amount of up to the level of the personnel budget of the SIS node, on the condition that the disbursement of incentives will follow common guidelines developed by the ASTT (so as to avoid undesirable personnel competition among the SIS nodes). The duration of this support is negotiable with the host organization; it is underscored, however, that this subsidy is a temporary one, and that host organizations will eventually assume responsibility for the entire budget of SIS nodes.

9.2.3 Equipment. The first five SIS nodes will be provided, at no cost to them, with computational facilities needed to operate the information services. This equipment (consisting of a central processing unit, disk memory, terminals, and printers) is the property of the Government of Egypt. SIS nodes will have full control over the use of this equipment, which must be dedicated to the purposes served by the SIS nodes. During the first two years after the equipment installation, however, the ASRT reserves to itself the right to recover this equipment for deployment elsewhere in the event that a node does not meet its service expectations and obligations, or if the host agency withdraws the node from the National STI Network, or abolishes it. The determination of non-performance of an SIS node will be made by an independent ad hoc committee. This two-year limitation on the transfer of ownership of equipment does not apply to devices purchased and funded by the SIS nodes or their host organizations, or to devices obtained by them from sources other than the ASRT.

9.2.4 Software. Ownership of software resides with the copyright holder. For the purchased hardware systems, the ASRT will obtain, on behalf of the National STI Network, the necessary licenses for the operating system and database software packages. These licenses are non-transferrable to other machines. In the event that the hardware is removed or transferred from an SIS node, the software must accompany it.

9.2.5 Equipment Maintenance. The ASRT shall prepay the hardware and software maintenance of five SIS nodes for a period of no less than two

years following the date of installation.

9.2.6 Financial Subsidy of Information Services. The ASRT is prepared to subsidize, until summer 1985, the hard currency cost associated with foreign database search and foreign document delivery. SIS nodes using the procedures recommended for these services have these costs covered automatically. This subsidy is provided on the condition that SIS nodes agree to a uniform pricing policy for these services.

9.2.7 Training. During the implementation phase of the National STI Network the ASRT is arranging diverse forms of training, some of which are aimed at SIS node management and staff. A schedule of these training activities will be released shortly, and updated periodically. Resources are also available to support a visit of SIS node directors to study foreign information services. A joint study trip by node directors will be organized after appropriate consultation.

9.2.8 Consulting. Realizing that individual SIS nodes may have specific requirements, the ASRT is prepared to furnish, upon request, expert consultancies in management and technical areas related to the development of SIS nodes. These consultancies may use Egyptian and/or foreign experts, and shall be provided to the SIS nodes at no cost as long as there are available financial resources.

TABLE 1. INITIAL STAFFING LEVEL OF AN SIS NODE

FUNCTION	FULL-TIME EMPLOYEES		
	Professional	Semi-professional	Clerical
ADMINISTRATION			
DIRECTOR	1		
SECRETARY (WORD PROCESSING)		1	
TYPIST, TELEX OPERATOR			1
CLERICAL (MAIL ROOM, REPROGRAPHY)			0.5
DATABASE DEVELOPMENT*			
DATABASE BUILDING	3	1	
DATA ENTRY**		1	
DATABASE SEARCHING***/DOCUMENT PROVISION			
SEARCH FORMULATION, EXECUTION	2		
MAINTENANCE OF COMPUTER FILES	1		
DOCUMENT DELIVERY SERVICE		1	0.5
LIBRARY			
REFERENCE COLLECTION, REFERRAL SERVICE	1		
TYPING, CLERICAL			0.5
PUBLISHING			
COPY WRITING, COMPOSITION	1		
MARKET DEVELOPMENT			
SERVICE REPRESENTATION, USER TRAINING	2		
TYPING, CLERICAL			0.5
COMPUTER ROOM			
SYSTEM EXPERT/INSTRUCTOR	1	1	

* DEPENDING ON DATABASE TYPE, CONSIDERABLE ADDITIONAL EXTERNAL EFFORT MAY BE NEEDED FOR DATA COLLECTION.

** AVERAGE INPUT RATE = 50 KEYSTROKES/MIN (EXCLUSING CORRECTIONS).

*** ASSUMES 15 REQUESTS/DAY FOR RETROSPECTIVE SEARCH OF DATABASES OUTSIDE EGYPT.

TABLE 2. ESTIMATED ANNUAL EXPENDITURES OF SIS NODE

Note: This table estimates direct annual expenditures of a relatively mature SIS node. Indirect expenditures (rental of space, utilities, and overhead of the host organization) are not shown because of their variance.

BUDGET CATEGORY	BASIS OF CALCULATION	COST/ITEM (LE)	TOTAL (LE)
Salaries and Incentives			
Professional staff	12 man-years @ LE 400/mo	57,6000	
Paraprofessional staff	7 man-years @ LE 250/mo	21,000	
Clerical staff	3 man-years @ LE 150/mo	5,400	
Maintenance staff	3 man-years @ LE 75/mo	2,700	
Local consultants	1 man-year @ LE 500/mo	6,000	
Advisor, User Committee	6 members @ LE 50/mo	3,600	
Subtotal			96,300
Equipment			
Prorated cost	All equipment cost prorated 8 years	15,000	
Maintenance contracts	15% of purchase cost/year	19,000	
Subtotal			33,000
Services			
Foreign DB search cost	10 searches/week @ LE 50	26,000	
Foreign document delivery cost	2000 documents @ LE 4	10,400	
Database publishing		3,000	
Subtotal			39,400
Supplies			
Marketing, PR materials	50 posters, 2000 brochures	1,000	
Training materials	Manuals, transparencies	1,000	
Computer supplies	10K sheets, paper, ribbons etc.	1,500	
Office supplies, Xerox	Supplies, 500; 100 xerox/pages/day	3,100	
Foreign DB license	One DB @ LE 100,000/year	10,000	
Subtotal			15,300
Communications			
International telephone	One call/day @ LE 10	2,600	
Telex	One telex/day @ LE 5		
Postage	2,000 local letters @ LE0.10	1,300	
Subtotal			4,100
Travel			
Foreign travel	Two 2-week trips/year	5,000	
Marketing staff (local)	130 days @ LE 15	1,950	
Subtotal			6,950
Other			
Meeting, seminar expenses		1,000	
Conference, course fees	20 persons @ $100	2,000	
Subtotal			3,000
TOTAL DIRECT EXPENSES			LE 168,850

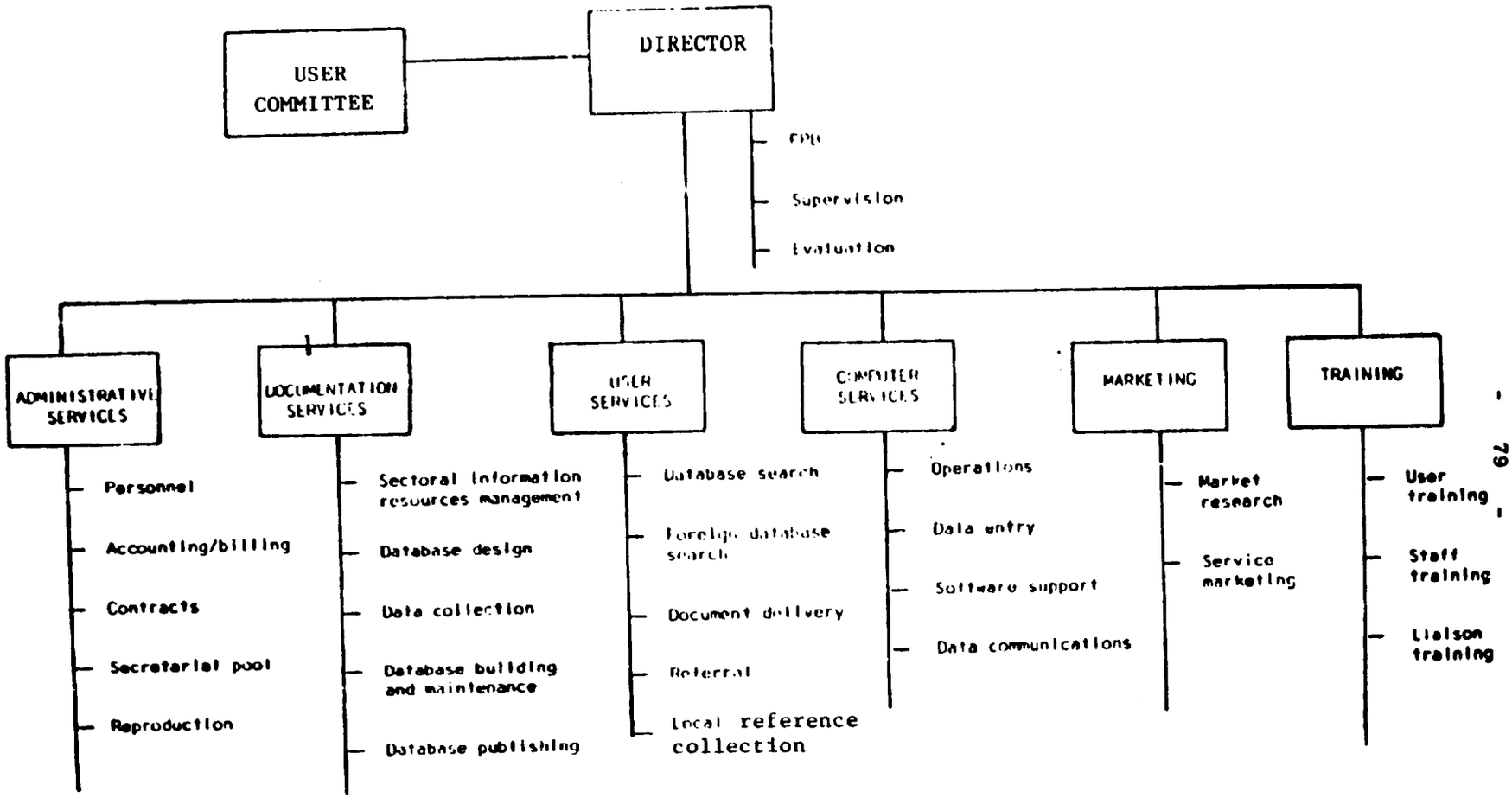


FIGURE 1. ORGANIZATION AND FUNCTIONS OF SIS NODE.

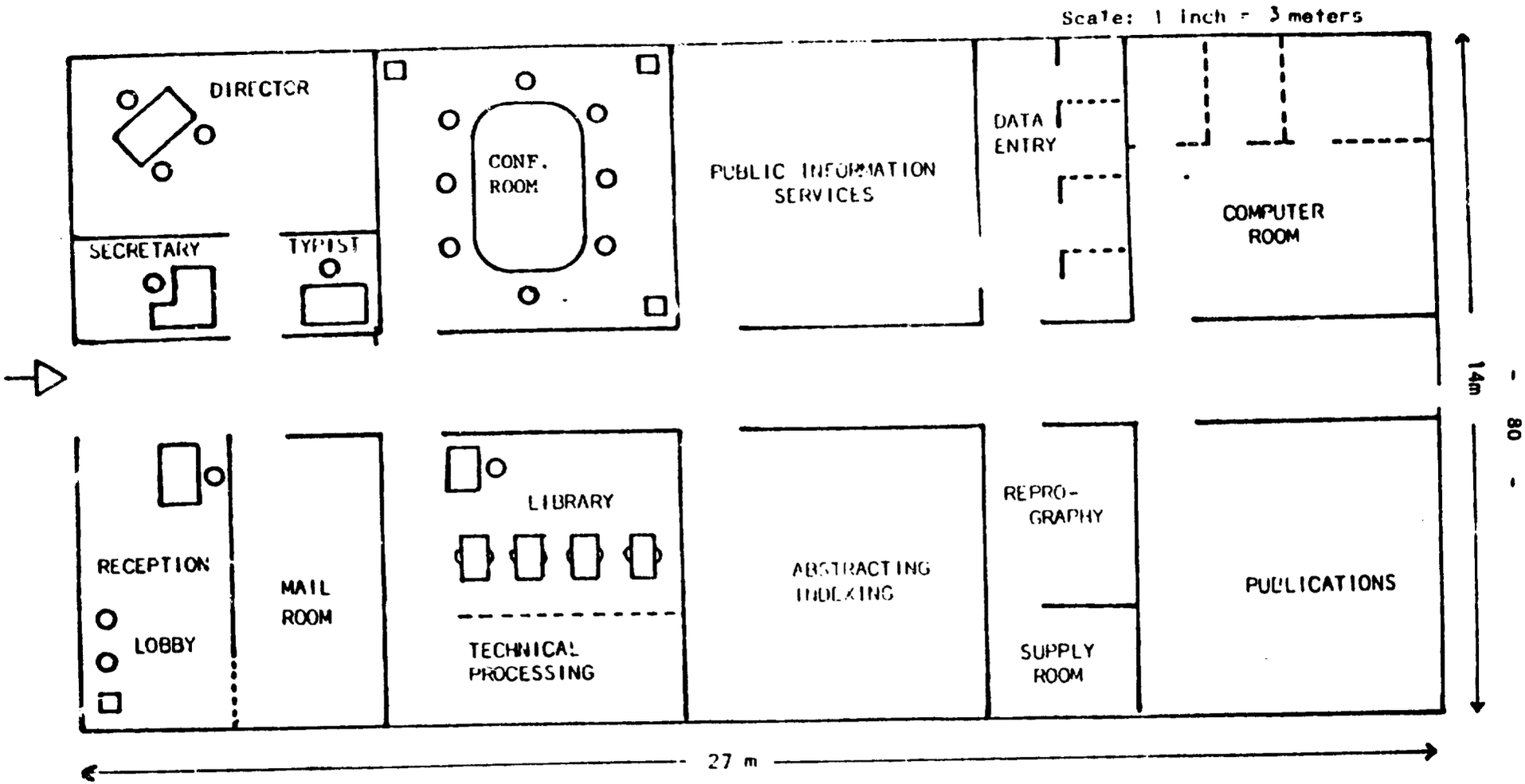


FIGURE 2. SECTORAL INFORMATION SERVICE: TYPICAL FLOOR PLAN

APPENDIX (4)

I. ENSTINET (Egyptian National Scientific Technical Information Network)

Ind. nodes hosted in Engineering and Industrial Design Development Center

- objective & purpose

1. Intensive education of problem solving communities regarding the utility of information dynamic marketing of the system information services.

2. Facilitation of access to existing recorded knowledge by problem solvers. The system provides the users with procedual and technical assistance for locating and pbtaining data and information relevant to their problem-solving activities, regardless of whethen the data and information are located in Egypt or abroad.

3. Organization & management of Egypt - produced scientific & Technical information.

   Better exploitation, in and out of Egypt, of the knowledge produced and recorded in Egypt.

- Computational facilities

- XBS system (AT & T) computer
- Unix operating system
- BRS data Base
- Main memory of 2 mbyte expandablet 4 mbyte
- Disk storage of 500 mbyte
- Mag. Tapes for back up.
- 2 quality printers
- 1 consale & 7 terminals
- The industrial node has been provided with the previous computational facilities in order to:

  1. Generate and maintain Egyptian data bases and maintain foreign data bases "ported" to Egypt under license;

2. perform on-line data - base searching in the centre and also through the telephonic inter-connection of centres, Egyptian and foreign;

3. Provide electronic mail.

4. Support training in system access and use;

5. Support Industrial node (ind, Info. centre) administration.

- The Ind. Node in EIDDC is linked to the focal point of the ENSTINET in the Academy of Scientific Research and Technology and the other 4 sectoral centres.

* ENSTINET Principals elements

The three principal elements of ENSTINET are:

a. Information Users
b. Information services
c. Document repositories

a) Information Users

* Most of the information users in industrial community are problem solvers at different levels, so the system serve directly or indirectly, the following categories of problem solvers:

1. The managers (policy maker) government decision maker, small and medium scale industries enterpreneurs.

2. The professional practitioners (engineers who are responsible of solving technical & managerial problems in both public and private sectors,

3. Researchers (in engineering faculties, high technical institutes and high technical schools).

4. Students (in engineering faculties and technical institutes and high technical schools.

- The number of/month is users, expected to increase to 35-45 users/ month after excuting an agressive marketing plan and complete the information service system.

b) Information services

The principal functions of Info., services sys. are as fullow:

1. Development and maintenance of databases of industrial & technical information.

2. Searching of data bases located in Egypt or abroad.

3. Referral services for information requests which are not available in industrial node.

4. mediation of requests for document delivery from Egyptian and foreign repositories.

Achievments

1. Data Base building:

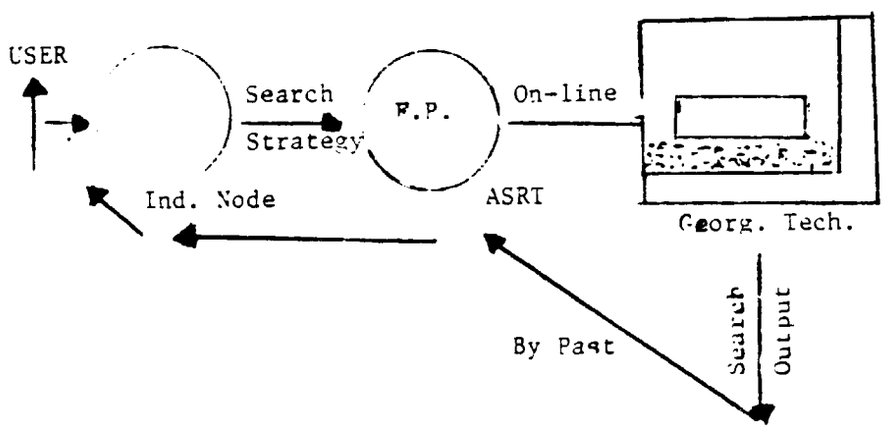
- A bibliographic DB is being built know for the Egyptian production in engineering and industrial field this data base include: thieses, technical reports, patents, periodicals, Journals.

- An industrial directory for the private & public sector companies is also being built with a capacity of 6000 componies and enterprises, This directory provide the user with the factual data needed such as (no. of employee, capital investment, sales value, profit situation, assets of each enterprise type of industry, production level, address telephone,...etc., beside, it provides with statistical analysis based on the factual data.

2. Foreign Data base Search:

- The system provides the user with Infor. the needs by searching foreign data bases using dialog Info., Sys. and the following are examples of the data bases used: INSPEC, METADEX, ISMEC, COMPENDEX, NTIS WELDASEARCH, SURFACE COATING ABS., COMPUTER DATA BASE.....etc.,

- The following fig. show the foreign data base search system which is excuted now by delayed on-line technique, and in the near future it will be direct on-line with Georgia tech. Institute and other International intfo. Banks.



- COMPENDEX data base has been mantained and ported to the computer in the industrial node under license to perform a direct on-line service and provide (SDI) service for most of the previous searches are (Petro-spective).

- Document delivery services

The user gets best earlly output with more that 100 Hit if be needs the original documents, the system provides him with them from the British Library Lending Department (BLLD) or refers him to other repositories.

c) Information repositories

- An essential function of ENSTINET system is the deliver copies of the primary information sources (documents) which incorporated journal, papers, reports, patents, tapes, data.....etc., identified and requested by users of information services.

- The procurement, organization, reproduction, and delivery of these primary information sources is the function of the document repository system.

A.M.

3-1. INTRODUCTION

3.1.1. BACKGROUND

3.1.1.1 Engineering and Industrial Development Centre (EIDDC)

The Engineering Industrial Develeopment Centre (EIDDC) is ideally suited to act as the focal point for an integrated Small and Medium Industry Promotion Program (SMIPP since it has the capacity and potential to become the prime agency for promoting the sector.

EIDDC is a well established and recognised Institution providing technical services and training. Furthermore, it is presently actively involved in assisting small enterprises by providing extension services as part of comprehesive projects including the Development Industrial Bank (DIB) project, promoted by the World Bank (IBRD).

The International Labor Organisation (ILO) has been involved in promoting small enterprise development for more than thirty years and fully subscribes to the concept of an integrated develop-ment program. The ILO has had a long association with EIDDC and recognises EIDDC's potential to become the pivot of a national SMIPP for Egypt.

It should be also noted that the orgigional Small Scale Industry Institute had been merged into EIDDC thus adding to the latters capabilities.

The role of the Centre is defined as to provide the the following services for SMIPP in the first stages:

- Technical extension services, including project preparation assistance for engineering metal working , plastics, wood working and furniture making.
- Skill upgrading of workers in engineering, metal work plastics, wood working and furniture making.
- Industrial Management development.

3.1.1.2 Small Scale Industry Promotion Program(SSIPP):

The Ministry of Industry and Mineral Wealth has expressed, as a matter of policy, that it is responsible for promoting the public, private and mixed sectors of the economy with considerable emphasis on small and medium enterprises.

There are different areas in which small and medium enterprises could improve their performance such as finance, technological change, production planning and controlling , productivity, costing organisation, marketing, information, and personnel management.

At the present time, financial, and some technological and managerial services are provided to assist the small and medium enterprise sector. However, they are fragmented, dispersed and in many cases, remain unknown to existing and potential enterpreneurs. What is needed is a recognised focal point capable of acting as a reference point for both enterpreneurs and agencies servicing the needs of the sector. Such a focal point should possess the necessary resources to develope implement and evaluate a small and medium Industries Promotion program which will take into account policy issues, institutional development and training needs.

3.1.2 OBJECTIVES OF SSIPP

The main objectives of the program as designed in the pilot plan are as follows:

3.1.2.1 Raise productivity of enterprises by improving manufacturing processes and extension of assistance to solve problems in areas of production engineering and industrial management,

3.1.2.2 Increase the quantum of skills available to Small and Medium Scale Industry (SMSI) by accelerated training and skill upgrading, and,

3.1.2.3 Remedy deficiencies in various aspects of industrial management.

3.1.3 PROBLEM AREAS OF SSIPP

3.1.3.1 It is well known that working in the field of small and medium scale industries (SMSI) is one of the most difficult fields which needs highly qualified personnel.

3.1.3.2 The results of the services done in this field show after considerable time. However, they have a very strong effect in the industrial and economical development of the country.

3.1.3.3 It took some time in the first months of the execution of the program to be familiar with the World bank and DIB regulation systems. After that a very strong cooperation between DIB and the centre was established, and this was one of the most important issues which facilitated the work.

3.1.3.4 There is a difficulty in finding the addresses of enterprises because of many reasons.

3.1.3.5 There is a problem of getting exact information about the enterprise from the owners due to many reasons as reluctance to show real production and costing figures due to fear of taxation.

3.2.2 FRAMEWORK OF THE EXISTING INFORMATION SYSTEM:

3.2.2.1 Sources of data:

Data about enterprises in the area of SSI are collected by officers of technical assistance group (TAG) during their field visits to the enterprises.

They write down their observation and the requests of each enterpreneur and then provide him with the assistances needed, either on the spot or through the EIDDC departments.

The TAG get a list of the enterprises in different fields from the Development Industrial Bank (DIB) where these enterprises are clients of the bank and in need of managerial technical, or financial assistance.

The international labour organization supports the TAG with an expert who worked in this field for a long time and who has considerable experience in SSI promotion in the developing countries

The TAG are working according to the SSIPP plan to achieve both immediate and development objectives.

- Different indicators are used to measure the achievement of objectives, such as:
  - established units in EIDDC proving general managerial and technical services,
  - staff trained to serve small and medium enterprises,
  - training materials prepared for clients,
  - promotion activities completed to encourage start-ups and productivity improvement,
  - linkages established between EIDDC and institutions or associations promoting small scale and medium industry development.
  - other indicators are used to measure the development objectives such as:
    - increase in number of new start-ups and expansion of existing enterprises,
    - descrease in mortality rates of small and medium enterprises,
    - growth in imployment created by new enterprises, or by expanding the operations of the existing ones, and improving productivity of enterprises servied.

3.2.2.2 Data storage and processing:

Data files are stored using a traditional manual filing system. Simple types of classification and sorting are carried out on these data files.

This manual system may be suitable for a limited number of enterprises. The efficiency of the system is expected to be affected, when the number of enterprises increases. After a five years period, it would be problem to get information about any enterprise in a relative short time, It will also be very difficult to get classified lists according to certain field attribute.

A standard coding system has been used for storing and retrieve of data. Enterprises are recognised by a reference number which consists of 6 digits..

The first digit represents the subject, second and third digits are allocated to the first digit of the enterprise name and the next three digit are as serial numbers for enterprises within the same subject. Alphabetic codes used for subjects and alphabetic are shown in tables 2.1 and 2.2 respectively.

Table 2.1 codes used for subjects

code	Subject
1	Metal working
2	Wood working
3	Textile. leather, weaving, rubber, plastic Paper, glass, ceramic, asbestos
4	Food processing, chemical, electrical construction,
5	Handicraft, trading,

Table 2.2. codes used for alphabetic

Code	Letter	Code	Letter	Code	Letter
01	A	11	K	21	U
02	B	12	L	22	V
03	C	13	M	23	W
04	D	14	N	24	X
05	E	15	O	25	Y
06	F	16	P	26	Z
07	G	17	Q		
08	H	18	R		
09	I	19	S		
10	J	20	T		

Data is recorded in a five page report. A general statement about the enterprise is recorded in the first page. The second page is a follow up sheet covering different vistits with a brief abstract. In the next three pages the enterprise level, requirements, and kind of assistance provided. A typical data sheet is shown in appendix I.

3.2.23 Reporting

Two types of reports are produced.

They are as follows:

- A visit report consists of the following items about each visit.
  - subject
  - situation description
  - conclusion
  - recommendations
  - follow up remarks if required
  - summary progress report covering all activities achievements, difficulties, and recommendation.

These reports are produced monthly, every six months and annually. They are generally used to follow up the development of the program.

3.2.3 FEATURES OF THE EXISTING INFORMATION SYSTEM:

3.2.3.1 A large volume of data, as number of enterprises to be visited are supposed to be increased exponentially to reach about 5000 enterprises within the next five years.

3.2.3.2 A large number of individual transactions, visits, observations, requests, and services, are processed and relatively large number of people will be used to do clerical work, other than technical work.

3.2.3.3 It will be very difficult and time consuming to classify, sort and retrieve these amounts of data manually and to prepare regular summerized information and statistical reports.

3.2.3.4 Sources data are used repetitatively for serveral reports or purposes.

3.2.3.5 It will be extremelly difficult to achieve the objectives and to meet the requirements of the system without an efficient automated information storage and retrieval system.

3.2.4 THE EXISTING COMPUTER CONFIFURATION:

The computer system of EIDDC is mainly acquired for scientific purpose. It is generally used in the applications of computer aided design and computer aided manufacturing (CAD/CAM).

In addition to these applications, the computer has been using for CBIS of SSIPP untill appropriate independent is installed.

The existing computer system is a " Desktop Computer H.P. 9845 " with the following configuration:

- Memory size 187 KB for user,
- One hard disk 20 MB(10 MB fixed and 10 MB removable),
- Two tape cartridges 250 KB each,
- High resolution CRT, and
- Thermal printer 80 PP.

APPENDIX (5)

The Activities of the Agricultural Documentation and Information Centre "Service Centre for the Agricultural Sector in the National Information Network"

I. The Activities of the Centre Outside the National Information Network:

1. Documentation of the Mental Production of the Agricultural Research Projects in Egypt.

The Centre collects the printed agricultural research projects in Egypt, and documents these projects - according to the rules of the Agricultural Scientific and Technological Information International System "AGRIS" - to be published into the monthly International Periodical "AGRINDOS" which includes all the biblio graphic indications of the different projects documented by the countries of AGRIS System.

The Egyptian Centre exists the second centre between the de developing countries "after India", and tne tenth one between 131 countries and International organizations during the year of 1983 according to the number of the documented projects.

By analysing the number of the documented projects into AGRIS for the Arab Countries during the last decade (1975-1984) we find out that Egypt ratis to the rest of the Arab Countries is 2:1 "according to the FAO report, Nov. 16-19, 1985"

2. The Egyptian Agricultural Bibliographic Periodical:

The Centre publishes this periodical annually. It concludes the Egyptian Agricultural research projects documented by the Centre, according to AGRIS Information Rules.

3. Research Recovery Service:-

The benefieiary person can get the bibiographic inform[illegible]

concerning him by the International Bibliographic Periodical "AGRINDX", the Egyptian Agricultural Bibliographic Periodical, or computer outcomes in the International Agency for Atomic Energy.

4. Information Differential Distribution Service:

This service provides the researcher monthly with the recent bibliographic information, of the AGRIS System, through the International Bibliographic Periodical "AGRINDX" for the simple subjects or through the AGRIS system Computer. The Centre provides this services for 33 subject through AGRINDX and 54 subject through the computer of the International Agency for Atomic Energy.

5. Documents Delivery Service:-

The Centre delivers copies of the research documents, requested by the beneficiary persons, from one of the following sources:-

a. The American Library of the Agriculture Department, Washington.
b. The British Library.
c. Agricultural Information Centres sharing in AGRIS System.
d. The library of the Egyptian Agricultural Documentation and Information Centre.

6. Establishing of Non-bibliographic Agricultural Information Rules:-

a. The Centre participates in the first period of the International System for current Research (CARIS) on 1976 in the illustration of the International Investigatory Texts about the Agriculture Research Staffs, Researchers and the current research projects programmes in the developing countries.

b. The centre provides on 1981 the Guide of Egyptian Agricultural Establishments concluding data about the Egyptian Agricultural Research and Development Establishments.

c. A Guide of the Current Agricultural Research projects (250 projects) is being prepared including data about; Project Title - Aim - Dates of commencement and expiration - Publications - Participants - Budget - Contributing Sides.

d. The centre collects data about the higher studies activities "Ph.D./M.Sc." before its discussion, 1445 Ph.D degrees in the Egyptian Agriculture Faculties had been considered according to the degrees, titles, concerned universities, dates of registration and the students, names. Then the centre illustrates an investigatory text for the Ph.D registrated student.

7. Copying of Degrees and Technical Reports by using Film Minimizers:-

The Centre undertakes the procedures to receive a complete Unit of the Microfilm instruments from Cairo Customs. Also it is prepared to establish it in the centre Building to be used in the copying of scientific degrees (Ph.D / M.Sc.) and Technical Reports for the request of beneficiary persons.

8. The Technical Studies:-

The existing of the documents is considered as a problem which face the information Centres nationally, regionally or internationally. But the Egyptian Agricultural Documentation and Information Centre answers over 80% of the requests of the researchers from documents because of its communications with other international Libraries and documentation centers.

Upon the request of FAO the Centre had a study to provide documents for the Egyptian researchers, and a copy of this study had been sent to FAO.

Furthermore, a research project on the transliteration of arabic letters to latin ones.

9. Training:-

The Centre policy is to arrange training for the workers of the Centre in the fields of Documentation, Information and the English Language Locally or abroad. Further to the local training the centre sent some of its workers, during the last decade, for training missions on Information Systems to Italy - Austria - U.K. - Netherlands - India - Tunesia - Moraco - Kennia - U.S.A. Philipene - France.

10. Technical Consultation and International Conferences:-

The centre represents Egypt in the Technical Consultations that being held every two years by FAO in Rome, for AGRIS and CARIS Systems.

Also the Centre sends a representative, as possible as it can be, to participate in the International Conferences on Agricultural Information Systems and Libraries.

11. The Skeletal Organisation of the Centre:-

The Egyptian Agricultural Documentation and Information Centre is being directly affiliated to the Head of the Central Department For Foreign Agricultural Relations of the Ministry of Agriculture.

The Centre consists of the following sections:-

- Scientific Documentation Section "5 persons"
- Current Research Projects Section "4 persons"
- Information Services Section "10 persons"
- Computer Section "3 persons"
- Film Minimizers Section "one person"
- Library Section "3 persons"

Besides 3 typists and administrative officers.

II. The Activities of the Centre within the Activities of the National Information Network:-

1. Sharing in the Development of some of the Activities of the National Information Network Project:-

Some of the Centre workers shares in the development of some of the Activities of the National Information Network Project through their participation in the following:-

- Participation of 3 persons in the work group of the Egyptian Bibliographic Data Rule.
- Participation of one person in the work group of scientific degrees.
- Participation of one person in the work group of technical.
- One of the Centre Staff prepared the Data Flow Diagram and Manual for the Process.
- One of the Centre staff worked for two days weekly in the National Information Network Project with the work group of Marketing.
- One of the Centre staff worked in the National Information Network Project for 3 days weekly.
- One of the Centre staff trained some workers of the Sectoral Services Centres on the introducing of the data of scientific degrees into the Egyptian Bibliographic Data Rule.
- delivering a lecture on the treatment procedures in establishing of the Egyptian Bibliographic Data Rule.
- sharing of a representative in the committee of identifying the branched centres for information in the field of Health.

- participation in the periodical meetings that held every two weeks in the Network project headquarter for the discussion of the activities development in the service centres.

- sharing in the work concerned the resemblance of the National Network Information System with the International Systems and Measurements.

- sharing in the identification and completion of Data concerned the Egyptian Bibiliographic Data, scientific degrees and technical reports.

2. The New Headquarter of the Centre:-

It is being moved to the new headquarter of the centre. The procedure of furnishing and supplying of 3 telephone lines are being arranged.

3. The Computer:-

The computer has been fixed in the centre, the operating tests are being carried out.

4. Information Marketing:-

The centre offers now the information services upon the price policy that been determined by the Direction of the National Information Network Project. The centre fulfils the Marketing Plan through the communications with the Agricultural Research Establishments that are:-

14 Faculties of Agriculture.
4 Faculties of Veterinary Medicine.
13 Research Institutes affiliated to the Agricultural Research Centre of the Ministry of Agriculture.
10 Research Institute affiliated to the Water Research Centre of the Ministry of Irrigation.

22 Agricultural Scientific Societies.

16 Research Organisation affiliated to the Governmental or Public Sectors.

5. Bibliographic Information Services:-

During the period from November 1983 to February 1985 1011 subjects has been requested, 740 has been reached and 271 has not.

6. Documents Delivery Service:-

During the period from January 1984 to February 1985 1778 subjects has been requested, 1272 has been reached and 506 has not.

7. Documentation of the Mental Production of the Agricultural Research Projects in Egypt:-

As previously mentioned above the centres collects and documents the research projects according to the rules of AGRIS. The amount of documented projects into AGRIS by the Egyptian Centre reaches 10000 during the last decade and it is hoped that the centre may introduce about 3000 documents of the Egyptian Agricultural Mental production during the year of 1985. The Centre will introduce these information into the Rule of the National Information Network as soon as the existing of the final rules for the Network System according to the International Measurements.

8. Training:-

Through the National Information Network one person had being trained in U.S.A. and Spain, and another in U.S.A. besides attending of some workers of the Centre the training courses held by the National Information Network Project or by Al-Ahram Establishment.

III. Proposals:-

Because of the source of Scientific and Technological Information is considered as an economic source equalize in its importance the financial and natural resources, also the National Information Industry becomes very important in the development of information treatment using the modern methodolgies.

So I suggest that the National Information Network Project is to concentrate upon the following points:-

1. accelerating the procedures necessary to supply the Sectoral Services Centres with the terminal ends.

2. making the procedures necessary for the process of arabization to be finished during the validity period of the project. Specially this process will cost much expenses and time to achieve a high quality.

3. Treatment of Information rules by the computers of Sectoral Services Centres through renting not remote sensing to save time, effort and money.

4. accelerating the finishing of the National Information Network according to the International Measurements to make able for the Sectoral Centres to introduce their data.

5. connecting of the computer sets of the Sectoral Services Centres together and with some of the Arab and international Information systems, with the purpose of exchange of information.

6. training of the workers at the centres on the development of performance by sending native and foreign experts to develop work espicially in the fields of computer applications which includes for the service Centre of the Agriculture Sector the following:-

a. information introducing and recall, from the information local and foreign rules.

b. finding out specialized bibliographics about the Egyptian Agricultural Information rules.

c. concentration and automatic indexing of the Centre's Library.

d. remote communications with some Arab and International Information Centres.

7. training of high qualified persons abroad to get benefits from the high technical standards in the advanced information centres.

IV. The National Information Network:-

1. The National Information Network Project has the aim of supporting the Economic and Social Development Plan in Egypt through:-

- raising of the Public understanding standard for the importance scientific and technological information as an economic source equalizes or may overcomes the financial and natural resources.

- Organising the documentation of scientific and technological Information especially those information produced in Egypt due to it will be considered as public resource for all people.

- existing of the practical means that permit the beneficiary persons to identify easily the information of their concern and providing with copies of original documents either from Egypt or from abroad.

2. The National Information Network at its first stage from the Sectoral Information Services Centres, that covers Agriculture Sector - Energy Sector - Industry Sector - Science and Technology Sector - Medicine Sector.

3. The Egyptian Agriculture Documentation and Information Centre has been chosen as a Services Centre for Scientific and Technological Information in the Agriculture Sector because of the following:-

   a. The centre has a specialized experience nationally in providing of the services of agriculture information for researchers and agricultural proffessionals.

   b. The centre is considered the Egyptian national representative in AGRIS and CARIS Systems of FAO.

   c. Existing of technical experiences in the field of Information Systems in the Centre.

V. <u>The cooperation Agreement of the National Information Network</u>:-

The Cooperation Agreement between:-

- the Academy of Scientific Research and Technology as the first party and the supervising organisation on the National project of Scientific and Technological Information.

- and the Central Department For Foreign Agricultural Relations as the second party and the supervising organisation of the Egyptian Agricultural Documentation and Information Centre,

It contains the following mentioned items that contribute in tightening and developing both of the Agricultural Scientific and Technological Information International System (AGRIS) and the current Research International System (CARIS) with the National Project of Scientific and Technological Information, as they are considered one of the main activities of the National Scientific and Technological Information Network.

1. supplying of the Egyptian Agricultural Documentation and Information Centre with a computer and its accessories and operating systems programmes and data rules organising.

2. submitting of technical answers concerning the process of arabization of computer applications in the information systems, contributing of the project in the arabization projects concerning a definite sectoral centre if it is important nationally or sectorally.

3. contribution in the designing of link elements between the system of sectoral Centre's computer and other information systems locally or abroad that are being treated with. This is considered one of the main activities of the National Information Network.

Eng. Ibrahim Zaki
Director, Agriculture Node
ENSTINET

Date, 20/9/1985

A.M.

APPENDIX (6)

O E P

ORGANIZATION FOR ENERGY PLANNING

CAIRO 1984

OEP CAIRO ARAB REPUBLIC OF EGYPT

D.R. HUSSEIN ABDALLAH

CHAIRMAN AND CHIEF EXECUTIVE

Presidential Decree Number 112 of 1983 established the Organization for Energy Planning (OEP) as part of the Ministry of Petroleum but with separate responsibilities and operational authority. The director of OEP (Dr. Hussein Abdallah) reports to the Supreme Council on Energy (SCE) through a board of directors. The chairman of the board of directors is the director of OEP. There are four members on the board of directors in addition to Dr. Abdallah, representing five organizations in Egypt that impact and are impacted by energy planning and policy.

OBJECTIVES

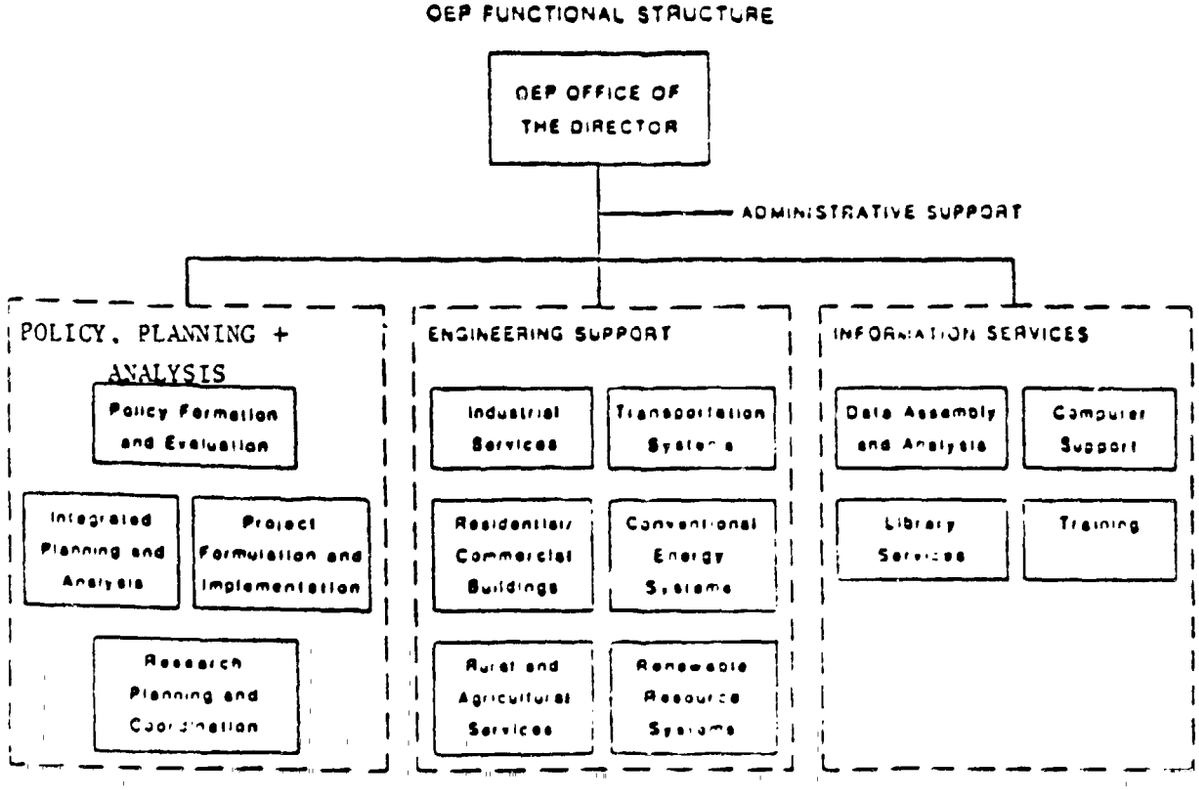
The objective of OEP is to technically support the Supreme Council on energy by performing integrated energy/economic planning and analyses. The goal of these planning activities is to develop and implement energy programs projects) that lead to rational energy resource utilization and will assure future economic growth.

OEP ORGANIZATIONAL DESCRIPTION

OEP's activities can be grouped into three major components:

- Policy, planning, and analysis;
- Engineering services; and
- Information services.

Figure 1 shows these three components and their subactivities



OEP FUNCTIONAL DESCRIPTION

POLICY, PLANNING AND ANALYSIS

This activity is designed to formulate, evaluate, and select the recommendations that OEP will present to the Supreme Council on Energy, to the interministerial committees and to the other Egyptian organizations. It uses information generated by other OEP activities and by its own studies. It is the multidisciplinary activity within OEP. This activity has four principal sub-activities.

Policy Formulation and Evaluation. This is the function of preparing the actual statements that are issued as recommendations from OEP. This group:

- Identifies energy policies that are to be considered (e.g. regulations, supply rationing, pricing, etc.)
- Uses results of OEP and other studies to evaluate alternative policies.
- Evaluates legal and implementation aspects of various policies.
- Evaluates economic impacts of alternative policies.
- Formulates policy statements to be recommended by OEP to other groups.

Integrated Planning and Analysis. This is the analysis and computation function that provides the necessary information for policy formulation. This group:

- Conducts energy analyses to provide information for policy studies;
- Develops and maintains analytical tools (e.g. economic models, energy supply/demand models, etc.);
- Conducts "quick response" studies to provide information for policy studies; and
- Conducts cross-checking studies to corroborate energy planning efforts of other groups.

Project Formulation and Implementation. This function deals with specific projects. It is designed to provide consistent reviews of various energy-related projects and to develop coordinated financing proposals. The group:

- Reviews proposed energy project alternatives (e.g. capital investment projects),

- Develops priorities for various projects,
- Assists in the implementation of energy conservation projects
- Assists in the arrangement of financing packages and
- Monitors the progress of energy conservation projects implemented

Research Planning and Coordination. This function deals with the energy research being carried out by other institutions in Egypt. The group:

- Develops coordinated energy research program for the country,

- Monitors status of ongoing energy research efforts,

- Convenes meetings of researchers to exchange ideas, and

- Monitors foreign energy research activities.

ENGINEERING SERVICES

This activity is designed to provide detailed engineering information in support of OEP's planning needs and to provide technical advice and engineering support to energy users and suppliers. It is the hardware engineering group in OEP. It is structured to match the various sectors with which it must deal.

Industrial Energy Services. This group focuses on the industrial sector. Its role is to:

- Conduct detailed in-plant energy consumption audits,

- Provide plant operators with technical advice on energy conservation opportunities,

- Conduct feasibility studies on energy conservation measures;
- Maintains status of state-of-art industrial energy conservation technology, and
- Define industrial research needs.

Residential and Commercial Building Services. This group deals with building and it:

- Conducts detailed building energy audits,

- Provides architectural and engineering advice on energy conservation opportunities,

- Conducts feasibility studies, and
- Maintains status of state-of-art R/C energy conservation technologies.
- Defines research needs.

Transportation Services. This group is the principal interface with their transportation planning activities. Its role is to:

- Conduct surveys on transportation energy consumption (vehicles and transportation network),
- Provide advice on vehicle and network energy efficiency improvement,
- Maintains state-of-art transportation energy conservation technologies and
- Collaborate with urban and transportation planning agencies.

Rural and Agricultural Services. This groups deals with the rural and agriculture sectors and with other Egyptian agencies operating in these sectors. The group:

- Conducts surveys of rural and agricultural energy consumpcion, including commercial and noncommercial energy use;
- Provides extension services to farmers and rural villages on more efficient energy use;
- Maintains status of state-of-art energy conservation technologies and
- Evaluates feasibility to alternative energy supplies in rural areas (e.g. rural electrification, gas systems, decentralized renewable resource system).

Conventional Energy Production Services. The intent of this function is to provide OEP with its own expertise on conventional energy systems without duplicating the planning staffs of other organizations. This group:

- Maintains up-to-date status on current levels of energy resources (oil, gas, coal, nuclear materials, etc.)
- Maintaing up-to- date status on existing and planned energy processing and production facilities (e.g. refineries, power plants).
- Reviews energy efficiency of existing and planned supply network, and
- Maintains state-of-the-art supply technologies.

Renewable Resource Technology Services. As with conventional energy items, the purpose of this group is to provide OEP with its own expertise in field and not to duplicate existing capability. The group:

- Maintains up-to-date status on renewable resource projects,
- Conducts feasibility studies on various renewable resource systems applications;
- Provides technical advice to renewable resource users,
- Maintains states on state-of-the-art renewable resource technologies, and
- Identifies research needs.

ORMATION SERVICES

This activity is designed to assemble the information and data necessary to support OEP efforts and to disseminate OEP information to those requiring it.

Data Assembly and Analysis. This is the main data gathering function OEP. All of the statistical data will be handled by this group. It will:

- Conduct detailed surveys on energy use,
- Prepare necessary data management procedures,
- Conduct statistical analysis and screening of data,
- Assemble other nonenergy data necessary to support OEP studies,
- Coordinate with other data-gathering functions in other organizations, and
- Maintain historical records of energy use and other needed data.

Library Services. This is the information-handling function of OEP. group:

- Develops and maintains a library for OEP;
- Assembles appropriate reports, papers, periodicals from local and foreign sources;
- Maintains access to information data bases (local and foreign); and

- Conducts literature searches.

Computer Support. OEP will require significant computer capability to carry out its mission. This group:

- Identifies and recommends procurement of computer hardware and software,
- Maintains and operates computer equipment, and
- Provides computer programming support.

Training. Training of OEP staff, other Egyptian energy professionals, and the general public will be part of this activity. The group:

- Plans training programs for OEP staff;
- Plans and implements training programs for outside personnel (e.g. plants operators, drivers, general public);
- Prepares training materials; and
- Coordinates with foreign training programs.

ADMINISTRATIVE SUPPORT

This activity provides the administrative functions for OEP. It includes the following functions:

- Accounting
- Budget preparation
- Personnel
- Purchasing and subcontracting
- Office management
- Typing and reproduction services
- Translation and editing.

FUNCTIONAL COMPUTER NEEDS OF THE ORGANIZATION FOR ENERGY PLANNING

1- OVERALL FUNCTIONAL NEEDS AS THEY RELATE OEP ORGANIZATIONAL OBJECTIVES

The three main functions of OEP are shown in Figure 1. Each of these functions will require slightly different computer facilities. Specific needs for a minicomputer are required to support the running of large analytical models and the processing, storage and retrieval of large energy data bases required to perform national energy analyses in Egypt.

The Policy, Planning and Analysis group will mainly be performing national energy analyses using data gathered by the information services group. They will be using large models like WASP (Wien Automatic System Planning — electric sector planning model), IDES (Integrated Demand and Energy Supply), and macroeconomic energy/economic interaction models. All of these types of models require a large, fast processor.

This group will probably have 8 staff running different analytical models and performing analyses for senior policy analysts.

The engineering support group will not demand the large processor for its models but will have many users (20) that will be running several smaller analytical engineering models. Since one of the primary functions of this group is to provide engineering support to many different energy consumers and conservation projects, there will probably be a large number of small engineering models that will be integrated into an engineering package for ease of operation. On line interactive operation will probably be the typical user pattern and so this group will need a significant number of terminals. Microcomputers will also be required so that many of these models could be run in the field during energy audits or engineering analyses. The microcomputer could then double as a terminal to the larger processor and as a field computer.

The information services group will be the primary data base assembly, analysis, and maintenance people for OEP. Although the other two groups will be the primary data users from an analytical perspective, the information services group will provide data base services. They will collect and assemble data in formats and data file structures that are convenient for use in analyses performed by the other groups with their respective models. The information services group, however, will generate a variety of data reports that will be used by OEP staff and energy analysts outside OEP (government employees and university researchers). The primary computer needs of this group are terminals (data base entry, verification, and file organization), peripheral data storage (disks and back-up tape) and a data management software that will ease the development and maintenance cost of an OEP data system.

2- ACTIVITY SPECIFIC FUNCTIONAL NEEDS

The Organization for Energy Planning will conduct a broad base of energy policy, planning and analysis activities. The functional organization (Figure 1) illustrates different activities and we previously provided a brief description of each of the major activities. Of course OEP is an evolving institution and cannot engage in all the activities at this time, but will be fully functioning by the end of the project. Currently there are four major OEP projects that are defined and are being worked on by OEP staff. The functional computer needs of each of these four activities will be described here.

2.1 Industrial Energy Conservation

The primary objective of this OEP project is to begin to implement energy-conservation measures in industrial facilities in Egypt. The OEP staff are being trained in audit procedures and will be performing energy efficiency evaluations of various industries. These energy evaluations will require numerous engineering models that will be used to calculate intermediate and final energy efficiency parameters. Many technical staff in the engineering support group will be using these engineering computer programs daily in support of their energy audit activities.

Another major component of the industrial energy conservation project is the development of an industrial energy consumption data base that will be developed during the course of the project. This data base will serve two purposes: 1) It is a tracking system for evaluating the progress of various energy conservation projects, and 2) it will serve as the primary data base for developing a national industrial energy conservation policy. There are thousands of plants and many thousands of energy consuming facilities that will become part of this industrial energy consumption data base. This data base would best be served by a data management software that would greatly facilitate the evaluation of progress being made on certain industries, setting priorities for the project, and evaluating the effects of alternative conservation policies.

2.2 National Energy Analysis

The objective of this project is to establish within OEP the capability to perform national energy analyses. The initial focus will be on the development of a detailed sectoral energy consumption data base. A Network

Energy Tracking System is being developed that will use the energy consumption data base and track the flows on energy from resource production (or import) through end-use consumption. This data base and network tracking system will serve as a basis for the development of a supply/demand balancing model that will be constructed for the Egyptian economy. This energy consumption data base, network tracking system and the energy supply/demand balance model require a large computer for complete implementation. The energy consumption data base will be large (requiring disk storage) and the network tracking system would benefit from a data management software package. The supply/demand balance model, set up for the Egyptian economy, will require a fairly large memory and requires significant running times on a minicomputer. The Policy, Planning and Analysis group will be the primary users of these models and data bases.

2.3 Electrical Energy Conservation

The objectives of this project are to identify actions that lead to significant electrical energy conservation and to develop a modeling and analysis capability within OEP to examine such issues. A comprehensive data base covering current and projected electrical energy consumption and generation will need to be developed in order to properly evaluate electrical energy generation or conservation alternatives. In addition to the data base, an electrical system planning and evaluation tool will have to be implemented within OEP to systematically evaluate generation alternatives and conservation options. The currently accepted tool is the WASP model (Wien Automatic System Planning Model). The WASP model is currently used by the Egyptian Electricity Authority and the standard by which the World Bank judges the appropriateness of energy projects. OEP will need to run WASP to investigate alternative energy options as well as those presented by the EEA. WASP is a large model and requires a large fast processor for effective execution. The Policy, Planning and Analysis group will be the primary users of WASP and the supporting data. Information from this project will also serve to update the data base for the National Energy Analysis.

2.4 Transportation Energy Conservation

The objective of this project is to develop, test and implement energy conservation measures in the transportation sector. To do this effectively OEP will develop a detailed data base on energy use in this sector. Most of the analysis will probably be data analysis, but some transportation systems models may have to be implemented in order to evaluate alternative conservation measures. A sizeable data base will evolve from this project that will include: 1) vehicle energy efficiency and maintenance, 2) energy flow tracking on fuels and lubricants, and 3) transportation investment patterns and fuel use. A fairly large and detailed data will probably have to be assembled and analyzed in order to justify any conservation policy recommendations. This data will also be aggregated to update the data base for the National Energy Analysis.

2.5 Residential/Commercial Energy Conservation

APPENDIX (2)

MINISTRY OF INDUSTRY

ENGINEERING AND INDUSTRIAL DESIGN

DEVELOPMENT CENTRE

INDUSTRIAL TECHNOLOGY APPLICATION PROGRAM

THE ITAP PEOPLE

Itap is a relatively new face in yhe world of Egyptian industry. As a technical service organization, it brings a fresh approach to industrial problem-solving by directly applying U.S. know-how and valuable experience to improve production techniques. Fulfiling this task requires, above all, skilled human resoures. This on hand at all times to look into the whole range of problems that face modern industry, from plant layout to manufacturing methods. It also means having immediate access to information, such as news from the latest technical periodical or advice from an internationally recognized expert. These are the resources ITAP relies on, and exactly what makes it uniquely qualified to assist Egyotian industry.

ITAP unites the accumulated expertise of two major institutions: The Engineering & Industrial Design Development Center and the Georgia institute of technology, both of which have detailed histories of involvement in industrial development. Backed by the United Nations as an independent agency within the Ministry of industry, EIDDC has been serving public private industry for 16 years, providing much training and industrial design techniques. Similarly, Georgia Tech has long been a pioneer among U.S. academic institutions through cooperation with businesses in the field of technology research and application. Founded in 1885, Georgia Tech today has an annual research budget of over $ 90 million dollars. It is active in contracting for the U.S. government as well as exploring new technologies such as solarenergy and artificial intelligence. pooling these two resources, ITAP is fullu equipped to provide Egypt's industrial sector with an inexpensive, hi h quality, consulting service. It is currently funded the U.S. Agency for international Development. The joint Egyptian/American management heads

a team of 21 highly qualified engineers and information specialists. This team, two thirds of which work in the field, seek out problem areas and give advice. ITAP'S field extension workers are prepared to make on-site recommendations. In case of need, however, theywill obtain from outside cinsultants. At the ITAP office, specialized staff supervise the functioning of a rapidly growing technical library supplied with a wide range of periodicals, reference books and audio-visual material. ITAP developing its own Computer Data Base with up-to-date information for fast technology transfer too.

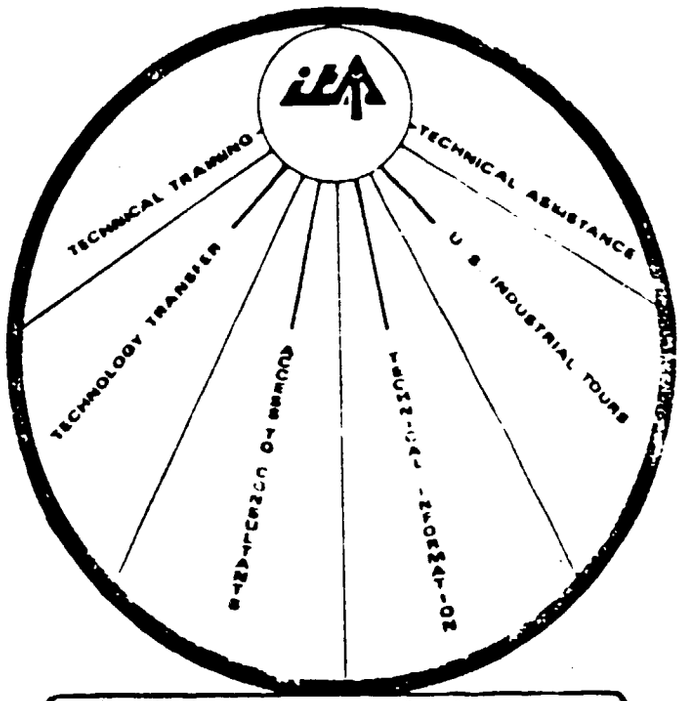
In short, ITAP is ready to serve any manufacturer, public or private, large or small. So if your company is in need of some friendly advice, please get in touch with the ITAP people!

A YEAR OF ACHIEVEMENT

Looking and taking stock of its achievements is something that ITAP can do with pride. Established in January 1983, the program went through six months of organizing and setting in. Only then could it begin to offer the full range of services it presents today.

Since then the momentum hasn't let up. ITAP can now claim a role as a vital partner to Egyptian industry, seeking to increase productivity through the application of relevant technologies, both new and and old.

Here are some of the ways ITAP works.
The program's field extension engineers are at the heart of ITAP's outreach activities, constantly at work contacting companies, identifying problem areas, and applying their expertise in finding solutions. Diagnostic services are provided upon a company's request. If the client desires more indepth advice, ITAP can help in locating, and in some cases financing, the expenses of independent consulants.



Industrial Technology Application Program

Eng. and Ind. Design Dev. Centre Georgia Inst. of Tech.

With 57 visits completed in 1983, ITAP far exceeded its target number of 30. By September 1984, over 180 diagnoses had been either initiated or completed. These included advising companies as diverse as an automotive manufacturer with 12,000employees to a small family-owned leather factory. Sixty percent of the plants diagnosed were in the public sector, with the remainder either private or joint venture. Fourteen contracts were signed, sulting agencies would envy.

As any businessman knows, information is often hard to come by. In Egypt, this is particularly true of

Technical information.

ITAP's Technical information Center was set up to keep Egypt's industrial managers informed of the latest developments in technology and production methods. With over 1,000 volumes on hand and subscriptions to more than 180 periodicals and trade journals, as well as access to the computer data banks and million volume library of Georgia Tech, The Center's staff is prepared to respond to technical inquiries from any type of manufacture. To date, over 700 requests for information have been handled.

The Center also houses ITAP's Apple // computer with programs for the library catalog, project management, and directory of Egyptian industry. Expanding from the base of its in-plant visits, ITAP is also serving industry as an intermediary in finding and making use of independent consultants.

On file at ITAP are the resumes of over 130 Egyptian consultants, while Georgia Tech maintains files on hundreds of consultants in the U.S. This assists ITAP in finding people with the right qualifications for the right job.

Training an important aspect of ITAP's work in introducing management to new methods and technologies. So far, ITAP has helped to organize five specialized meetings of top industialists in different fields. These have included Textile Productivity, inventory Control Systems, Robotics, Quality Control, and Shoe Modelling.

Actually seeing advanced production methods at work, is one of the most efficient ways of increasing awareness of their value. This is whyITAP plans and organizes industrial study tours to the United States. They are devised to give asselect group og managers from a specific field of industry an opportunity to meet their American counterparts and study the techniques they employ. Three highly rewarding tours have been conducted to date. Twenty participants joined in a U.S. tour of leather industries, taking them to six different factories and a leather exhibition in New York City. The Garment industry Tour attracted 23 businessment from both public and private sectors. Most recently though, 19 industry representatives made a tour concentrating on Materials Handling.

To ensure that high quality services will continue to be available to Egyptian industry well into the future, ITAP has undertaken an extensive program to develop and train a second generation of qualified staff. Four Egyptian engineers have had intensive training at Georgia Tech, two resource specialists have studied information science at Emory University, and three other engineers have attended special coursesin their areas of concentration.

This has certainly been a year of achievement, but much still needs to be done. ITAP is looking forward to expanding its services even more as Egyptian Industry learns more about them.

VALUABLE INFORMATION SERVICES

ITAP is the place to turn for answers. Using its own well-stocked library and with access to the most up-to-date sources in the U.S., ITAP's information Request Service is fast becoming a vital link between Egyptian industry and

the latest developments in technology, design standards, and a range of other fields.

For an idea of the diversity of ITAP's capabilities, here are some recent examples of information requests.

NEED: What are the latest technologies for producing car radiators?

INFORMATION WE SENT: Catalogs of several U.S. companies producing equipment plus technical information from the Society of Automotive Engineers, Copper Development Association, and U.S. Patent Office.

NEED: What is needed to start a potato chip factory?

INFORMATION: Our computer database located articles on manufacturing processes which we sent along with equipment catalogs and an annual buyer's guide from the International Potato Chip/Snack Food Association.

NEED: A foundry operation wanted the technology to improve coke.

INFORMATION: The ITAP Library provided standard specifications from the METALS HANDBOOK and exact specs from several U.S. chemical companies.

NEED: A food processor wanted some data on cans and recipes for luncheon meat.

INFORMATION: Catalogs of equipment for making and closing cans were sent plus the name and address of a source of readymade cans. Typicalrecipes were included also.

CONSULTANT SERVICES

A lifetime of practical experience in a technical field is of interest to independent consultants, representing years of hands-on specialization in various areas of industry, is in much demand.

Since mid-1983 ITAP has secured the services of a total of 25 Egyptian and U.S. short-term consultants. Dozens of plants throughout Egypt were visited by these experts, and advice of all kinds provided. Some of their specific achievements were:

A preliminary study and development of plant processes, equipment layout, and cost estimates was made for a 100 tons per day meat processing factory.

Maintenance Mangement Programs for several major companies were planned.

A Shoe Modellist assisted several manufactures in the design of shoes for the export market.

A specialist in rolling mill operations and technology proposed many recommendations, which when implemented, could result in saving of several million pounds per year.

Modification of a rolling mill cooling process should reduce operating costs by LE 400,000

Conducted diagnostic studies of 14 textile factories, pin-pointing problems, and recommending solutions.

Plans to retain additional U.S. Egyptian consultants will be determined regularly as technological needs of Egyptian industry are uncovered by ITAP engineers or as specific requests for assistance are received. Arrangements are currently being considerd to secure the services of experts in many other fields.

The assistance received from the consultants is very often at no charge to the company. When a company requires the consultant's services for an extended period of time, a contract must be signed but the cost is kept minimal and is heavily subsidized.

For our consultants, lifetime of experience in a technical industry was not a waste of time, but a beginning! If we can learn from the mistakes and research of others, we've gained a lot more than just time.

TECHNOLOGY TRANSFER

Visits by ITAP staff to production sites an integral part of the program's activites. Many companies have benefitted from the indepedent and wellinformed advice of these "industrial doctors". Here are a few of their successful diagnoses:

- Assisted manufacturing company in locating a shop that could produce a needed part.
- Supplied data to a manufacturer who wanted to reduce the dangerous lead fume exposure to their employees.
- Recommended the use of furnace door curtains to reduce heat loss and product waste at an aluminum company.
- Inspected and informed a furniture manufacturer that the refractory walls of a new boiler were unsafe.
- Developed a textile plant lightingn system.
- Helped a baby clothes manufacturer improve the design of an electric drying oven to accelerate its throughput.

The most recent ITAP-organized industrial study tour to the U.S. took place in March. Nineteen Egyptian mangers from a variety of public and private sector manufacturers attended this special **Materials Handing Tour.** In a space of two weeks, six U.S. companies with novel approaches to materials handling were visited, along with two important trade fairs.

Four engineering managers attended a specialized program in Research & Development Management at the world's largest independent research founda tion, Battelle Memorial Institute in the United States. Also, four marke- ting, operations, and engineering managers from a major public sector fertilizer company visited the U.S. to attend courses at the International Fertilizer Development Center.

Technology Transfer is the cornerstone from which we operate. Through creative methods such as these, we are able to assist Egyptian industry in a variety of ways, thus making our prospects limitless.

B.A.

APPENDIX (8)

El Nasr Automotive Co.

Wadi Hof - Helwan - Cairo.

The information sector consists of the following items:

1. The Computer:

The administration of the computer has been established within the company since 1965, working in the administration has also been developed from traditional machinary to sent a computer for the different services centers. The on-line system will be operated as of january1, 1986, in the following applications:

- Cars selling system.
- Full products observing system
- Spara parts selling system.
- First stage in products controlling and planning system.
- Financial system.

According to what has been planned the company hopes to complete a collection of new systems and computers mentioned in the central system working through "Local Area Network".

2. Information Centre:

To the information centre, the company has really started in forming information area centre, the first stage of the project has been completed and it is expected as of the first of January 1986, we are going to deal with the following items:

The present situation of the Information System:

There are a set of information activities;

Libraries:

Consist of the following:

- The company cultural centre
- Trucks and transportation technical Library.
- Machinary design library
- Technical library.

2. The company sectors will issue a circular report serving the higher administration and the state sectors .

3. Decumentries bureau reserves engineering and measuring designes for lists of products and to supply the users with a copy of these decuments at the time of need.

The Information Users:

a. Inside the company:-
   - Decision-makers
   - Directors of sectors
   - Specialists and Technictions

b. Outside the company:-
   - Ministry of industry
   - The public sector organization for engineering industry.
   - Information centres (locally-Universally).
   - Universities and Researches Centres .
   - The companies for main industries.
   - Licence companies.
   - State administrations.

Objectives of the Information Centre

- To supply the higher level with information and documentries necessery for fouring and making decisions.
- To find a collective, storing, dealing and feedback system in the company in addition to the external data .
- To support technical studies needed for the development of the company activities.
- To develop the capacity of the workers of the company.
- To establish a central data system to prevent repeation and doubling.

- To generalize the services in the company and affering new services
- To establish a network between the centre and International and local centers working in cars industry field .

The centre organization framework according to activities

- The administration of the centre.
- Secretaries of the Centre.
- Documentay activity including the following:
  Suppling - indexing and classifing - preparing data rules.
- The activity of publishing and data services including the following:
  - Ansering the inquiries - data feedback - preparing bamphlets and reports
- Analysing activity.

Training programmes and suggestions concerning information centre:

a. in training field
   - To help training workers in the following fields:-
     - Preparing the conclusions.
     - Preparing bibiolographtes.
     - Discovering operations and preparing analytical discoveries
     - data collection and getting the resultes.
     - To help attending sympostums and International seminars for getting connecting researches.

in foreign contacts

To help operating a network with data centers in other countries for exchanging information .

in Technological information

Technical assistances in using the most up-to-date means and machinary.

Eng. Haydi Kamal

Date: September 11, 1985

A.M.

APPENDIX (9)

Military Factories Computer Centre (MFCC)

This Centre is pleased to present the following brief information about its activities.

I. MFCC OVERVIEW

1. Address: 7 Gomai St. Garden City, Cairo, Egypt
2. Telephone: 557448, 550807, 551071, 542149.
3. MFCC has an experience of more than 30 years in the field of computer data processing systems.
4. MFCC serves all Military Factories plus other public sector companies by designing whatever systems required by them, and maintaining existing systems.
5. MFCC has a number of experts in different aspects of computer data processing and information systems. These experts were trained both locally and abroad.
6. MFCC has a training center giving lectures for all stages of DP activities.

II. Systems currently implemented at MFCC

1. Commercial applications

    1. Payrall and incentives system.
    2. Stock control system.
    3. Accounting system.
    4. Costing system.
    5. Invoicing system.
    6. Purchasing system.
    7. Manpower system.

2. Technical applications:

    1. preventive maintenance.
    2. production planning and control.
    3. project planning and review techniques.
    4. project planning and risk analysis.

3. Integrated Information systems

MFCC has designed a number of integrated information systems to help different levels of management in the decision making process.

III. MFCC Customer List

1. Military Factories Companies

- Helwan foundury company.
- Abu Kier industrial engineering company.
- Abu Zaabal chemical products company.
- Shoubra industrial engineering company.
- El-Maasrah industrial engineering company.
- El-Maadi company, for industrial engineering company.
- Helwan industrial engineering company.
- Heliopolis chemical industries company.
- Abu Zaabel industrial engineering company.
- Banha electronic industries company.
- Kaha chemical industries company.
- Helwan metal, equipments company.
- Helwan company, for desiel Engineering.

These companies implement all of the previously mentioned systems. Also, it is in the five year plane to provid some of these companies (depending on their data needs) with there own computing poer.

2. Public Sector Companies (such as):

a. Outside Companies:

- Egyptian Arish marketing Company.
- Minute Mechanical Industrial Company SABI
- Egyptian light transportation means company.
- El Naser for pipe steel company.
- The general china products company

- The arabic radio and transistor compzny.
- El Naser hammer industries company.
- Egyptian spin and textile wool company.
- The National organization of communications.
- Ministry of finance.

b. <u>The former Users:</u>

- The iron and steel company.
- The national cement products company.
- American University at Cairo .
- Monofia University.
- Egyptian petrolum company.
- El-delta company (Ideal)
- Petrolum pipe company.
- Siemaph company.
- El-delta suger company.
- The national Investment bank.
- El chark insurance company.
- Dam company for electric projects.
- General organization for industry.
- Petrogaz company.
- Petrogit company.
- Skomy company.
- Ieromac company.
- Brown company.
- Imico company.
- Petrolum engineering company.
- Cairo contractors company.
- Information centre of public sector.
- The arabic british com.
- Alexandria sea port.

3. Forign Customer

MFCC had a five year contract with SOTI (state organization for technical industry) at IRAQ. The contract value was two million Egyptian pounds. The contract was to build an integrated information system for SOTI 6 companies.

All the contract activities were accomplished in the scheduled times and the contract was successfully completed.

A.M.

APPENDIX (10)

EGYPTIAN DRUG INFORMATION CENTER
14 Emad El Deen St. Cairo Tel: 920242

Introduction

Over the years, information centers have clearly become major r . media for the storage and retrieval of an ever-increasing Flood of information.

As the Lack of adequate time for doctors, pharmacists, or decision makers dealing with various topics concerning drug therapy and seeking to satisfy their desire for information covering this field.

It has become increasingly important to know how to find facts at the moment, in that sence, Egyptian Drug Information Center existed to answer precisely what they need when they needed it, and we hope EDIC will fullfil their interest.

OBJECTIVES

- To act as authority center, responsible for all the scientific information and data of the Egyptian Drug sector and pharmaceutical products.
- Collection, Classification, storage and retrieval of documents produced locally and internationally relevant to drug sector and supporting its strategy.
- The dissemination of accumulated knowledge to its stated user.
- To act as referal center to all relevant information centers (local or international).
- To act as neucleous for the national health and drug subnetwork.

FUNCTION

I. ACQUISITION:

To provide the center with various documents (reports, books, periodicals, researchs...) needed for the preparation of the following four data bases to be stored and retrieved easily.

1. EGYPTIAN DRUG INFORMATION FILE: EDIF

(up to 5000 drug available in the Egyptian market).

The file includes the following data: trade name, pack, price, registration date, number, and cancelation date, name of manfacturer, active and non active principle, dosage, mode of action, adverse reaction and side effect, contraindiction and interaction, precaution and warning.

2. SCIENTIFIC COMMITIEE DECISION FILE: SCDF

up to 2000 decision per year concerning drugs .

3. BIBLIOGRAPHICAL DATA FILE: BDF

It includes all the resources available at the center,

4. INTERNATIONAL DATA BASES:

which are documented as microform and covers information which is not available in the center.

II. INFORMATION SERVICES AND PUBLICATIONS

SERVICES OFFERED ON A USER REQUEST.

Inquiries may be received either by telephone, mailing or personal visiting:

INQUIRY SERVICES

To provide an answer to a specific question eg Request for the drugs

to be indicated in a certain disease, its contraindication and interaction.

Any basic scientific data on a new drug Drugs registered before or after a certain date.

RETROSPECTIVE SEARCHS:

A bibliographical references will be offered, either from the data available in the center or by On-line search in the International Data Bases.

SERVICES OFFERED CURRENTLY

CURRENT AWARENESS

To provide the user with notification of new documents by title or abstract based on the user's interest.

SELECTIVE DISSEMINATION OF INFORMATION: SDI

Its purpose is to keep the user informed of what is going on in his field without confusing him with unwanted documents.

PUBLICATION SERVICES

The various publications will include

BROCHURES: describing the activities and services of the center

ANNUAL INDEX OF THE EGYPTIAN DRUGS

It covers all informations available in EDIF including drug trade name, in alphabetical order, other indices either classified alphabetically by manufacturer name active principles or by similars.

EDIC ALARM:

Includes informations on the adverse dr g reactions and interactions

EDIC NEWS LETTER:

NEW ADDITION TO EDIC

USERS.

- Health Minister and other decision maker working in drug field of hospital directors.
- President of the Egyptian Duge Organization Chemicals and Medical appliances as well as head sectors and general directors in the organization.
- President and head sectors of pharmaceutical companies.
- President of National Organization of vaccines and sera as well as National Organization For Drug Control and Research NODCAR.
- Senior Medical staff of Armed forces and Military medical academy.
- Staff of Faculties of Medicine and Pharmacy.

A.M.

APPENDIX (11)

DRUG INFORMATION
NEWS & HIGHLIGHTS
Published by: The Egyptian Pharmacopoeial Centre

Introduction to Drug Information:

Because of the phenomenal increase in the number of papers being published in all areas of science, the scientists task of acquiring, using and communicating information has become difficult. Sometime ago, access to information was not a major problem because it could be obtained through communication with colleagues, attendance at selected scientific meetings and regular reading of key journals. As science has advanced, these methods of acquiring information are no longer adequate to keep pace with the volume of material being written and published in literally thousands of journals and other publications. The situation created by this expansion of literature has presented scientists with a new frustration especially how to access the vast amount of information contained in all the literature in order to find papers relevant to a particular subject. Hence the need for information accessibility in the area of drug information has been recognized and the Drug Information Services were initiated and developed. At present these services are provided at various levels of sophistication all over the world.

Aims of the Drug Information Service:

1. To maintain up to date information on all aspects of drugs and their preparations through maintaining an adequate data bank. To enable comprehensive, accurate information on all aspects of drugs and drug therapy to be provided and for this information to be available in time to be utilized by the concerned users.

2. To retrieve drug information from all identified sources e.g. published literature, reports, manufacturers data, international organizations and relevant information systems.

3. To organize the storage of this data to allow ready access to the information.

4. To ensure proper utilization of the data by active dissemination of information on drugs i.e. answer questions regarding drug therapy, publish bulletins etc.

5. To support with information members of the permenant committee of the Egyptian Pharmacopia and to collaborate with all personnel involved with investigational drugs.

6. To be involved in retrieval of data generated within the working environment e.g. Adverse Drug Reaction Reporting Schemes.

7. To maintain statistical data for evaluation of effectiveness of the drug information services available.
Literature Sources used by the Drug Information Service must be:

   1. Broad enough to cover all aspects of drugs from formulation, handling, administration to their indications for use and properties in use.

   2. Deep enough to cover world wide clinical experience of drug therapy and pharmacy practice.

THE PHARMACOPOEIAL CENTRE

The need for the establishment of a multipurpose drug information service has been realized and a pharmacopoeial centre has been established* to assist in up-dating the Egyptian pharmacopoeia, to avail information on pharmaceuticals and their effects to the permenant commission of the Egyptian pharmacopoeia, the medical profession, drug control officials and industry.

Goals and Objectives of the Centre

A. To avail an up to date comprehensive data bank on drug related information so that this service can supply essential information to interested parties on demand or as needed.

---

* Collaborative project between the U.S.FDA and The Egyptian Ministry of Health (Project PL - 480 03-661 F).

The data ank will include information on:

1. Drug class and chemical structure.
2. Drug formulation and pharmaceutical data concerning properties.
3. Currently marketed and used drugs.
4. Manufacturers.
5. Generic and trad names.
6. Drug Interactions.
7. Other pharmacopoeial topics.

Information sources for the establishment and maintenance of the data base will cover world wide international drug field on a constantly updated basis.

B. Assist anticipated users of the proposed information services which include those:

1. In the pharmaceutical field such as pharmacists, control & research institutes, specialized committees entrusted with drug manufacture, importation and registration policies,

2. In the medical field such as medical doctors with special attention to general practitioners, hospitals and medical research institutes para medical professionals.

C. Future activities:

1. Collect and develop an adverse drug reaction reporting system.
2. Establish linkages with other automated drug information systems.
3. Compile information for publication of a compendium of Dispensing Information for products commonly used in Egypt.

Available Services at Present:

The centre is currently functioning through the following existing facilities:

1. Library.
2. Updated microfilm files.
3. Some of the publications of international agencies as the FDA and WHO.

The following is a list of the microfilm files available as ready service at the Centre.

1. Drug Literature Microfilm file:
   It is a microfilmed data base of pharmaceutic and drug therapy articles from medical and pharmaceutical journals about drugs therapy. It is designed to answer specific questions concerning a drug and/or disease state.

2. Drug dex: This includes 3 sections:
   a. Drug Evaluations: Unbiased clinical data accumulated from the world's medical and pharmaceutical literature.
   b. Drug consults: Referenced answers to specific questions regarding disease states, use of drugs and drug related problems.
   c. Drugdex index: 100,000 listings, generic name, brand name (US and foreign) and disease state.

3. Drugs in research.
4. Drugs in use.
5. Poisindex.
6. Advers drug reactions and drug interavtions.

Location of the Centre:

The centre is located at the National Organization for Drug Control & Research, Agouza.

Mailing address:

Pharmacopoeial Centre
National Organization for Drug Control & Research (NODCAR)
P.O. Box 29 Cairo, Egypt.

Forthcoming items of interest:

- Adverse drug reaction reports.
- Drug therapy in the elderly.
- Drug news briefs.

A.M.

USERS:

1. Physicians, Pharmacists and Chemists in the different sectors at the Ministry of Health.
2. Research workers in relevant institutes.
3. Drug Control Officials, and members of specialized committees.
4. Members of the parmanent committee of the Egyptian Pharmacopoeia.
5. Manufacturers.
6. Scientific Offices and drug agencies.
7. Universities, Faculties of Medicine and Pharmacy.

A.M.

APPENDIX (12)

Ministry of Electricity and Energy
Renewable Energy Sector

THE PLAN

A. Purpose - The purpose of the efforts being planned is to develop an information system with renewable energy data bases which can be readily used by public and private sector enterprises in Egypt.

An ancillary purpose is to conduct the system development processes in such a manner as to contribute to the improvement of Egyptian capabilities to design, develop and implement automated information systems.

B. Objectives - To accomplish the purposes of this Project task element, objectives are established as follows:

1. Develop the full range of data associated with installing, operating, maintaining and evaluating the approved field tests.

2. Develop data output formats which present technical, financial, economic and social data used in the analysis and design of the field tests and the renewable energy systems.

3. Complete the information system's data collection plan in time for factoring pertinent requirements into each work statement for field test contractors.

4. Work jointly with EEA personnel in all phases of system development and ensure that EEA personnel can effectively take over and operate the system.

C. Concept/Approach

1. To achieve the maximum benefit of the developmental efforts for the improvement of Egyptian capabilities, care will be exercised to complete all standard systems development activities without resort to abbreviated methods or techniques which shorten or reduce the process, and thereby create the possibility of gaps in the technology transfer process; and, to incorporate into the design those renewable energy data files and data processing packages currently in use by EEA and which will enhance EEA's familiarity and confidence with the REIS.

2. Data collection will be expedited by maximum utilization of available renewable energy data bases and by automated interfacing with existing systems of the Ministry of Electricity and Energy, the National Research Center, and/or other government agencies.

D. Priorities and Constraints -

1. Design an uncomplicated system, and develop non-technical system utilization instructions which are understandable and usable by both public and private sector interests in Egypt.

2. Make maximum use of micro-computers in the REIS hardware system configuration.

3. Make maximum use of existing EEA renewable energy data bases and of other data bases and/or processing capabilities available to EEA through cooperating agencies.

4. Make maximum use of commercially available applications software packages.

5. Make maximum use of automatic data recorders for obtaining operating and maintenance data at field test sites.

6. Make the software system readily expandible to accommodate likely hardware system expansion.

7. Complete system development, test and turnover by mid-1986.

APPENDIX (13)

TERMS OF REFERENCE FOR A NATIONAL TRANSPORT INFORMATION SYSTEM

I. INTRODUCTION

In order to be able to effectively manage and control the National Transport System it is necessary that the Government should have up-to-date, reliable and readily accessible data available to it. Such data should include; vehicle ownership, vehicle importation and production, traffic counts, vehicle use, vehicle weights, public transport statistics, transport costs, highway condition and inventories, etc.

Currently data is collected, if at all, in an Ad Hoc arrangement where there are no facilities for bringing it all together under the control of the Ministry of Transport. With the introduction of mini/micro computers it is now possible to consider the setting up of a National Transportation Data Base system at a reasonable cost and without having to establish large computer software support systems.

In spite of all the efforts made in the past, the Transport Planning Authority (TPA) has still no operational database or transport planning and transport policy information system at its disposal, allowing the Ministry of Transport to carry out its transprot planning and policy formulation activities on a continuous basis.

Especially in a country like Egypt, where fundamental change in the economic structure can be expected as part of its economic growth process and where economic resources are limited, a permanent information system on transport and traffic to support the transport policy decision making process is needed.

The transport policy information system to be provided to the TPA should include all relevant transport, traffic and other related data on a national scale stored in structured databases. This should allow the TPA to carry out its planning, policy simulation and evaluation activities on a continuous base by its own personnel at minimum cost.

Because of that, the policy information system should be developed on a low cost micro computer in a user friendly way, implying the use of the system by non-computer specialists.

II. OBJECTIVES

The objectives of this project is to establish a National Transport Information System (NTIS) for the transport sector in Egypt to be located in the premises of the Ministry of Trnasport and managed by the Transport Planning Authority (TPA). The system is to be made-up of a sector's data and information base as well as procedures software for manipulating such a base and will be installed on a new mini/micro computer facility. Data and information is to be secured for the base from primary reliable sources in accordance with the minimum size concepts and according to a well developed appropriate classification and coding system for the sector's entities (commodities, modes, vehicles, infrastructure, companies, ... etc). The system should match with the computerized national information system to be established on the national level in the Academy for Scientific Research and Technology. Data communication means are to be secured between this latter system and the NTIS. The NTIS should enjoy a good degree of modularity and segmentation that enables it to "grow" steadily through the addition of new modules or components characterizing new aspects of the sector's entities.

III. SCOPE OF THE CONSULTANTS WORK

1. The task of setting up the NTIS will be undertaken in 3 phases; namely:

   Phase I : Functional Design of the system (6 months).
   Phase II : Detailed Design of the System (9 months).
   Phase III: Installation and Pilot Operation of the System (3 months).

2. The main task of phase I is to examine possible ranges for the scope of the data base that would fulfil the requirements of the above objectives. Having made estimates of the costs and resources required to mount and maintain such systems a recommendation for the preferred system should be made.
   The Consultant should consider at least three levels of data to be recorded, such as:

   (i) Basic system involving just the collation of existing data with synoptic information on each entry.

   (ii) Intermediate system which would extend the basic system by the collation of further disagregate data and by the collection of additional data not currently obtainable, e.g., traffic counts, accidents.

   (iii) Extended system incorporating the full extent of data collation and collection which would be technically resonable to be able to gather in Egypt at the current time.

3. In order to fulfil the tasks of this phase in a convenient way, the consultant will develope an appropriate, comprhensive, and flexible classification system for the sectors' functional entities that will be adapted throughout the system together with suitable codes whenever applicable.

4. In examining the alternative scope for the system the consultant should make a detailed inventory of the primary data sources considering both periodically recorded data (such as bus companies, annual reports) and Ad Hoc data (such as data of the O-D surveys undertaken during the national transport studies, production and Consumption statistics, ad hoc traffic counts, 1978 Cairo University/MIT surveys around Cairo, TPA's taxi and own account public transport surveys of 1985, highway condition and inventory surveys of the 1981 Delta Paved Road Network Study, etc). Previous attempts to identity primary data sources could be traced back in previous studies of the sector. The attempt made during ENTS, Phase II is a significant one although it should not be regarded as final for the purpose of this project.

5. In making recommendations for the proposed scope of the data bank the Consultant will have held discussions with the appropriate authorities to confirm the continued availability of data sources. Proposals for new surveys and data sources shall be defined together with estimates of the staffing and resources that would be required.

6. Having made recommendations of the extent of the system to be developed the Consultant will make recommendations for the computer hardware and software to be provided together with proposals for staffing, training and maintenance. In selecting a computer system the ability to maintain the syste locally in Cairo must be a major factor. The Consultant should consider the potential requirements for terminals remote from the centre for the updating, or retrieval of data by individual agencies or regional offices of the Ministry.

7. A set of forms are to be designed in this phase for data compilation from its primary sources. The forms should indicate the periodicity of its updating and shall be in such a way that facilitates input to the computer.

8. In Phase II, the initial task will be the purchase of the recommended hardware system. Software systems will have to be developed. These will then be used for the establishment of procedures for the storage, retrieval, and analysis of the data to be included within the information system. All data to be collated from existing sources is to be compiled and retained in the data base of the system. Detailed specification for data formats and definitions will have been established.

9. Detailed specifications for new data sources will be provided together with survey procedures and coding instructions. It is unlikely that data arising from new survey sources would be available during the course of this Phase, however, the storage and retrieval procedures are to be developed and tested with prototype data.

10. The reporting procedures to be developed from the information system of the form that they could form the basis of an annual publication on National Transport Statistics.

11. Full documentation for the operation of the information system in its specific form is to be provided.

12. In Phase II, the previously designed system will be completely installed, pilot runs and training activities will be conducted to ensure minimum problems during the on-going operational stage of the system

IV. THE COMPUTER SYSTEM

1. It is expected that the computer system to be delivered will be of a proprietary system and should consist of facilities for the input, removal,updating and retrieval of data and should be capable of viewing, printing, tabulating data. Facilities for graphical presentation of data should also be included.

2. If not included within the main system the Consultant should also provide software to facilitate word processing, data sorting, statistics and spread sheet operations.

3. The communication of the user with the database should be direct and user friendly.

4. It is essential that the recommended system should be fully maintainable in Cairo. Facilities for back-up storage of data are to be provided. In addition to a fast line printer for use in analysis and testing work a letter quality printer is to be provided.

5. Provisions to meet the possibility of having data communication with the computerized national information system to be established on the national level in the Academy for Scientific Research and Technology are to be secured. Similarly provisions should be made for the possibility of having terminals accessible to the main frame from remote offices. However, this initial purchase of the computer equipment will not include purchase of equipments for these latter two possibilities.

V. TRAINING OF TPA PERSONNEL

One of the main objectives of the study will be the use of the system by the TPA itself. Such a result can

only be achieved if TPA personnel are fully involved in the implementation of the system during the study.

In fact all the work should be carried out in close co-operation with the TPA, implying that part of the work will be carried out by TPA personnel under guidance of the Consultants.

The TPA will provide a senior representative to assist in the discussion with other agencies.

VI. EXECUTION OF THE WORK

Consultant are invited to submit proposals to cover Phases I,II & III of the implementation of the system project. Additional assistance from consultants may be required during the on-going implementation of the system but as detailed requirements cannot be specified at present, the Consultant is requested to supply unit rates per man-month for each type of the personnel that may be required.

The work will be executed in 3 phases as described above,the first phase taking 6 months the second phase 9 months and the third phase 3 months. There will be a review period between each phases of 1 month.

In tendering the Consultant should include a provisional price to cover the cost of computer hardware and software.

REPORTING

During the course of the project Consultants shall prepare bi-montly progress reports informing the TPA of the progress of work and the problems encountered and deal with other relevant topics that may arise. A full report is to be provided at the end of each Phase, 20 copies in English and 20 copies in Arabic.

GENERAL CONDITIONS

The present terms of Reference will be part of the Consultants contract. The Government will provide all information or data according to their availability. It is the Consultants responsiblity to translate, refuse or complete such data as required.

The Goverenment will assign qualified counterparts to work with the key personnel of the Consultants. The counterparts will be assigned on a fulltime basis.

The TPA will provide the Consultants with office space within the TPA Head Office in Qasr Al Ahmar Str.

APPENDIX (14)

Data Processing Services (DPS)

El-Maadi-Cairo

The centre has succeeded in the achievement of the following:

1. Drugs Field:

* Public Sector Organization for Drugs:

  - Preparation of studies on establishing and designing the Egyptian Information Centre since May, 1983.
  - Designing data base system for Egyptian Drugs (locally - imported).
  - Designing data base system of decisions for technical committees,
  - Preparation the charactesitics of computer,
  - Preparation the dictionary of operate proceeding November 1983.
  - Supervising on the all operations in the centre.
  - Preparation training programmes.

2. Manufacture Field:

* Egyptian company for telephonic equipments:

  - Preparation of studies and designing the information centre from April, 1984 at El-Qasarah-Cairo.
  - Establishment a Scientific Library and Decumention of technological date.

* El-Nile Sulpher Company:

  - Preparation of studies for establishment the abroad information centre since July, 1981 at Alexandria.

3. Banks Field:

- International Islamic Bank for Development and Investment.

  - Preparation of studies and designing the information centre since June, 1983.

  - Preparation the dictionary of operate proceeding since Feb., 1984.

4. Contracts Field:

- The Arab Contractors:

  - Preparation the preparatory studies for the centre of Scientific and Technological Data.

5. Construction Field:

- Public Sector Organization of Building Materials:

  - Preparation of studies and designing for the Egyptian Network in the field materials since October, 1984.

  - Statistical, feed back data.

  - Bibliographical data.

  - Management Information System.

- Alexandria Portland Cement Company:

  - Preparation of studies and designing the information Centre since Jan., 1985.

  - Preparation the dictionary of all operation proceeding from May, 1985.

  - Put the designing of information system for serving the administration through data base which has been designed during the studies period.

- Egyptian Portland Cement Company:

- The National Cement Company:

- El-Nasr Automotive Company:

  - Preparation of studies for information centre since April, 1983.

  - Bibliographical data base.

  - Management Information System.

  - Establishment data base for contracts, equipments, importers, small industries, instructions and systems.

A.M.