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RECOMMENDED PLAN FOR
THE PROJECT LIBRARY

Prepared for

EGYPTIAN ELECTRICITY AUTHORITY
CAIRO, EGYPT

AND

U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT
USAID Mission: Cairo, Egypt
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Prepared by:

Louis Berger International, Inc.
Washington, DC

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EXECUTIVE SUMMARY - LIBRARY PLAN

BACKGROUND

- o The EREFT Project contract stipulates that LBII will assist in the development of the library and provide various information materials.
- o The object of the report is to present a plan for library development.
- o Benefits include:
 - Storage and retrieval of project documents.
 - Increased research and analysis capacity.
 - Enhanced project and information flow on renewables.

INTRODUCTION

- o As information is the cornerstone of the EREFT Project, the project library has a potentially very useful note to play in achieving project objectives.
- o The EREFT Project library will be a part of the Egyptian scientific and technical network facilitating institutional and national information exchange.
- o The Library Plan provides a framework for development and operation of the library.

USER NEEDS

- o The EEA project team is well educated. Approximately 70% of the Egyptian team members hold engineering degrees, while 30% hold degrees in commerce, accounting, and chemistry.
- o The predominant information needs of the team are technical as defined by the field test tasks.
- o The library should not hold an extensive collection due to budget and space constraints but will hold a specialized collection.

It will be useful to determine if the library can borrow from other libraries to supplement the collection.

- o The library collection should respond to the evolving needs of the team. A mechanism will be developed to assure this.

COLLECTION

- o The collection will be made up of English language materials related to the four task areas: (1) project management; (2) supporting analysis; (3) field tests, and (4) training/information dissemination. Approximately 70% should be devoted to Task Area #3.
- o Additional material may include:
 - Standard encyclopedic and scientific and technical dictionaries.
 - Handbooks and statistical compendia.
 - Atlases and maps.
 - Directories to provide references to companies, individuals, media, and more to assist in the task of promoting the replication and private-sector involvement in renewable energy projects.
 - Directory of newspapers, radio and television stations, and periodicals.
 - The 25 core English language journals in engineering and the solar energy field.
- o Resources for collection development include:
 - Catalogues,
 - Publication announcements,
 - Associations,
 - Publishers such as Rydell and Pergamon, and
 - Other libraries.

ONLINE COMPUTER SERVICES

- o Special libraries increasingly rely on databases which are indexes and/or abstracts to publications to perform research and maintain acquisitions. DIALOG is one of these databases.
- o There are a number of energy-related computer databases which are contained on DIALOG.
 - DIALOG can be accessed from Egypt when telecommunications become more reliable.

- In the meantime, LBII or an information broker can assist in such access costing from \$40 to \$300 per hour.
- There is no charge or minimal usage requirement for maintaining a password to the system.

STAFF REQUIREMENTS

- o A trained librarian can mean the difference between a storehouse and a reference center.
- o Library staffing depends upon the purpose of the library.
 - It is recommended that a full-time professional librarian with either a Masters of Library Science Degree or equivalent experience work in the library selecting new acquisitions, answering reference questions, marketing services, and cataloging books.
 - It is recommended that a part-time clerical assistant assist the librarian with routine tasks.

FACILITY PLANNING

- o A small project library is currently operating in the EREFT Project offices in Nasr City. It is recommended that the library be moved to a larger space to accommodate the collection and services described in the report.

This section describes planning including the location, layout, seating, shelving, equipping, and space requirements.

RECOMMENDATIONS

This section provides a general framework for implementation through the development and operational phases.

The operational phase includes cataloguing, acquisitions, circulation, reference services, and outreach programs including a newsletter.

Other recommendations include the following:

- o In the short-term, recruiting a Consultant to assess library needs and capabilities and assist the EEA in developing the library.
- o Providing training to current library staff.
- o Developing reciprocal arrangements with United States and other Egyptian libraries.
- o Reviewing and strengthening the subscription program.

- o Developing an effective mechanism for acquisitions.
- o Developing and implementing a circulation policy.
- o Promoting use of the library through outreach programs, such as an acquisitions newsletter and user-orientation activity.

1.0 BACKGROUND

1.1 Contractual Requirement

The contract for the Egyptian Renewable Energy Field Testing (EREFT) Project stipulates that the contractor, Louis Berger International, Inc. (LBII), will assist in the development of a project library and provide the following information materials:

- o basic tests and references;
- o key periodicals;
- o manufactures' catalogs and specifications; and
- o foreign database in renewable energy technologies;
- o catalog/key word index for technology reference notebook.

1.2 Objective of the Report

This report presents a plan for library development which takes into account these information requirements.

A library will be established to support the project and assist its personnel to achieve the objectives of the project management, supporting analysis, field testing, and training/information dissemination task areas. It will exist for the duration of the project, administered by the Egyptian Electricity Authority/EREDO (EEA) with the assistance of LBII. The Egyptian Training Coordinator will be responsible for its development and operation, although a librarian will manage day-to-day activities. Upon project completion, the library will the responsibility of EEA/EREDO.

1.3 Report Preparation

This report was prepared by Sal Costabile and Ann Brinsmead of Costabile Associates, Inc. (a library consulting firm) and edited by David Tyler and Barbara Phillips of LBII.

2.0 INTRODUCTION

2.1 The Role of Information in the Project

The EREFT Project exists to promote the development and use of renewable energy resources in Egypt. It has evolved as part of a broader program designed to enhance the energy problem solving capability of the Government of Egypt. Information is the cornerstone of this institutional strengthening project. Gaining information on renewable energy resources involves the retrieval, assimilation, and application of existing information as well as the discovery of new information.

2.2 Technical Libraries in Egypt

The Government of Egypt recognizes the important role of information in developing a nation. As such, it is supporting the development of a nationwide scientific and technical network. A number of technical libraries have been developed or are being developed to support this network. The Egyptian Geological Survey and Mining Authority, Egypt General Petroleum Corporation, Remote Sensing Center, and Desert Research Institute are just a few of the organizations that are instituting libraries, staffed with trained librarians, to gather information. The project library would be another component of this network thereby facilitating information exchange at both the institutional and national levels.

2.3 Benefits of the Library

The benefits of the library to the project team are considerable. At a minimum, the storage and retrieval of project documents will be improved. More important, it will increase the capacity for research and analysis and, at the same time, enhance the flow of information within and about the project and about renewables, in general. Implementation of the library development plan described in the following pages will ensure realization of these benefits.

3.0 USER NEEDS

3.1 User Educational Profile

The EREFT Project Management Team currently consists of 27 Egyptian team members. All of these people possess at least a Bachelor of Science degree in a technical area. Appendix A provides a breakdown of the composition of the team by education. Approximately seventy percent of these staff members hold degrees in engineering while the remaining thirty percent are distributed among commerce, accounting, and chemistry.

3.2 Information Needs

The predominant information needs of team members are technical in nature. Core research areas are defined by the field testing tasks of the project. These projects involve industrial process heat, solar, thermal, photovoltaic, and wind applications. Therefore, materials on these applications and processes should constitute the bulk of the collection.

Team members also need access to state-of-the-art materials on project management, economics, market research and analysis, and training to assist them in accomplishing peripheral tasks of the project. Appendix B delineates the various topics that are relevant within each area.

3.3 Scope of Collection

Certain budget and space constraints preclude the library from automatically collecting in all these areas in addition to developing a specialized collection. Instead, a few books should be maintained in selective topical areas to support secondary research needs. Those subjects that merit inclusion have been identified in Appendix B. The library should contain at least some holdings on each subject.

It will be useful to determine whether the project library can borrow from other libraries to supplement the collection. The EEA Library, for example, may have materials in some of these areas. Augmenting the collection with outside resources will ensure that the remainder of the collection is tailored to the specialized research needs of its users.

3.4 Response to Evolving Needs

Since the Project Management Team is relatively new, it is expected that new information needs may evolve over time. The library should be flexible to conform to the dynamic nature of the team structure. As new needs emerge or priorities change, these adjustments should be reflected in the collection.

4.0 COLLECTION

4.1 Contents

The collection will consist of English language materials relating to the various topics highlighted in Appendix B. Project documents will be collected, stored, and disseminated for each of four key tasks of the project. In addition, externally produced materials will be collected, primarily to support the focal area of the project - the field testing task. Approximately seventy percent of inclusive materials will be devoted to subjects within the field testing task. The remaining thirty percent will be distributed among the other three tasks since these are secondary areas.

The appended listing (see Appendix C) is a compilation of titles recommended by Project Management Team members. These comprise the starter collection in core subject areas. However, this preliminary list should be augmented by other titles identified from various sources.

In addition to specialized materials, a core collection of general ready reference sources should also be included in the collection. Standard encyclopedic and dictionary reference works are essential components of any good reference collection. Scientific and technical dictionaries, in English, for example, would be especially useful to support training programs conducted for the team.

Handbooks and statistical compendiums provide a wealth of information on specific topics. A handbook on electrical engineering, for example, might be an indispensable tool to reinforce or introduce certain concepts to team members. The same would apply for any of the other broad subject areas represented on the team.

Other types of materials are also traditionally included in the basic reference collection of most libraries. Geographic reference sources such as atlases and guidebooks are usually included. Certain directories are also maintained to provide references to companies, individuals, media, and more. A directory of companies in Egypt, for example, might be useful to assist in the task of promoting the commercialization of renewable energy projects. Certainly, a directory of newspapers, radio and television stations, and periodicals would be a valuable reference for the information dissemination function.

Given certain space restrictions, there is always a tradeoff between the number of specialized materials and general reference titles included in a collection. General reference materials occupy space that would otherwise be reserved for specialized materials. In order to maximize the quantity of core subject materials housed in the project library, the size and scope of the general reference collection should be determined by the

availability of comparable materials in the existing EEA Library. It may be sufficient to access certain materials in a less convenient location to reserve the most accessible space for those materials in greatest demand. Once the availability of external resources is assessed, the precise contents of the reference collection can be identified.

There are approximately 25 core English language journals in the engineering and solar energy field. The periodicals list from the SERI Library should be obtained to quickly identify these titles. Since team members will undoubtedly want to read these journals regularly, the library should subscribe to two copies of each title; one to circulate and one to maintain for research purposes. This will safeguard against the possibility that the routed copy will circulate indefinitely--a relatively common phenomenon in libraries. Of course, budgetary constraints should be kept in mind.

4.2 Resources for Collection Development

Catalogs and publication announcements issued by various organizations such as associations, publishers, and research centers representing the solar energy field should be obtained and reviewed. In fact, a complete list of relevant organizations should be compiled early in the library development project to use for initial and recurring acquisitions.

Associations such as the American Solar Energy Society (ASES) and the International Solar Energy Society (ISES) are key associations which sponsor conferences and issue publications in the field. Other societies such as the Institute of Electrical and Electronics Engineers (IEEE) and the Intersociety Energy Conversion Engineering Conference (IECEC) sponsor conferences and publish materials as well.

Certain publishers specialize in energy and engineering materials. Rydell and Pergamon, for example, are two key publishers of solar energy materials.

Recommendations by other libraries should be solicited such as the SERI Library for solar energy materials and the Agency for International Development (AID) Library for project management texts. Bibliographies compiled by other libraries and research centers will also be useful. Technical practice aids, issued by the Solar Energy Research Institute (SERI) on wind energy, photovoltaics, and biomass energy, will be invaluable since they contain references for books, journals, and organizations. In addition, the National Technical Information Service (NTIS) produces bibliographies on materials in solar energy, primarily produced by or for the Department of Energy.

The majority of U.S. publications on solar energy are produced by the Department of Energy (DOE). The information center may be able to obtain many of these publications free of charge. The

Office of Scientific and Technical Information at DOE maintains a mailing list for automatic distribution of solar energy materials. A number of developing countries already participate in this cooperative arrangement so it is feasible that Egypt may also receive this service.

5.0 ONLINE COMPUTER SERVICES

5.1 Introduction

One of the products of the modern-day information age is the online database. Special libraries and information centers increasingly rely on these databases to perform research and maintain acquisitions. The majority of databases are indexes and/or abstracts to publications. As such, they complement and supplement the in-house collection of materials. Basically, an online database magnifies the strength of the collection without the need for increased physical space, acquisitions or collection maintenance.

5.2 Energy-Related Computer Databases

There are a number of energy-related computer databases, most of which are contained on the DIALOG Information Retrieval Service. This computerized system consists of approximately 220 separate data bases, each providing numeric and/or bibliographic data relating to a given subject. It contains a wealth of information ranging from biographies, encyclopedias (full-text), directories, the full text of articles, as well as traditional indexes.

There are fifteen energy-related databases on DIALOG, six of which would be accessed regularly in the project library. The following is a brief description of these databases:

- NTIS--indexes scientific and technical materials available through NTIS. As stated earlier, these encompass the majority of publications produced by the Department of Energy, including SERI.
- Compendex--indexes engineering and technical literature. The Engineering Index is its printed equivalent.
- Energyline--provides broad coverage of energy policy, resources, conversion, and consumption. Energy Information Abstracts is part of the printed equivalent.
- EI Engineering Meetings--indexes significant published proceedings of engineering and technical conferences.
- DOE Energy--indexes scientific and technical literature on energy.
- Inspec--contains abstracts of English language electrical engineering and electronics literature.

In addition, DIALOG provides access to databases indexing conference papers, dissertations, patents, to name only a few.

Access to DIALOG is available from Egypt. However, telecommunications charges are high and an unreliable phone system can easily impair the connection. It may be preferable to maintain access through an office in the United States. Searching could be performed by staff at LBII or by an information broker on an as-needed basis.

On-site access from Egypt will require a computer terminal and a modem. Ideally, a microcomputer should be used since this will enable the downloading and special packaging of search results. In addition, it will optimize use of equipment purchased for other functions in the library. The cost of searching DIALOG is restricted to the telecommunications charge and the search fee. Each database levies a different search charge, ranging anywhere from \$40 to \$300 per hour (prorated by the minute). There is no charge for maintaining a password to the system and no minimal usage requirement.

Given this pricing structure, the project library should maintain a password to be used for rush search requests. The U.S. office can perform searches, using a different password, in response to less time-sensitive requests. Ultimately, the arrangement to access DIALOG should be determined on the basis of the first-hand experiences of existing libraries in Egypt. The AID Library uses the U.S. office to perform searches. Other libraries may have alternative arrangements that may be more suitable for the project library.

6.0 STAFF REQUIREMENTS

6.1 Introduction

Libraries provide a valuable role in the storage and retrieval of published information. In a technical environment, they are more than valuable--they are indispensable as a link between the technical specialists and the information they need. A trained librarian can transform a passive storehouse of information into a reference center.

The project library will reflect the personality and professional expertise of the person selected to operate the facility. Its success as a viable information service will depend on the resourcefulness, enthusiasm, and marketing skills of the professional librarian. The transformation of the library from a warehouse facility to a dynamic information service will require both professional and clerical support to institute services.

As a general rule, larger libraries maintain a professional/clerical ratio of 1:3. The number of professional hours actually needed depends on the level of reference service instituted in the particular library as well as the size of the user group. Smaller one-person libraries usually opt for one professional instead of clerical because a service-oriented facility is more likely to fail if it is staffed by an untrained person.

6.2 Staffing Considerations

If the information professional initiates and markets reference service (e.g. newsletter, online searching), then it easily becomes a full-time job. However, if the project library is maintained solely as a warehouse for research materials, the job should only require a part-time professional. In this case, the person would restrict their role to selecting new acquisitions.

With the exception of identifying new acquisitions, the collection maintenance function is primarily clerical in nature. In the event that the librarian is not given the authority to select new acquisitions and also does not market reference service, then the library could be staffed by just one full-time clerical with appropriate training.

Since this plan looks to the development of a reasonably sophisticated information center, it is recommended that a full-time professional work in the library. This person would perform the normal duties of a professional librarian. These include selecting new acquisitions, answering reference questions, marketing services, and cataloging books. A part-time (maximum of 20 hours per week) clerical assistant should assist the librarian with routine tasks, serving as both a messenger and clerk.

6.3 Professional Staff: Duties and Requirements

No collection can be developed to answer all the possible information requests of all the potential users. One of the most important functions of a librarian is knowing how to find information on an unfamiliar subject in off-site facilities. This implies a knowledge of literature searching and interlibrary loan services. In addition, it requires interpersonal and relationship building skills. This is especially true in Egypt where personal ties are integral to business relationships.

A professional librarian is trained to perform an array of information services: compiling bibliographies; scanning, abstracting, and indexing publications; selecting new acquisitions; performing online and manual literature searches; developing SDI services (alerting users to relevant information in their subject field); performing in-depth research and report writing functions; marketing the library; and generating new acquisitions/services newsletters. These are above and beyond the traditional function of cataloging new materials and managing interlibrary loan.

The librarian will be expected to perform all of these functions. As part of his/her job, the librarian will also:

- Formulate and administer policies and procedures.
- Plan and schedule the growth of the library as new needs arise.
- Maintain continuous liaison with team members to ensure that the information center is tailored to their needs.
- Prepare monthly progress reports and an annual report of library services, goals and objectives. The monthly report should reflect usage of the library as well as indicate the current status of the budget.
- Supervise the clerical assistant.

Generally, a professional librarian has a Masters of Library Science degree. This is sometimes waived in lieu of equivalent experience. In either case, the professional librarian should have either training or experience in the library field. Setting up a library is a monumental task, one which should only be approached by someone who has some expertise in the field. This person should be able to catalog materials as well as answer reference questions.

Since the project library will primarily collect English language materials, the librarian must be fluent in English as well as Arabic. Without fluency in English, the person will be unable to operate the library in terms of selecting, processing, and referencing materials.

6.4 Clerical Support

The daily functioning of the library will require a large amount of basic clerical work. Custodial functions such as checking out books, typing and filing cards, and preparing orders should be performed by a part-time clerical assistant so that the professional can use his/her expertise to develop a good information service.

Qualifications for nonprofessional personnel in a library should be similar to other clerical level support in an organization. In this case, however, the clerical must also be fluent in English.

Duties of the clerical person will include typing, filing, processing the mail, shelving materials, and interlibrary loan assistance. The latter will require the person to serve as a messenger to pick up materials from other libraries exchanged through interlibrary loan. This may constitute one of the most important functions of the clerical assistant if the phone and mail service are unreliable.

7.0 FACILITY PLANNING

7.1 Introduction

A small project library is currently operating in the EREFT Project offices in Nasr City. The size of the facility is inadequate to accommodate the collection and service described in this report. Therefore, it is recommended that the library be moved to larger space.

This section contains some recommendations regarding the ideal physical layout of the project library. If a move is feasible, these recommendations should be considered when determining space requirements.

7.2 Planning

7.2.1 Location

Usage, in many cases, is a function of convenience and accessibility which, in turn, is governed by location. The new space should be situated in close proximity to its primary users--the team.

7.2.2 General Layout

Certain functional relationships necessitate the proximity or segregation of certain areas within the library. The following represents ideal spatial relationships for a library:

- Staff area and service area should be segregated from the reading area to minimize noise and enhance the visual appeal of the operation. Sorting the mail at the reference desk in the reading area will distract the readers and create the image of a chaotic study environment.
- Circulation/reference should be adjacent to the segregated staff area to facilitate mobility between work areas.
- Circulation/reference should be visible to the entrance to promote user/staff contact during the user's visit to the library.
- Noisy equipment such as microform reader/printer, reproduction equipment, typewriters, and telephones should be segregated from the reading area.

The project library should be designed to encourage and facilitate use by potential patrons. It should provide an attractive, quiet, and comfortable environment for the researchers to seek information. Adequate lighting is one

feature which helps create this atmosphere. Lighting must provide minimum glare and brightness to limit eye fatigue during extended term use.

7.2.3 Seating

Seating facilities should be conducive to short-term reading, prolonged research, as well as staff activities. As a general guideline, libraries are usually designed to seat ten percent of their total potential user population. This is based on the assumption that it is unlikely that more than ten percent of the population will visit the library at one time. Alternative site uses, such as converting the library to a staff training facility, are obviously not reflected in this measure.

On the basis of the total number of team members, both Egyptian and American, the information center should be able to accommodate anywhere from four to five staff members at one time. At minimum, the reading area should contain one four-person group table. A rectangular table as opposed to a round table will ensure more efficient utilization of table space. Two single carrels might be included in the design for those researchers who prefer the privacy of individual work stations. Otherwise, another table should be included since a single four-person table often only accommodates two people when they spread out their research materials.

Information center staff need a reference/circulation desk in the reading area as well as another desk in a segregated area to perform the clerical and technical functions. At minimum, the reference area should consist of a large desk and file cabinet for clippings, manufacturer and internal files. The reference area should be located in the reading area adjacent to the entrance and staff area, if possible.

Standard shelving is in 36"W x 10"D (.9144m x .254m) modules, each six to seven shelves high. These are available in single-faced form to place against a wall or double-faced for a free-standing arrangement. One module should be ordered with 12" shelves (.3048m) for oversized materials. Each modular unit should contain a movable shelf for resting books. In a free-standing arrangement, modular shelving units should not be aligned more than six across. Ideally, aisles between shelves should be 3'-4' (.9144m - 1.2192m) wide.

7.2.4 Shelving

One important caveat when determining the layout of shelving--the floor may not be able to hold the weight of the books. A generally accepted live load figure for standard stack shelving is 150 pounds per square foot (68.1 kg per 929.03 sq. cm). Compact shelving increases this requirement significantly. One of the first tasks in a library development project is to check the load capacity of the floor.

Library experience has reinforced the idea that shelving for a general collection should be allocated for a maximum of two-thirds capacity. This will allow future growth and the easy removal and replacement of books during the initial growth period. Both the top and bottom shelves should remain empty until future growth demands use of these less accessible shelves.

Ideally, sloped magazine shelving and a newspaper rack should be used for the display of current periodicals. Standard sloped shelving is single-faced and five shelves high (82"H x 36"W x 12"D or 2.082m x .9114m x .3048m), each shelf holding three magazines. Most periodical shelving units are designed to include a built-in newspaper rack, if desired. Two modules would allow the display of all the library journals.

7.2.5 Equipment

Noisy equipment should be segregated from the reading area to minimize distraction to researchers. The following equipment should be included in the project library:

- One microform reader/printer should be included in the library to allow the retention of reports and journals on microform. It is imperative that the machine have a printing capability and also be interchangeable for fiche or film.
- One photocopier to allow users to photocopy pages from noncirculating items. It will be difficult, if not impossible, to control circulation of materials if users have to leave the library to duplicate pages.
- One microcomputer to be used for online searching, word processing, and database management applications. The word processing package can be used to create memos, reports, and a newsletter. In addition, it can be used to modify and package online search results. Database management software can be used for a catalog of holdings.
- One electric typewriter to be used for typing book cards, spine labels; book pockets, overtyping of catalog cards, as well as for general office typing.

7.2.6 Space Requirements

The space required to house the collection will obviously depend on the quantity of materials published and available in core subject areas. Further research must be done before this can be determined. As indicated earlier, the SERI Library would be an ideal starting point for this project.

As a rough estimate, there are approximately 300 volumes (including internal reports) that might be collected in core areas and an additional 200 volumes to cover peripheral topics such as training, project management and general business texts. Housing a collection of this size would require twenty shelves, assuming that an average of 20 books (15 for reference and 24 for regular volumes) can be stored in one shelf at two-thirds capacity. This would require a total of 720 linear feet (219.456m) of shelving.

The actual assignment of floor space to the collection will depend on the layout of the shelves, whether they be arranged against or perpendicular to the wall. The perpendicular, free-standing arrangement tends to be a more economical use of space. However, it is not always practical in confined quarters.

Allowing ample room for moving out the chairs, one reading table (72"W X 48"D or 1.8288m x 1.2192m) requires approximately 120 square feet (11.148 sq. m) of space and a single-faced carrel requires 118 square feet (10.9622 sq. m) of space.

The information center should have an atlas stand which usually requires approximately 13 square feet (1.2077 sq. m) of space. A 12 drawer card catalog requires approximately 48 square feet (4.4592 sq. m) of space.

A large reference desk (72"W x 35"D or 1.828m x .889m) requires approximately 144 square feet (13.3776 sq. m) of space, allowing room for chair movement. A file cabinet (14.75"W x 27"D or .3746m x .6858m) requires approximately 16 square feet (1.4864 sq. m) of space. As a rule of thumb, the work area for additional staff members should be at least 100 square feet (9.2899 sq. m) of space.

These measures can be used to determine the minimal size of the library. Any physical constraints on existing space will limit the design possibilities. This will, in turn, affect the bottom-line measure for space required.

8.0 RECOMMENDATIONS

8.1 Introduction

This section provides a general framework for implementation. It contains general tips for developing the library as well as specific guidelines for the cataloging, acquisitions, circulation and reference functions. For convenience, these are organized into development and operational phases.

8.2 Development Phase

The SERI Library should be consulted for guidance on this project. In fact, it would be beneficial for someone to personally visit the library for two days. They have already been contacted and are very receptive to the idea of a visit. At minimum, their bibliographies should be acquired and their librarians consulted by phone to gain advice on collecting solar energy materials.

The existing collection has already been inventoried. However, it is necessary to extend this inventory process beyond the EREFT Project and determine what materials are accessible in neighboring libraries. The EEA Library should be consulted to determine the scope of its collection. Furthermore, the librarian should be contacted and a reciprocal, cooperative arrangement developed if possible.

In addition, the librarians at the American University, Cairo and the Agency for International Development, Egypt should be contacted to develop reciprocal arrangements. A publication entitled Survey of Scientific and Technological Information Resources in Selected Egyptian Organizations (Agency for International Development, 1981) might prove useful in identifying other library resources in Cairo. Certainly, other technical libraries such as those at the Egyptian Geological Survey and Mining Authority, Egypt General Petroleum Corporation, Remote Sensing Center, and the Desert Research Institute, should be contacted to assess area resources and obtain advice.

Subscriptions to journals should probably be initiated through a subscription agent such as FAXON or EBSCO. In the United States, this process takes an average of three months between the time the subscription is ordered and actually received. Expect further delays for service to Egypt.

Subscription agents provide off-site check-in and claiming services, if desired, in addition to automatically renewing materials each year. In this case, subscriptions are mailed directly to the subscription agent who, in turn, processes the materials and sends them to the client. The library could use the LBII address or the Egypt address for the client, whichever would facilitate delivery. Using a subscription agent would

alleviate the library of the burden of serials control, a function which may be cumbersome across international channels.

At the same time that subscriptions are initiated, the library should develop an arrangement with a book jobber to handle new acquisitions. Blackwell North America is just one of the many that has a good reputation for handling international materials. A book jobber, like a subscription agent, serves to curtail the workload because it enables the librarian to consolidate acquisitions through one vendor. Instead of ordering twenty books from twenty different vendors, the librarian is able to prepare one order for all twenty items. The book jobber bears the burden of distributing the order to multiple vendors.

Cataloging service can be another advantage of using a book jobber. Jobbers normally provide catalog cards with the books they supply.

The final decision to use a subscription agent or a book jobber should depend on experiences of other libraries in Egypt as well as customs regulations. If mail service is unreliable, then it may be optimal for a subscription agent to process the materials, send them to LBII which, in turn, transmits them with personnel visits. All these possibilities should be considered. The primary concern should be guaranteeing receipt of the materials. The secondary concern, in this case, is expediting delivery of materials.

An application for a DIALOG password should also be completed immediately since this may take up to two months to process. International service usually involves an additional step for the subscriber. The user must obtain telecommunications service separately, although DIALOG furnishes the subscriber with the source to contact.

Library supplies are typically furnished by vendors who specialize in this area. Such supplies as catalog cards, circulation cards, interlibrary loan forms, and acquisition forms should be procured to use in the library. Brodart, Demco, and Gaylord are the most popular library suppliers in the United States. Each produces and distributes a catalog of supplies. The buyer should be aware that supplies ordered within the U.S. may take up to two months to receive. There are a few retail outlets, for example the Library Store in Bethesda Maryland, that could be used to quickly obtain materials at a premium price.

The project library should obtain institutional membership in the Special Libraries Association. In addition, the librarian should subscribe to a number of professional journals. This will enable the librarian to stay informed of new developments in the library field.

8.3 Operational Phase

The opening hours of the library should conform to the predominant work period of the team. If the majority of team members work Sunday through Thursday from 9:00 a.m. to 5:00 p.m., then the library should establish these as regular hours of operation.

The library should be staffed by either the clerical or professional library staff member at all times. In fact, the facility should be locked when unattended to properly control the circulation of materials. Libraries in the United States have long recognized that even the well-attended library is subject to loss of materials due to theft.

The following sections contain recommendations for operation of the library facility.

8.3.1 Cataloging:

- Use the Library of Congress (LC) classification scheme and subject headings in a card catalog system. The LC system is suitable for a specialized collection. In fact, the SERI Library easily applies the LC system to solar energy materials. While use of a home-grown, local classification system is an alternative, it precludes using commercial cataloging services and participating in library networking arrangements. While it may seem unlikely today, a networking arrangement may be a viable long-term option, given the move to create a national network of technical libraries in Egypt.
- Use database management software to create an automated catalog of records. This will enhance searching as well as allow the production of bibliographies and a newsletter using the report-writing capabilities. At minimum, the internal report collection should be captured in this system. Other libraries in Cairo, such as the AID Library, may use a database management system for the catalog and might be able to provide some advice in this area.

8.3.2 Acquisitions: -

In general, the project librarian should collect monographs and serials in paper. As a space-saving device, consideration should be given to putting certain materials on microform. In addition, a vertical file should be maintained consisting of product catalogs and annual reports of companies working with renewable energy resources. Patents should be collected and maintained by subject in the file cabinet. Final project texts produced under the EREFT Project should also be retained in the collection.

Audiovisual materials will require additional space and equipment for storing and listening/viewing these materials. Since some of these materials are indispensable to support the training function, additional space should be allocated for these materials. However, equipment maintained in the library should be restricted to those items necessary to use (not create) the materials. At present, a separate audiovisual training center might be more appropriate, given existing space constraints.

Approximately 20 books and 200 reports are published each year, according to Books in Print, in photovoltaics, wind, and biomass energy. Certain steps should be taken to develop an acquisitions program for these and other materials:

- Order books through a book jobber and direct from the publisher, when necessary. Get recommendations for a book jobber from other libraries in Egypt, especially the AID librarian (who orders books directly rather than via the home office). Consider Blackwell North America for partial service.
- Use LBII for a U.S. shipping address and have their representative transport materials if the mail is unreliable. Confer with other libraries in Egypt to discover special problems encountered shipping books.
- Identify journals by using the SERI Journal List and by consulting with team members. Order journals through a subscription agent and use their off-site check-in service, unless advised otherwise by local libraries. Consider the costs/benefits of using LBII vs. Egypt for the shipping address. Order two copies of those journals which will be routed to team members.
- Maintain the project library on publisher's mailing lists such as Rydell and Pergamon. Also, subscribe to SERI's Desktop Library, NTIS' Solar Energy Update, and other library's acquisitions lists. The Technical Information Guides should prove useful in identifying publishers, organizations, societies, and libraries for this task.
- Regularly search selected Dialog databases to identify new candidates for the collection. Engineering and energy indexes should be searched as well as more generic online indexes such as Books in Print, Conference Papers Index, Dissertations Abstract, Claims (patent index), and more. Some of these searches can be run with the SDI services which should be established (described below under reference) for team member.
- Develop a cooperative arrangement with the U.S. Department of Energy to obtain complementary solar energy materials, such as bibliographies. This will ensure that the library will receive SERI's publications

automatically. The SERI Library's card catalog on fiche is also available through this arrangement. Develop cooperative arrangements with other organizations if possible, in and outside the United States.

- Coordinate on-going acquisitions with appropriate team members. The librarian should alert staff to new publication announcements, providing the subject experts with an opportunity to select books. He/she should meet with team members on a regular basis, preferably individually, to ensure their input into the acquisitions function.
- During the first six months of operation, all titles recommended by the librarian and/or the team members should be submitted to the training officer for final approval. However, this situation should not continue once the quality of the librarian's work has been confirmed. It will delay the acquisitions cycle and undermine the role of the professional librarian. If the librarian is performing his/her job satisfactorily, the acquisitions budget should be adequate administrative control. It is reasonable to expect that team members and the librarian will maintain a proportional share of the responsibility for identifying materials.
- New acquisitions should be advertised in a newsletter. Eventually, the newsletter should be produced on a quarterly basis. However, it is advisable to produce it more frequently during the first few months of operation in order to advertise the large volume of new holdings. The newsletter can consist of bibliographic descriptions of materials, arranged by subject, or full abstracts of each title. The selection of format will depend on the allocation of staff to the library. An abstracting service is one of the innovative but labor-intensive reference services offered by libraries to disseminate information to users.

8.3.3 Circulation:

- Implement a manually operated circulation system by affixing circulation pockets and cards during the book processing phase.
- Strictly control the circulation of current issues of newspapers and journals, assuming a routing copy exists.
- Circulate the table of contents page in lieu of the journal, when possible. This will inform the reader about relevant articles that should be reproduced or read in the library. This system will ensure the timely receipt of current articles by all staff members regardless of their position on a routing list.

Publications which are routed by the library should be ordered in duplicate for the current periodical shelves.

8.3.4 Reference services:

- The library should implement a service whereby staff members are alerted regarding publications and information relevant to their field. This type of service usually entails the development of user profiles which are coordinated with regular on-line searching and literature scanning.
- An interlibrary loan service should be firmly established using directory listings, lists of publications, and personal relationships as a vehicle for developing reciprocal relationships.
- Reference service should encompass both quick answer and in-depth research. The search for information should not be restricted to the parameters of the library. Instead, other libraries, subject specialists, and organizations should be consulted when the information is not available in-house. In this respect, the librarian will serve as a resource person as well as information specialist.

8.3.5 Outreach Programs:

The acquisitions newsletter is an excellent way to publicize the contents of the collection. In addition, the librarian should meet with staff members, individually and as a group, to promote reference services.

One undervalued yet effective way to promote services is through word-of-mouth advertising. This is also the toughest approach since its success is contingent on the quality of service provided rather than promised. The multiplier effect of one satisfied client should not be underestimated.

APPENDICES

APPENDIX A

Project Team Member Education

This appendix includes all current PMT members who were interviewed by the EEA or US Training Coordinator.

	B.Sc.	M.Sc.	PhD
Engineering	2		
Mechanical Engineering	6		
Electrical Engineering	6		2
Electrical Power Engineering	1		
Solar Engineering		1	1
Electric Power			
Electronics	1		
Chemistry	2		
Commerce/Accounting	5		
TOTAL	23	1	3

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APPENDIX B

Subjects Areas Related to the EREFT Project

<p><u>Task Area # 1</u></p> <p>Project Management</p> <ul style="list-style-type: none"> - Project management and evaluation - Management planning - Office management - Finance - Accounting - Management information systems - Public administration - Business administration 	<p><u>Task Area # 2</u></p> <p>Supporting Analysis</p> <ul style="list-style-type: none"> - Social science research methodology - Statistics - Economics - Applied economics - Econometrics - Energy policy/planning - Sociology - Applied anthropology - Management information systems - Technology assessment - Science, technology, and public policy - Renewable energy technology - Feasibility studies
<p><u>Task Area # 3</u></p> <p>Field Tests</p> <ul style="list-style-type: none"> - Solar thermal/IPH - PV - Wind - Electrical engineering - Mechanical engineering - Energy engineering - Energy conservation - Energy management - Cost engineering 	<p><u>Task Area # 4</u></p> <p>Training/Information Dissemination</p> <ul style="list-style-type: none"> - Training administration - Train-the-trainer - Needs assessments - Management training - Vocational/skill training - Organization development - Adult education - Public relations

APPENDIX C
SUGGESTED LITERATURE LIST
PROVIDED BY TEAM EXPERTS

SUGGESTED LITERATURE LIST PROVIDED BY TEAM EXPERTS

Industrial Process Heat

<u>TITLE</u>	<u>AUTHOR</u>
Process Heat Transfer	Kern
Standard Handbook of Engineering Calculations	Hicks
Thermodynamics	Faires
Standard Handbook for Mechanical Engineers	Baumeister & Marks
Life Cycle Costing	Brown & Yanuck
Heat Recovery Systems	Reay
Steam Tables	Keenan & Keyes
ASHRAE Guide Volumes 1 thru 4	A.S.H.R.A.E.
Cameron Hydraulic Data	Ingersoll-Rand
Flow of Fluids	Crane
The Engineers' Manual	Hudson
Solar Heating Design	Beckman & Duffie
Solar Energy Thermal Process	Duffie & Beckman
Foundations for the Solar Future	Koral

Wind

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- Wind Energy, Tom Kovarik, C. Pipher, J. Hurst, Domus Books, Chicago, 1979.
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- Wind Resources, Larry Wendell. Battelle Institute/PNL. Richland, WA, 1979-1980.

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- Photovoltaic Power Generation, David Pulfrey. Van Nostrand, Reinhold Co., New York, 1978.
- Workshop Manual, Fourth Annual Photovoltaic Workshop, Arizona State University, March 1984. Chares Backus.
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- D.C. Motors, Speed Control, Servo Systems, Electrocraft Corp. 5th Editino, 1980.

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- Solar Energy Handbook, Jan Kreider, F. Kreithk. McGraw-Hill, New York, 1981.
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Handbook on Solar Water Pumping, Sir William Halcrow & Partners and Intermediate Technology Power Ltd; Reading and Swindon, UK; Feb 1984; UNDP Project GLO/80/003.

Flat Plate Photovoltaic Power Systems: Description, Design and Cost, Michael R. Hall, Garyl D. Smith and David L. Holmes; Naval Weapons Center, China Lake, CA: July 1982;NWC TP 6381.

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Albuquerque, NM, Feb 1984; SAND 82-7147.

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Practical Photovoltaics, Richard J. Komp; Aatec Publications, Ann Arbor, MI; 1982.

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