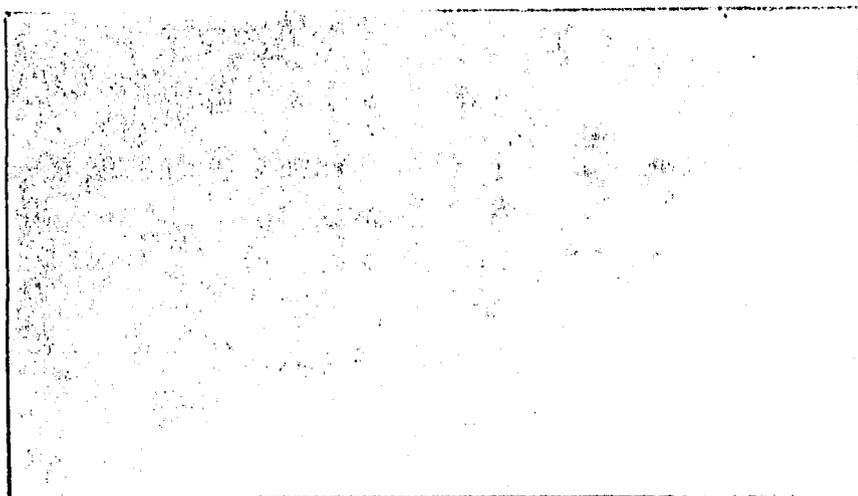


PN-AAP-072

ISN 33039



GEORGIA INSTITUTE OF TECHNOLOGY
Atlanta, Georgia, USA



ACADEMY OF SCIENTIFIC RESEARCH AND TECHNOLOGY
Cairo, Egypt

PN AAP 072

**THE NATIONAL STI SYSTEM OF EGYPT:
IMPLEMENTATION**

Vladimir Slamecka

**NSF Contract INT-7924187
USAID PASA NF/EGY-0016-7-77**

November 1981

**School of Information and Computer Science
Georgia Institute of Technology
Atlanta, Georgia**

**National Information and Documentation Centre
Academy of Scientific Research and Technology
Cairo, Egypt**

EXECUTIVE SUMMARY

The document presents the activities, schedules and cost estimates of a three-year program intended to implement initial design of an Egyptian national system of scientific and technical information, as described in an accompanying document (Slamecka, V., The Egyptian National System of Scientific and Technical Information: Design Study, November 1981).

The generic objectives of the implementation phase are 1) to establish a governing and funding mechanism of the national STI system of Egypt, 2) to develop and render operational a number of information services, and 3) to render operational a document repository/delivery subsystem. These objectives include sensitizing of the clientele, and technical training of system and service operators. (The design and implementation plan of an overall national program for manpower development is the subject of a separate, forthcoming report).

An organizational structure for carrying out the implementation phase is proposed. It consists of 1) an Egyptian executive agency that assumes the legal and managerial responsibility for the implementation program; 2) an Egyptian "Technical Implementation Group," being a team of senior information professionals responsible for the system development (i.e., detailed specification of functions, procedures, and products) and for the training of the management and professional staffs of organizations that are to comprise the initial services of the national system; and 3) a U.S. contractor serving as a management and technical consultant to Egypt.

Over 100 tasks encompassing the implementation phase are presented in PERT chart form. Task schedules, manpower and training needs, and cost estimates are tabulated in detail as well as in aggregate.

The total costs of the implementation phase, in terms of August 1981 dollars and Egyptian pounds, are approximately US\$3.9 million and L.E. 1.53 million.

PREFACE

The design and implementation of an Egyptian system of scientific and technical information services, intended to support the country's socioeconomic development, is part of an Applied Science and Technology Program under a Project Grant Agreement between the Egyptian Academy for Scientific Research and Technology and the U.S. Agency for International Development. Phase I of the project (November 1979-December 1981) consists of a system analysis and design study.

The project is a collaborative effort of Egyptian and U.S. organizations. The Egyptian Academy of Scientific Research and Technology, with its National Information and Documentation Centre, is the Egyptian executive agency. Egypt-based activities are guided by an Executive Committee comprised of senior Egyptian experts and headed by the President of the ASRT. Technical assistance in Phase I is supplied by a team of U.S. consultants under a National Science Foundation contract (INT-7924187) to the Georgia Institute of Technology. Planning and project management assistance is provided by the U.S. National Science Foundation under a U.S. Agency for International Development Participating Agency Service Agreement.

The publication of this report does not imply official concurrence of the sponsoring agencies with the views and opinions expressed therein.

Previous Page Blank

TABLE OF CONTENTS

	Page
EXECUTIVE SUMMARY	i
PREFACE	iii
TABLE OF CONTENTS	v
LIST OF FIGURES	vii
LIST OF TABLES	vii
LIST OF APPENDICES	vii
I. INTRODUCTION	1
1. Direction of Effort	1
2. Magnitude of Effort	2
II. THE IMPLEMENTATION PHASE	7
1. Purpose and Objectives	7
2. Organization and Management	7
3. Tasks and Schedule	10
4. Staff and Training	12
5. Cost Estimate	14
III. REFERENCES	20
APPENDIX I	23
APPENDIX II	29
APPENDIX III	35
APPENDIX IV	45
APPENDIX V	63
APPENDIX VI	71

Previous Page Blank

LIST OF FIGURES

	Page
1. Implementation Phase: Egyptian Project Organization	8
2. Schedule of Entity Involvement in Implementation Phase	11
3. Overall Implementation Schedule	12

LIST OF TABLES

1. Implementation Phase: Summary of Total Costs, by Entity	16
2. Implementation Phase: Summary of Total Costs, by Category	17
3. Implementation Phase Costs: Single Information Service Node	18
4. Implementation Phase Costs: Single Document Repository Node	19

LIST OF APPENDICES

I-1. Schedules A-B. Executive Agency	23
I-2. Schedule C. Egyptian Technical Implementation Group	24
I-3. Schedule D. Egyptian Information Service Node	25
I-4. Schedule E. Egyptian Document Repository Node	26
I-5. Schedule F. U.S. Contractor	27
II-1. Egyptian Executive Agency: Summary of Activities	29
II-2. Council on Information Services and Resources: Summary of Activities	30
II-3. Egyptian Technical Implementation Group: Summary of Activities	31
II-4. Egyptian Information Service Node: Summary of Activities	32
II-5. Egyptian Document Repository Node: Summary of Activities	33
II-6. U.S. Contractor and Consultants: Summary of Activities	34
III-1. Implementation Phase Staffing Schedule	35
III-2. Schedule of Egyptian Training in U.S.	37
III-3. Training Activities of the Technical Implementation Group	37
III-4. Staff Training at Nodes of the National STI System	38
III-5. Schedule of Visits by U.S. Training Consultants	38
III-6. TIG Position Characteristics: Project Manager	39
III-7. TIG Position Characteristics: Head, Resources Development	40
III-8. TIG Position Characteristics: Head, Services Development	41
III-9. Position Characteristics: Technical Specialists	42
III-10. Position Characteristics: Marketing Specialist	43

Previous Page Blank

LIST OF APPENDICES (CONTINUED)

IV-1.	Estimated Cost Details: Egyptian Personnel Salaries	45
IV-2.	Estimated Cost Details: Egyptian Consultants	47
IV-3.	Estimated Cost Details: U.S. Contractor Salaries	48
IV-4.	Estimated Cost Details: U.S. Contractor Overhead	49
IV-5.	Estimated Cost Details: U.S. Consultants Salaries	50
IV-6.	Estimated Cost Details: Equipment	51
IV-7.	Estimated Cost Details: Equipment Maintenance	52
IV-8.	Estimated Cost Details: Document Acquisitions	53
IV-9.	Estimated Cost Details: Vendor Charges	54
IV-10.	Estimated Cost Details: U.S. Document Delivery Service	55
IV-11.	Estimated Cost Details: Supplies, Reprography	56
IV-12.	Estimated Cost Details: Telecommunications, Mail	57
IV-13.	Estimated Cost Details: Travel to U.S., Per Diem	58
IV-14.	Estimated Cost Details: Travel to Egypt, Per Diem	59
IV-15.	Estimated Cost Details: Domestic Travel	60
IV-16.	Estimated Cost Details: Organizational, Publicity Expenses	61
IV-17.	Estimated Cost Details: Contingency	62
V.	Details of Cost Estimates, by Entity and Activity	63
VI.	Legend	71

I. INTRODUCTION

This document outlines the activities, schedules and cost estimates associated with a three-year program intended to implement an initial design of the Egyptian national system for scientific and technical information. The design is elaborated in a related report (Slamecka, V., The Egyptian National System for Scientific and Technical Information: Design Study, November 1981). A separate, forthcoming report will treat the design and implementation of an overall program for information manpower development in Egypt (Slamecka, V., The Egyptian National System for Scientific and Technical Information: Manpower Development).

In capsule, the proposed system embraces three entities or subsystems: users, information services, and document repositories. The information service subsystem, which couples users with information sources, is responsible for organizing Egypt-produced information into electronic databases, and for searching such databanks, both domestic and foreign, on behalf of its clientele. An open-ended network of information service nodes located in and operated by autonomous organizations representative of specific, homogeneous user communities, is envisaged. The document repository subsystem is intended to provide document storage and delivery for users of the national STI system. A systematic, substantial implementation of current STI holdings of the document repository nodes is planned.

The national STI system is to be governed by a central planning and coordinating body, the "Council on Information Services and Resources." The Council, not an agency of the Government, is to be created by legislation and funded by the Government. Aside from planning and guiding the evolution of the national STI system, the Council is responsible for allocating operational funds to the nodes of the national STI system, and for contracting with other organizations to carry out such nationwide functions as information awareness education, development of professional and paraprofessional manpower, and other activities.

While the Egyptian national STI system will evolve continuously and over a long term period, the design proposal document has recommended to begin this process with an intensive three-year program referred to as the "implementation phase." The program is analyzed in this document.

1. Direction of Effort

It is possible to develop, for the implementation phase, a variety of scenarios, each of which has a degree of plausibility.

For example, one might advocate investing the bulk of the implementation phase in user education efforts, arguing that system building is not warranted unless and until the Egyptian problem solver begins to use information more intensively. Alternatively, it may be suggested that the highest initial emphasis should be on the development of professional manpower in the information sector: the virtual absence of modern university training in this field, the low socioeconomic status of the information profession in the public sector of Egypt, and the exodus of Egyptian professionals to other countries are likely to continue to have a crippling effect on attempts to operate effective information services. One might also opt for a near-exclusive emphasis on refurbishing the holdings of Egyptian academic libraries, and raising the level of library management and service: after all, the existence of strong and well-managed document collections is the primary prerequisite of an information service, and not having it in place first may actually further deter the prospective Egyptian problem solver from using such a service.

While on the surface each of these (and similar) suggestions seems logical, the phenomena they concern do not appear in isolation or in a vacuum. Thus one cannot very well "educate" problem solvers to use and value information in the absence of effective information services; indeed, the Egyptian user survey has suggested that "greater importance and use will be accorded information products and services when a suitable access system is demonstrably in place and functioning" (Sarason, 1981). Similarly, it is difficult if not impossible to raise the socioeconomic status of the information profession unless the social value of its services has been demonstrated. Again, manpower development programs usually become robust only in response to a documented, empirical need of society or the economy to fill existing, rather than future, positions. The phenomena are mutually interdependent, and emphasizing one at the exclusion of others is likely to lead to system dysfunctions and imbalance, particularly when the system development is in initial stages.

The above considerations argue strongly in favor of an implementation phase in which all of the above factors and functions -- i.e., the development of services, resources, clientele, manpower, and system governance -- are given parallel attention.

2. Magnitude of Effort

The design study had two aspects: to develop and describe the general structure of the national STI system, a structure intended to be valid regardless of the system size; and to identify a delimited set of organizational entities and functions and propose these to constitute the initial size of the national system.

Inasmuch as the purpose of the implementation phase is to concretize the latter set, it is important that the proposed scope and duration of effort be realistic. In part, the framework is given by the time length and available financial resources of the ASRT/USAID project agreement. Its three-year period must be viewed as the minimal length of time required to establish, in a networking environment, operational information services having a reasonable guarantee of continued sustenance of operation (in terms of service quality, staff, document backup, and user acceptance).

As regards the budget of the project, it may be possible for Egypt to expand it through contributions from other quarters, national and/or international. It may not be propitious, however, to apply additional financial resources to broaden this project's scope of activities, as described in this document, during the initial three-year period, except for short-range, immediate technical training. Some of the reasons for this opinion are as follows:

- o Generally expanding the functions of the implementation phase would render it more complex, and possibly strain the effectiveness of its technical human resources. In theory, these resources could be supplemented; at this time, however, there is uncertainty regarding the size and availability of the talent pool in Egypt from which the technical personnel is to be recruited.
- o It would seem that substantially larger financial resources than those now available could be utilized for a national campaign to raise the propensity of Egyptian problem solvers to use scientific and technical information. It is extremely critical, however, that the "user education" effort in Egypt be carried out with utmost sensitivity to the sociocultural traditions of the country, and to the prevailing political atmosphere. The prospect of attaining such a sensitivity is significantly better if user education is pursued in the form of empirical demonstrations of the utility of well-designed information services within specialized problem solving environments, rather than by massive public campaigns of low specificity.
- o Larger infusion of additional funds, beyond those to be programmed for the implementation phase, into formal education is unlikely to have an immediate impact on information manpower development. The design and approval of new or modified university degree programs is a very time-consuming process, and its rate is unaffected by financial largess.
- o The dearth of professionals qualified in modern information-handling techniques in the public information sector of Egypt is serious. The major venue for rapidly alleviating it is to organize and implement, in the shortest possible time, a broad program

of short courses and job related training. A proposal for such an effort is suggested in the forthcoming manpower study referred to earlier in this introduction. Provided such a program is carefully planned and soundly managed, its financial base could be significantly broadened.

The suggestion that the magnitude of the proposed three-year effort should not be expanded is not intended, of course, to deter the development of information systems under the auspices of projects other than the national STI system. Many such projects are likely to take place in parallel and, hopefully, in some coordination with the national STI project.

In the vein of this discussion, one should also ask whether the implementation phase, as proposed in this document, might be too ambitious, and whether it might benefit from a curtailment of activities. Such curtailment might have two purposes: to reduce the complexity of the implementation effort, and/or to conserve resources. In the implementation phase, the functions for which to such a curtailment could be considered are the supplementation of holdings of Egyptian libraries, and the number of information service nodes.

As regards the former, a reduction of the budget for supplementing document holdings of Egypt is undesirable. The organizational complexity of this effort could be reduced if all these materials were to be located in a single library -- an alternative which is considered suboptimal, for reasons amply described in the design study. (This notwithstanding, it may have to be pursued in the event that Egyptian academic libraries reject a cooperative arrangement.)

As regards information service, the design study has identified sectoral areas of highest priority to Egypt's socioeconomic development, and suggested that "approximately six" information service nodes be rendered operational in these areas during the first three years. It should be emphasized that these nodes do not comprise a full-blown national STI system; rather, they are viewed as initial model and training sites for other sectors and organizations interested in developing additional nodes in the future.

It was possible, due to the time limits of the design study, to obtain only tentative commitments by some of the suggested sectors to join the implementation phase; therefore, it is possible that the number of nodes actually implemented in the next three years may be less than six. Insofar as all sectors selected in the design study are high-priority, and insofar as the information services of each node are sector-specific, it is not desirable to eliminate some of them a priori.

Realistically speaking, it is not likely that all service nodes will evolve in parallel; hence some transfer of learning and experience is probable within the three-year project. In contrast, it is desirable that the training of the staffs of these nodes be carried out simultaneously, if possible, so as not to dissipate the effort of the trainers, Egyptian and American.

II. THE IMPLEMENTATION PHASE

1. Purpose and Objectives

The purpose of the implementation phase is to establish the initial structure and activities of the proposed Egyptian national STI system, to a level that will assure their continued functioning and operation. The organizational units established during the implementation phase are to serve as models for other organizations wishing to join and expand the national STI system in the future.

Accordingly, the principal objectives that the implementation phase seeks to attain are: a) to develop and render operational the information service subsystem; c) to develop and render operational the document repository system; and d) to establish a governing and funding mechanism of the national STI system; and d) to sensitize Egyptian problem solvers in executive, management and professional positions to the importance of problem solving information and the availability of information services.

The three-year program of activities outlined in this document falls roughly into the following categories of tasks: system development and training (Year 1); installation of public information services (Year 2); and establishment and consolidation of governance (Year 3). The organization, staffing, schedule, and estimated costs of the implementation phase tasks are discussed below.

2. Organization and Management

Since the governance structure proposed for the national STI system (the Council on Information Services and Resources) is to be brought into being only in the latter part of the implementation phase, a temporary organizational mechanism is required for directing and carrying out the implementation phase itself. The mechanism proposed for this purpose, shown in Figure 1, has three components.

a) The Egyptian "Executive Agency" is a term used to designate the organizational entity that will assume, on behalf of Egypt, the overall executive and contractual responsibility for directing and executing the implementation phase, and for attaining its objectives. A single individual (the Chief Officer or his designate) of this agency personally accepts this responsibility.

Previous Page Blank

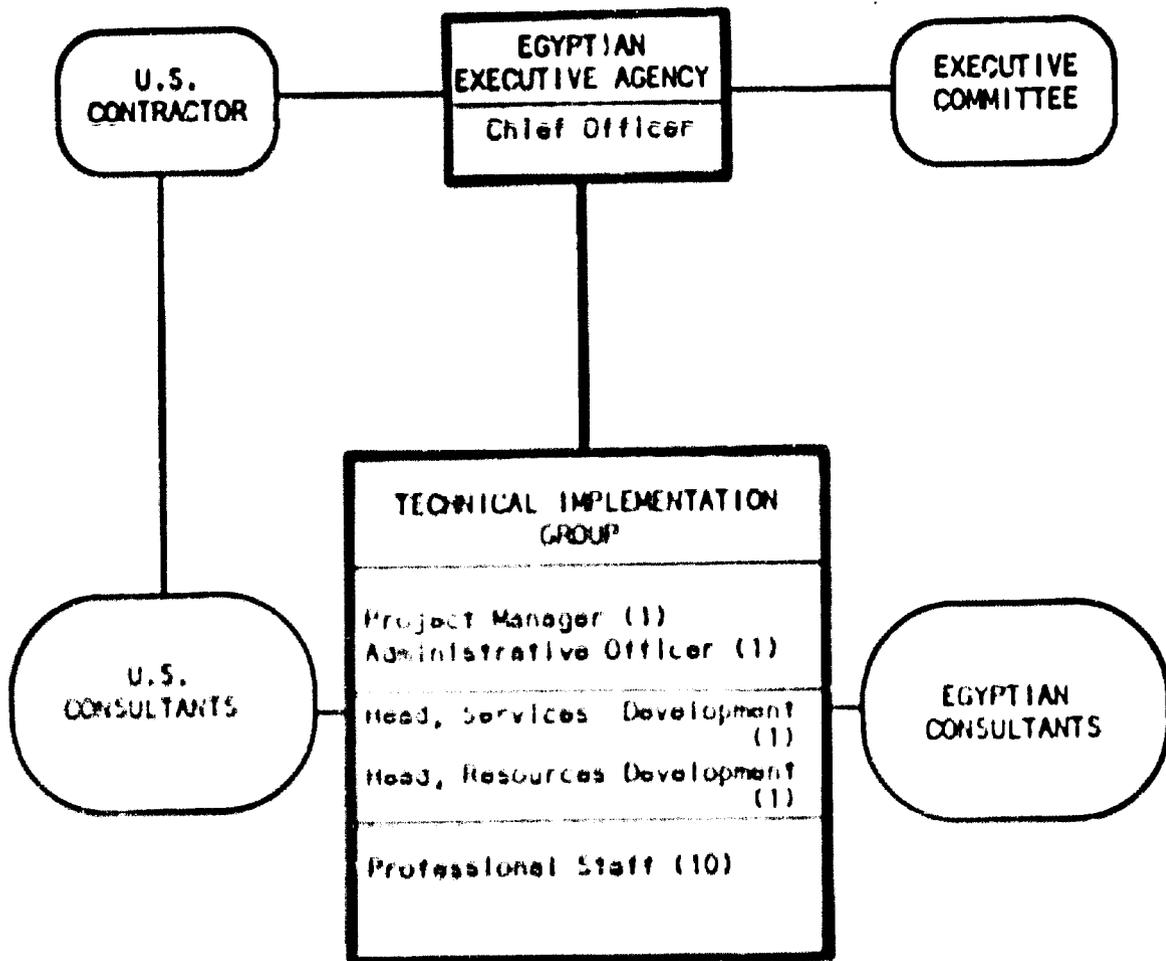


FIGURE 1. IMPLEMENTATION PHASE: EGYPTIAN PROJECT ORGANIZATION

The responsibilities of the Executive Agency include i) strategic planning and policy-level coordination of startup activities, ii) selection of and contracting with information service and document repository organizations, iii) supervision of technical design and development activities, iv) preparation and pursuit of legislation establishing the Council on Information Services and Resources; and v) carrying out extramural systemwide programs of user education, manpower development, and policy adoption.

In carrying out these responsibilities the Executive Agency is advised by a high-level Executive Committee. One of the principal tasks of the Executive Committee will be to fashion, and assist the Executive Agency's Chief Officer in implementing, the strategy for institutionalizing the national STI system, for bringing about the legislative establishment of its governing mechanism, and for assuring a regular and stable level of funding for it. Preferable appointees to the Executive Committee are thus top-level executives who are suitably placed in the relevant decision-making echelons of Egypt. Ideally, the Executive Committee is the precursor of the Board of Directors of the future Council on Information Services and Resources, except that the members of the latter should have no operational involvement in the national STI system.

The Executive Agency plays a transitive but crucial role of a facilitating agent. The organization that is to assume this role should be one having the highest probability of carrying it out successfully. The process of selecting this organization should therefore consider such criteria as the previous record of accomplishment of candidate organizations, their position in the political and decision making milieu of Egypt, the stability of their top offices and officers, and their relevance and commitment to national information activities.

b) The "Technical Implementation Group" (TIG) is a term used to designate the Egyptian team of senior information professionals entrusted with the technical startup activities of the implementation phase. Its principal responsibility is to assist the nascent national STI system by specifying and developing the protocols, processes, services and products of the system, and by training the personnel of the organizations that will comprise its service nodes. The Technical Implementation Group will presumably be created by, and function under the auspices of, the Executive Agency; another viable alternative may be to subcontract the TIG function to an Egyptian organization having, unquestionably and demonstrably, the necessary expertise and experience.

The TIG is directed by a Project Manager; he reports to the Chief Officer of the Executive Agency. The Project Manager is responsible for the tactical planning, assignment, and supervision of all activities ("tasks") that comprise the implementation phase program. While having access to domestic and foreign consultants, his is the final responsibility for the quality and timeliness of technical activities. The individual appointed to the post of Project Manager must be qualified from both the technical

and management aspects. He should make an unwavering personal commitment to the project for its three-year duration; and neither he nor his Administrative Assistant should hold any other regular, salaried position.

The Project Manager directly supervises two leading members of the technical staff who head the development/training efforts of the two respective subsystems (information services and document repositories). These full-time senior professionals in turn supervise some 10 technical staff members of the TIG (this staff size assumes that the TIG will be responsible also for operating the "acquisitions bureau" that coordinates the supplementation of holdings of the document repositories).

The TIG should bring together, for a two year period, the best information professionals of Egypt. Perhaps the most important initial task of the Executive Agency will be to locate such individuals and bring them together under one management. Doing so will very likely require temporary salary augmentation or other arrangements. (The cost estimates presented in this document are based on an average professional salary of L.E. 400; on this basis, the two-year salary budget of the Technical Implementation Group will be on the order of L.E. 100,000.)

c) The "U.S. Contractor" is a term used to designate a U.S. organization serving as a management and technical consultant to Egypt for the implementation phase effort. Specific responsibilities of the Contractor are i) to assist, as required, the Executive Agency in strategic planning, and in the development of action proposals for systemwide activities; ii) to assist, as required, the Project Manager and the staff of the Technical Implementation Group in systems development, staff training, and in the installation and management of operations; and iii) to perform, or arrange for performing, specific tasks in the U.S. (database searching, document delivery, equipment purchases and shipment, consultant selection and subcontracting, computer software development and/or licensing, and contract-related administrative tasks).

It is recommended that a single U.S. Contractor be hired to manage and provide these services, and to be responsible for selection of other qualified U.S. consultants and lecturers. The Contractor should develop, for both parties, a computer-based management information system to assist the scheduling and supervision of the implementation phase tasks.

3. Tasks and Schedule

The implementation phase effort consists of a total of 105 events ("tasks") over a 36-month period. The responsibility for these tasks is allocated among six "entities" that share the implementation phase efforts, in such a way that each task is assigned to one or more entity responsible for its performance. The six entities (designated A-F throughout this document) are:

- A. Executive Agency, responsible for guiding the implementation phase during the first two years (or until the establishment of the Council on Information Services and Resources);
- B. Council on Information Services and Resources, whose inauguration is scheduled at the beginning of the third year;
- C. Technical Implementation Group, responsible for technical and training activities during the two-year startup period;
- D. Information Service Node of the national STI system (six nodes to exist at the end of the implementation phase);
- E. Document Repository Node (four nodes to exist at the end of the implementation phase);
- F. U.S. Contractor, comprising a project director and affiliated consultants.

The respective lengths of time during which these six entities are active in the 36-month implementation phase are shown in Figure 2.

CODE	ENTITY DESIGNATION	ACTIVITY DURATION		
		. YEAR 1 .	. YEAR 2 .	. YEAR 3 .
A	Egyptian Executive Agency	XXXXXXXXXXXXXXXXXXXX		
B	Council on Information Services and Research			XXXXXXXXXXXX
C	Technical Implementation Group	XXXXXXXXXXXXXXXXXXXX		
D	Information Service Nodes		XXXXXXXXXXXXXXXXXXXX	
E	Information Repository Nodes	XXXXXXXXXXXXXXXXXXXX		
F	U.S. Contractor	XXXXXXXXXXXXXXXXXXXX		

Figure 2. Schedule of Entity Involvement in Implementation Phase.

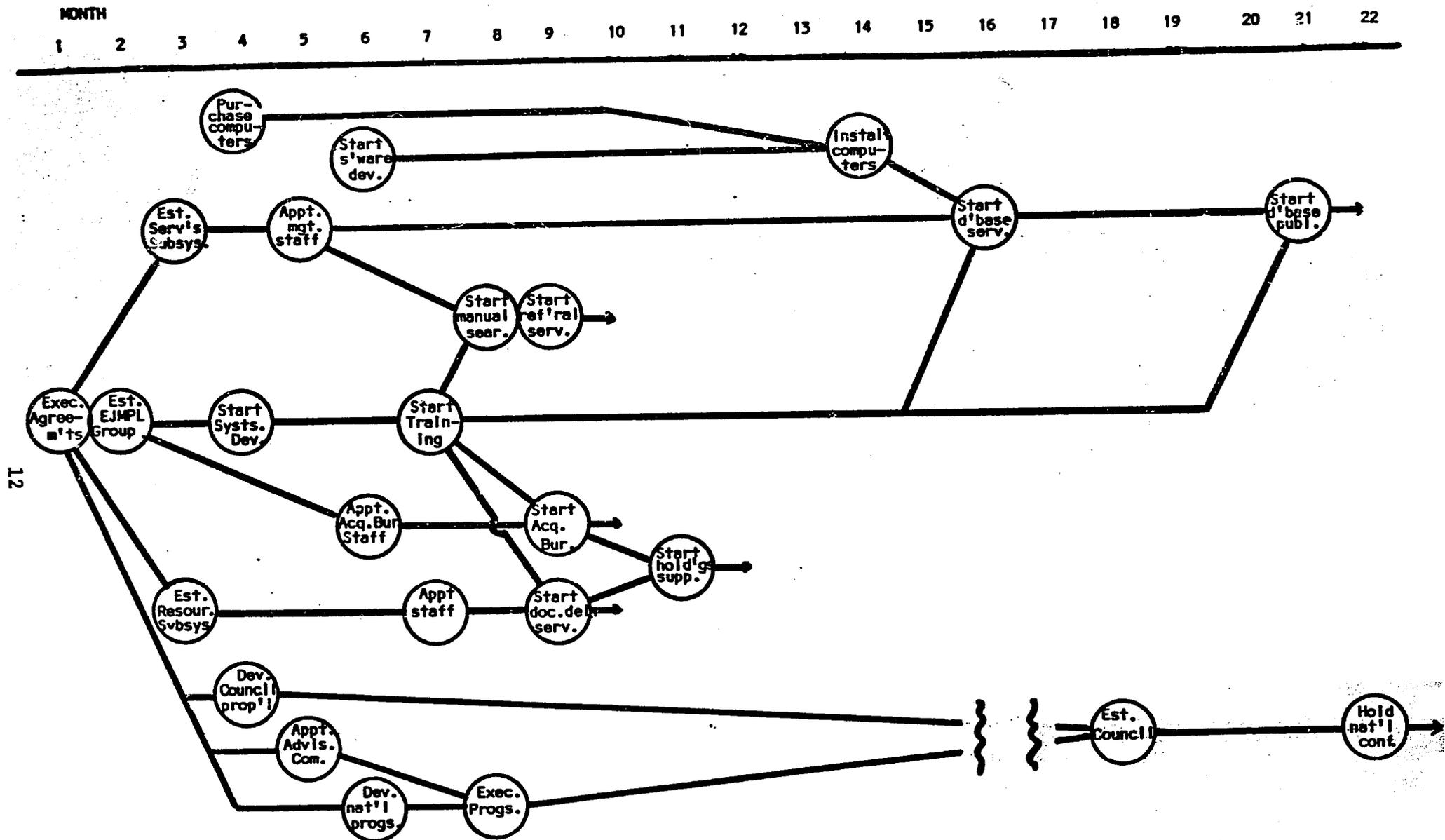


FIGURE 3. OVERALL IMPLEMENTATION SCHEDULE

The logical flow of the 105 tasks that comprise the implementation phase is displayed in graphic form in Figure 3 (below) and exploded in Appendix I. The latter contains six PERT network charts (I-1 through I-6) showing the time dependencies of the tasks allocated to each of the six entities.

Figure 3, a general PERT network abstracted from Appendix I, shows the timing of certain key activities in the implementation phase. Although not so designated in the charts, the critical events of the project are a) the appointment of the Egyptian Executive Agency and the U.S. Contractor, b) the staffing and training of the Technical Implementation Group, c) the execution of contracts with the nodes of the national STI system, d) the staffing and training of the personnel of the nodes, e) the installation of the hardware and software system; and f) the establishment of the Council on Information Services and Resources. A slippage in the scheduled timing of these events will have a significant effect on the accomplishments and costs of the implementation phase.

The tabular listing of the tasks of each of the six entities is presented in Appendices II-1 through II-6. Each of the six tables shows the month of task beginning, month of task ending, and the number of months of task duration. In each table, the tasks are coded (e.g., E4 designates task No. 4, "train delivery clerk", of entity E, the Document Repository Node). The task numbers correspond to the event numbers in the respective PERT networks of Appendix I.

All schedules are calculated on the basis of a 36-month long implementation phase. The actual beginning of the phase (Month 1) coincides with the appointment of the Executive Agency.

4. Staff and Training

The multipart Appendix III is devoted to the staffing and staff training requirements and schedules of the implementation phase.

The staff requirements and their appointment schedules are listed in Appendix III-1. It should be noted that in order to arrive at the total manpower needs of the implementation phase, the staffing requirements of entity D (Information Service Node) should be multiplied by 6; those of entity E (Document Repository Node) by 4.

Because of the pivotal function of staff training during the early part of the implementation phase, all professional training activities and their schedules are shown separately. Thus Appendix III-2 lists the training schedules for Egyptian staff members of the Technical Implementation Group and the information service nodes who are to receive training in the United States. Appendix III-3 lists the schedule of training assignments

to be carried out, in Egypt, by the staff of the Technical Implementation Group. Appendix III-4 presents the schedule of training to be received by employees of the Egyptian information service nodes. Finally, Appendix III-5 displays the schedule of visits to Egypt by U.S. consultant/trainers.

It should be noted that in considering the Egyptian capabilities to provide the necessary training for the implementation phase, an assumption was made that Egyptians who participated in the 6-9 month training program at Catholic University would be both capable and available to conduct training courses or sessions in the areas of their specialty. If this is not the case, Appendix III-2 will require modification.

As the implementation plan is predicated on the desire and ability of Egypt to assume responsibility for the implementation phase, the job qualifications of the Technical Implementation Group loom paramount. To assist with the recruiting of its staff, an attempt has been made in Appendix III-6 through III-10 to indicate relevant characteristics of the key full-time positions of project manager, head of resources development, head of services development, technical specialists, and marketing specialists.

5. Cost Estimate

The overall cost of the 3-year implementation phase is estimated to be L.E. 1,525,000 and \$3,900,000.

Different breakdowns of cost estimates are given in Appendices IV and V. Appendix IV breaks down the complete costs by budget category (such as salary, equipment, etc.), further subdivided by the six entities. Appendix V is a complete listing of all cost estimates by entity, task number, and budget category.

An explanation of all the codes used in the appendices constitutes the last page of this document (Appendix VI).

For readers unwilling to study the Appendices, key cost figures are summarized in Tables 1-4 below. Table 1 shows the total national cost estimate for the implementation phase; it assumes that six information service nodes and four document repository nodes will be established. The table summarizes data from Appendix V, except that costs for entities D and E are multiplied, respectively, six and four times.

Table 2 shows the total national cost estimate broken down into seventeen budget categories. Detailed cost data for each category appear in Appendix V except that the latter are again based on single node costs.

Tables 3 and 4 show the estimated costs, over the entire implementation phase, that will be incurred, respectively, by a single information service node and a single document repository node. Both tables may also be used to estimate the approximate annual expenditure costs to be incurred by these nodes in future years (about two-fifths of the totals shown).

The monetary figures in all tables and appendices are shown in L.E. 100 and US\$100 (i.e., the figures have to be multiplied by 100 to obtain the actual cost). (This entire document was generated by using a microcomputer whose database software is restricted as regards number size.)

The cost estimates are based on a number of assumptions and conventions. A thirty-six month project duration is assumed, a month having 20 working days. Salary calculations are postulated on average monthly figures. For Egypt, the figures used are L.E. 500/month for executive and director level positions; L.E. 400/month for all professional positions; L.E. 200/month for all senior clerical positions requiring special skills (computer data entry, bilingual facility, etc.). U.S. contractor's salaries are based on prevailing salary rates of the present contractor (Georgia Institute of Technology). U.S. consultant fees assume \$200 per day actually worked (not spent traveling, etc.). U.S. overhead charges (Government-approved) are those of the present contractor: 55 percent on all items except equipment purchase and consulting subcontracts (no overhead is applied to equipment purchases; the overhead on subcontracts is 55 percent of the first \$5,000).

The costs are divided into two categories according to the currency involved. This categorization is not intended to imply a responsibility of the respective country to finance the functions involved, or to suggest a division of responsibility for funding the implementation phase. It was logical to show all Egyptian salaries, as well as all other expenses incurred by and in Egypt, in Egyptian pounds; the only other use of Egyptian pounds is for per diem of foreign consultants. All costs of equipment, foreign travel, services by U.S. contractor and consultants, subscriptions and purchase of information materials and software, and costs of Egypt-bound communications are calculated in U.S. currency.

**TABLE 1. IMPLEMENTATION FRAME: SUMMARY OF TOTAL COSTS,
BY ENTITY**

ENTITY	ESTIMATED COST			
	\$100	%	LE100	LEX
A. Egyptian Executive Agency	530	1.4	339	2.2
B. Council on Information Services and Research	405	1.0	797	5.2
C. Egyptian Technical Implementation Group*	11692	30.0	1595	10.4
D. Egyptian Information Service Nodes (6)	972	2.5	11838	77.6
E. Egyptian Document Repository Nodes (4)		0.0	556	3.6
F. US Contractor and others**	25372	65.1	117	0.7
TOTAL	38971	100.0	15242	100.0

*Includes purchase of materials supplementing STI library holdings.
**Includes US consultants, hardware vendors, database vendors.

**TABLE 2. IMPLEMENTATION PHASE: SUMMARY OF TOTAL COSTS,
BY CATEGORY**

COST CATEGORY	ESTIMATED COST			
	\$100	%	LE100	LE%
Egyptian personnel salaries			12468	81.8
Egyptian consultants			219	1.4
US contractor salaries	4275	11.7		
US contractor overhead	2727	7.0		
US consultant salaries	1550	3.9		
Equipment	10360	26.5	120	0.7
Equipment maintenance	562	1.4	18	0.1
Document acquisition	10095	25.8	60	0.4
US database vendor charges	2625	6.7		
US document delivery	3750	9.6	32	0.3
Supplies, reprography	912	2.3	415	2.7
Telecommunications, mail	260	0.6	707	4.6
Travel to US, per diem	1050	2.6		
Travel to Egypt, per diem	600	1.5	202	1.3
Domestic travel	45	0.1	183	1.2
Organizational costs, publicity			497	3.2
Contingency	160	0.4	301	1.9
TOTAL	38971	100.0	15242	100.0

**TABLE 3. IMPLEMENTATION PHASE COSTS:
SINGLE INFORMATION SERVICE NODE**

CATEGORY	ESTIMATED COSTS		LE100 LE%	
	\$100	LE%	LE100	LE%
Egyptian personnel salaries			1690	84.3
Egyptian consultants			18	1.0
Equipment	65	42.0	20	1.1
Document acquisition	15	9.5	10	0.6
Supplies, reprography	5	3.1	53	3.0
Telecommunications, mail			106	5.6
Travel to U.S., per diem	60	39.0		
Domestic travel			16	0.9
Organizational, publicity expenses			30	1.6
Contingency	10	6.4	30	1.6
TOTAL*	155	100.0	1973	100.0

*Totals rounded off.

**TABLE 4. IMPLEMENTATION PHASE COSTS:
SINGLE DOCUMENT REPOSITORY NODE**

CATEGORY	ESTIMATED COSTS			
	Ⓕ100	Ⓕ\$	LE100	LE\$
Egyptian personnel salaries			119	85.7
Telecommunications, mail			1	0.7
Local document delivery			13	9.3
Organizational, publicity costs			1	0.7
Contingency			5	3.6
TOTAL			139	100.0

III. REFERENCES

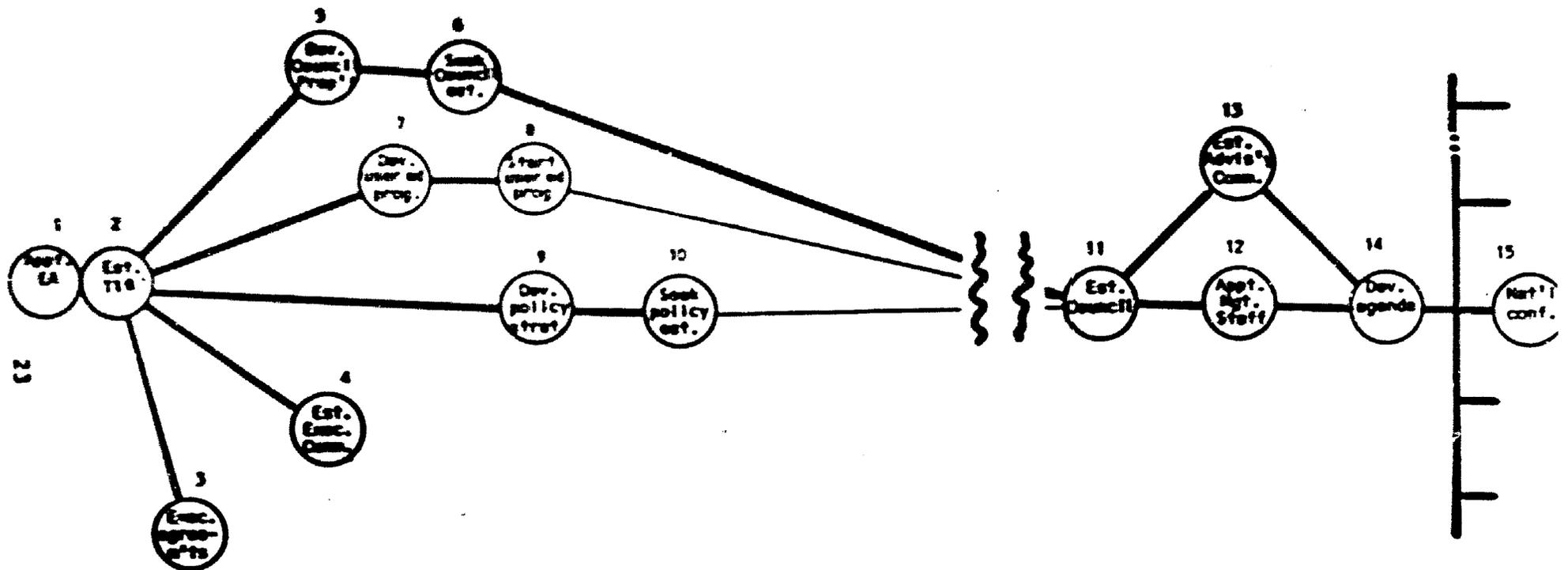
Slascka, V. (1981). THE EGYPTIAN NATIONAL SYSTEM FOR SCIENTIFIC AND TECHNICAL INFORMATION: DESIGN STUDY. Cairo, Academy of Scientific Research and Technology; Atlanta, Ga., Georgia Institute of Technology.

Sarasohn, H.M. (1981). INFORMATION NEEDS AND USES IN EGYPT. Cairo, Academy of Scientific Research and Technology; Atlanta, Ga., Georgia Institute of Technology.

APPENDICES

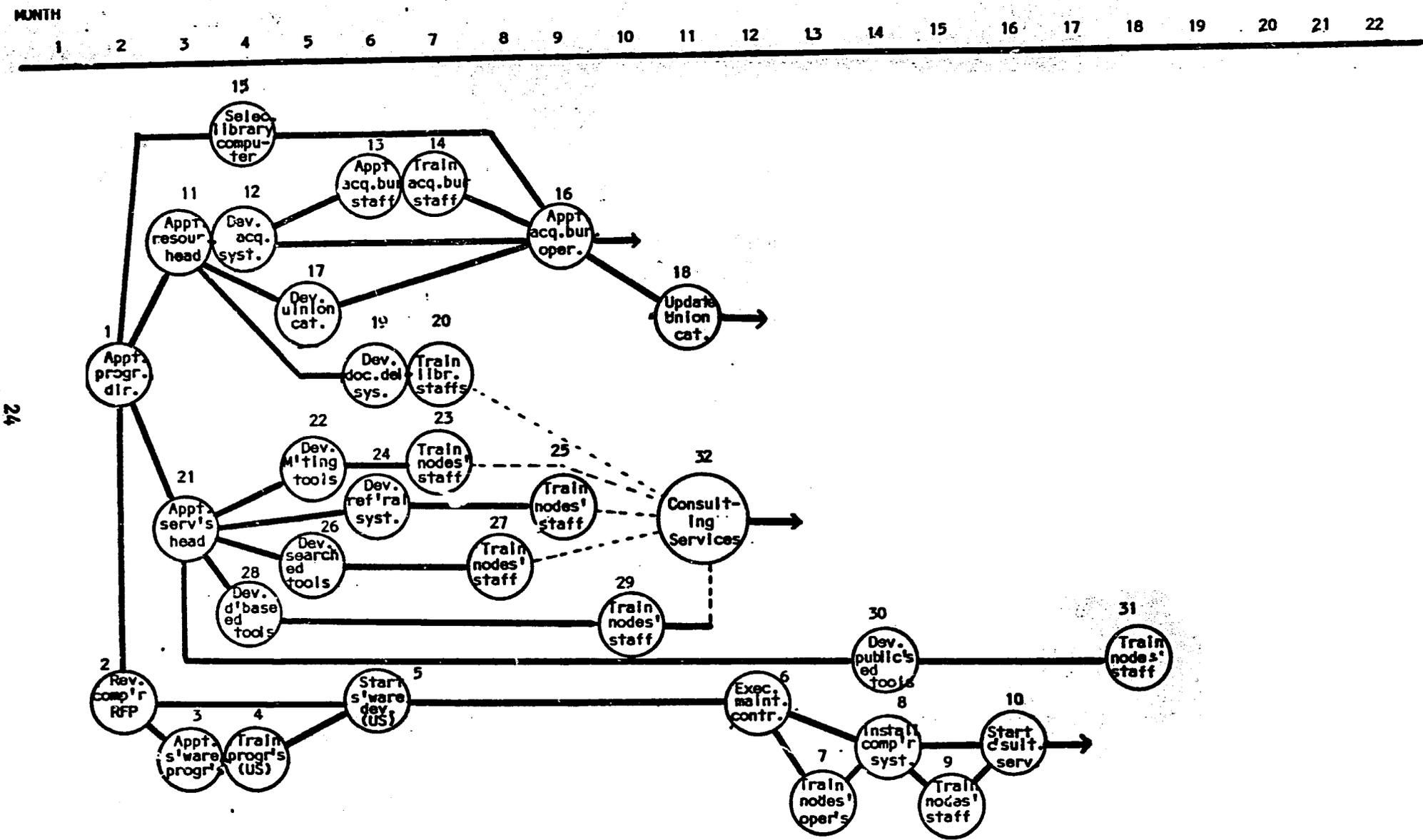
APPENDIX 1-1. SCHEDULES A-B. EXECUTIVE AGENCY

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30



Previous Page Blank

APPENDIX 1-2. SCHEDULE C. EGYPTIAN TECHNICAL IMPLEMENTATION GROUP

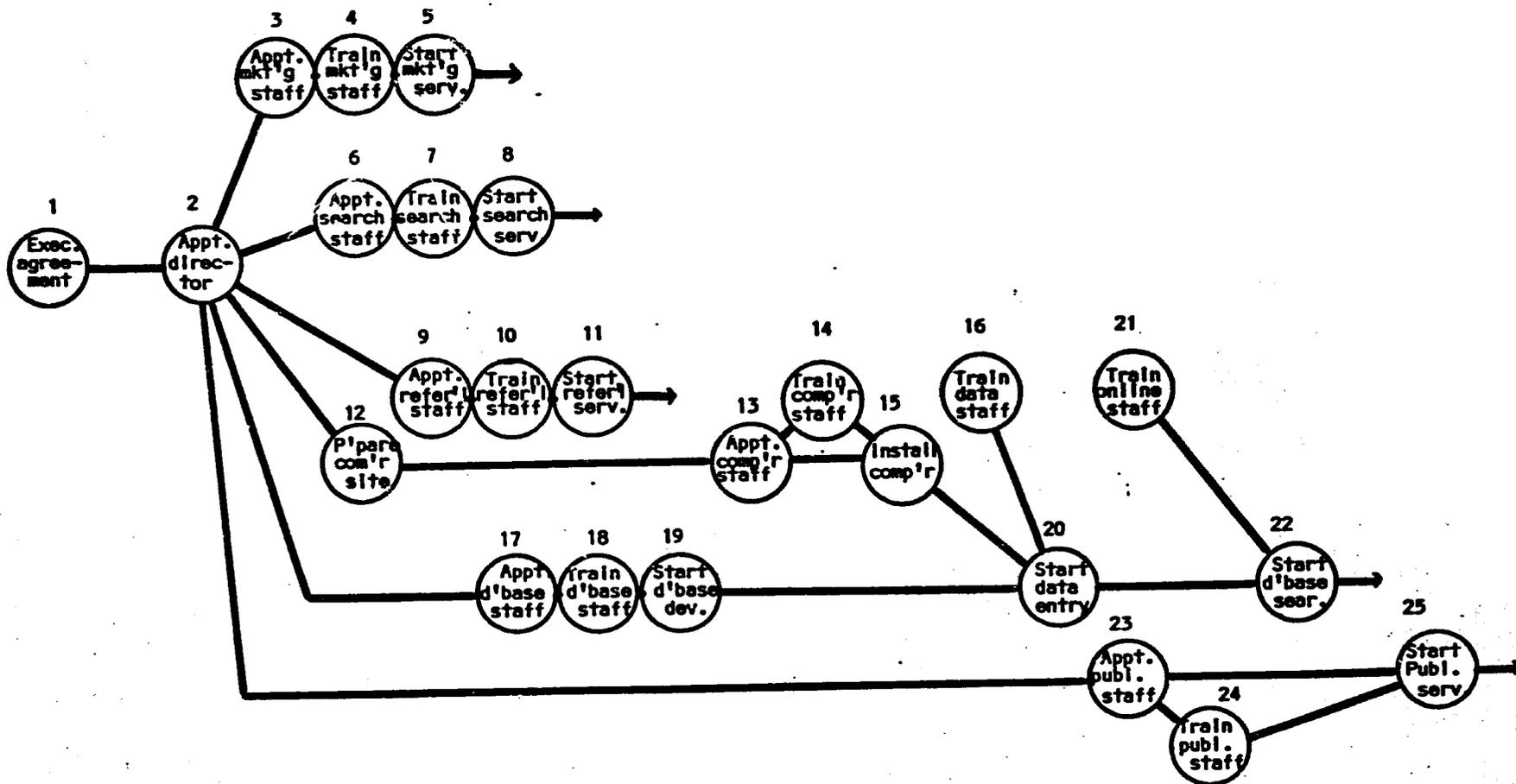


24

APPENDIX 1-3. SCHEDULE D. EGYPTIAN INFORMATION SERVICE NODE

MUNIH

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

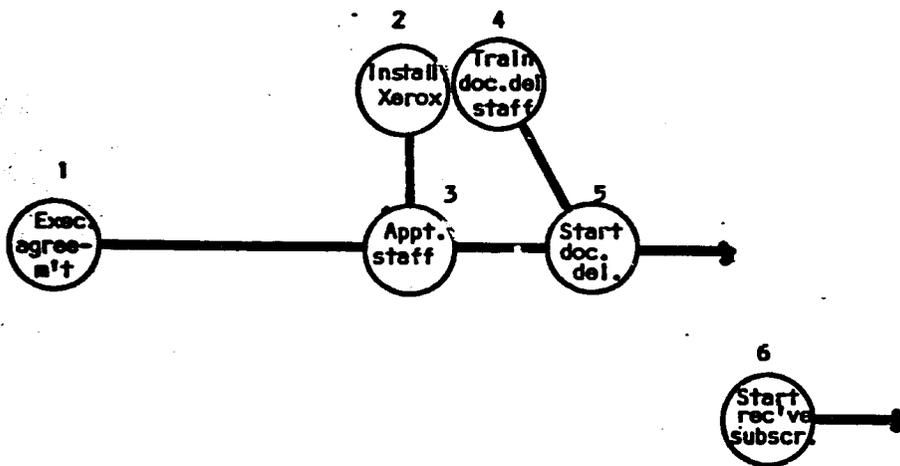


APPENDIX I-4. SCHEDULE E. EGYPTIAN DOCUMENT REPOSITORY NODE

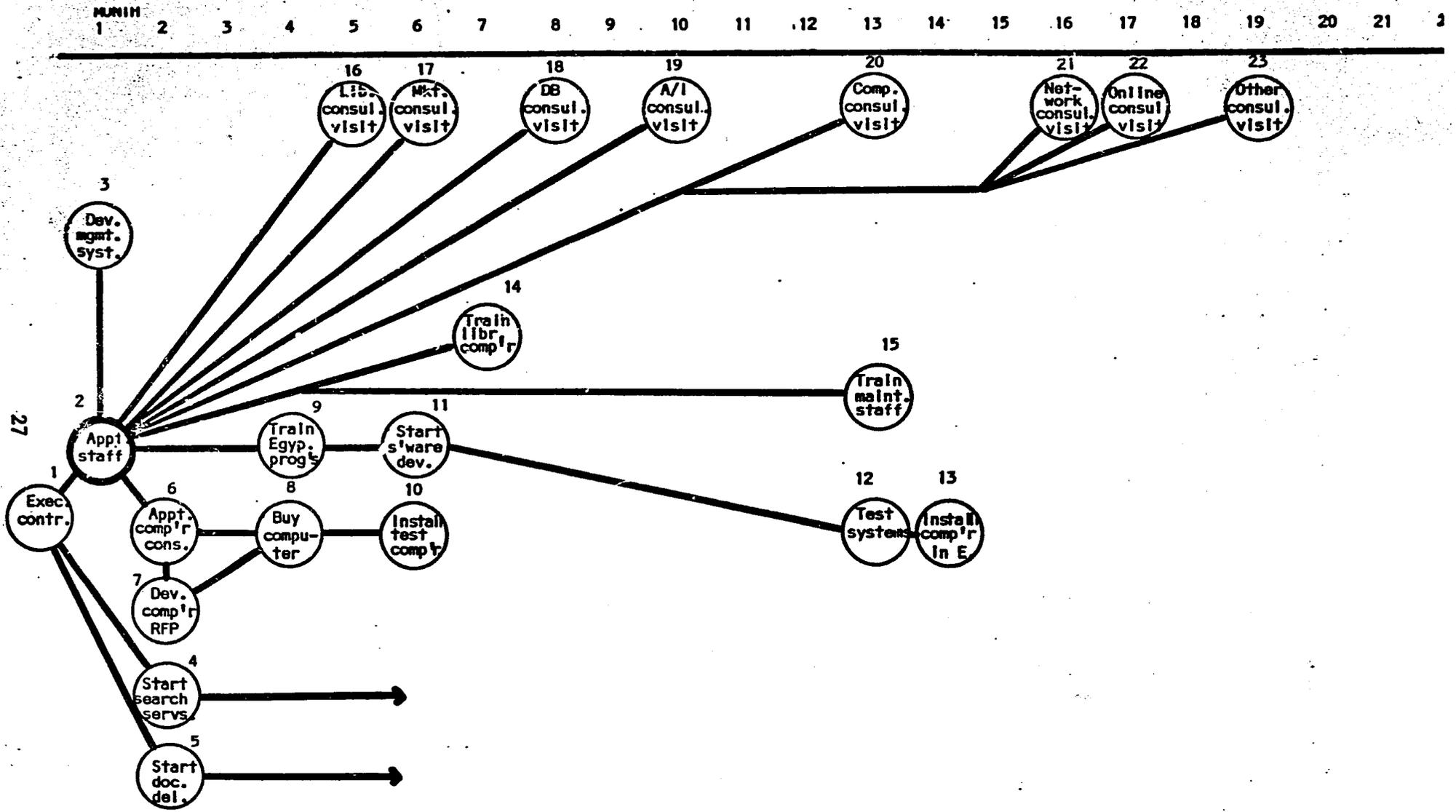
MONTH

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

26



APPENDIX 1-5. SCHEDULE F. U.S. CONTRACTOR



APPENDIX II-1. EGYPTIAN EXECUTIVE AGENCY: SUMMARY OF ACTIVITIES

org	act	task	dur	beg	end
A	1	establish Eg. Exec. Agency	24	1	24
A	2	establish Technical Impl. Group (TIG)	1	2	2
A	3	execute agreements w/ service nodes	3	3	6
A	4	establish EEA Exec. Committee of 10	19	5	24
A	5	develop proposal for CISR	2	5	7
A	6	lobby for implementation of CISR	17	7	24
A	7	develop proposal on user ed. programs	2	6	8
A	8	execute user education programs	28	8	36
A	9	develop policy implementation strategy	2	8	10
A	10	execute policy implementation strategy	26	10	36

28
Previous Page Blank

**APPENDIX II-2. COUNCIL ON INFORMATION SERVICES AND RESOURCES:
SUMMARY OF ACTIVITIES**

org	act	task	dur	beg	end
B	11	establish Council on Info. Services & Res. (CISR)	12	24	36
B	12	appoint Exec.Dir., 3 Prog.Off's, 3 secy	12	24	36
B	13	appoint 3 Advisory Committees	10	26	36
B	14	plan National Conference	7	28	35
B	15	hold National Conference	1	36	36

APPENDIX II-3. EGYPTIAN TECHNICAL IMPLEMENTATION GROUP: SUMMARY OF ACTIVITIES

org	act	task	dur	beg	end
C	1	appoint program Directorate	24	2	24
C	2	review RFP for computer systems	05	2	2
C	3	Appoint E. programmers (2)	05	3	3
C	4	Train E. programmers in US	2	4	6
C	5	software devel., 2 E. programmers in US	7	6	13
C	6	Execute hardware maintenance contract w/ E. co.	1	12	13
C	7	train Computer Officers of nodes	1	13	14
C	8	install computers in E.	2	14	16
C	9	train nodes' staffs in computer use	1	15	16
C	10	E. programmers continue training, assistance	8	16	24
C	11	Appoint Head, Resources Development	20	3	24
C	12	design acquisitions procedures, system	5	4	9
C	13	appoint 2 libs, 2 clerks, est. Acq. Bur.	18	6	24
C	14	install computer, train Acq. Bur. staff	2	7	9
C	15	Review selection of lib. computer	1	4	4
C	16	start operating Acquisitions Bureau	15	9	24
C	17	develop union catalog of STI holdings	4	5	9
C	18	periodically update union catalog	13	11	24
C	19	develop doc.del. procedures, purchase xerox machin	2	6	8
C	20	train doc. del. personnel of libraries	1	8	9
C	21	appoint Head, Services Devel., and secretary	21	3	24
C	22	appoint Marketing Specialist, develop programs	2	5	7
C	23	train marketing staff of nodes	4	7	11
C	24	appoint Referral Specialist, develop program	3	6	9
C	25	train referral service staff of service nodes	2	9	11
C	26	appoint Search Specialist, develop instruction pro	3	5	8
C	27	train search staffs of service nodes	3	8	11
C	28	appoint Database Specialist	6	4	10
C	29	Train database staffs of nodes	1	10	11
C	30	appoint Publications Specialist	4	14	18
C	31	train Publication staff of service nodes	1	18	19
C	32	TIG Specialists consulting for service nodes	13	11	24

APPENDIX II-4. EGYPTIAN INFORMATION SERVICE NODE: SUMMARY OF ACTIVITIES

org	act	task	dur	beg	end
D	1	execute agreement to est. info. service node	2	3	5
D	2	appoint node Director, secretary	31	5	36
D	3	appoint 2 Marketing Officers	05	6	7
D	4	train Marketing Officers	1.	7	8
D	5	appoint 2 secretaries; start marketing programs	28	3	36
D	6	appoint 2 Search Officers	05	7	8
D	7	train Search Officers	1	8	9
D	8	appoint Mailroom Clerk; start search, doc.del. ser	27	9	36
D	9	Appoint Referral Officer	05	8	9
D	10	train Referral Officer	1	9	10
D	11	start referral service, directory compil.	26	10	36
D	12	prepare computer site	5	7	12
D	13	appoint Computer Officer	1	12	13
D	14	train Computer Officer	1	13	14
D	15	install computer system, start operations	21	14	36
D	16	appoint and train Data Entry Clerk	1	15	16
D	17	appoint 3 Database O., 1 Termin. O., 1 Typist	1	16	17
D	18	train Database, Terminology Officers	1	17	18
D	19	start database building	25	11	36
D	20	start data entry	20	16	36
D	21	appoint 3rd Search Officer; train all in online se	2	17	19
D	22	start online search of foreign databases	17	19	36
D	23	appoint Publications Officer	1	17	18
D	24	train Publications Officer	1	18	19
D	25	start database publishing program	15	21	36

APPENDIX II-5. EGYPTIAN DOCUMENT REPOSITORY NODE:
SUMMARY OF ACTIVITIES

org	act	task	dur	beg	end
E	1	execute agreement to est. doc.del. service	4	3	7
E	2	install xerox in library	1	7	8
E	3	appoint Document Delivery clerk	1	7	8
E	4	train Document Delivery clerk	1	8	9
E	5	start doc. del. service from E. library	27	9	36
E	6	start receiving new subscription materials	25	11	36

APPENDIX II-6. U.S. CONTRACTOR AND CONSULTANTS:
SUMMARY OF ACTIVITIES

org	act	task	dur	beg	end
F	1	execute USAID contract in Cairo	1	1	1
F	2	appoint Proj.Dir, Adm.Asst (50%), Secy, GRA (33%)	36	1	36
F	3	develop MIS for Phase 2	1	1	2
F	4	start US online search	36	1	36
F	5	start document delivery to Egypt	36	1	36
F	6	appoint Computer System Consultant	13	2	15
F	7	develop RFP for E. computer systems	1	2	3
F	8	execute all computer purchases	1	4	5
F	9	train 2 E. programmers on O/S, progr. lang.	2	4	6
F	10	install one system at contractor site	1	6	7
F	11	appoint software subcontractor, start development	7	5	13
F	12	Test computer system and software	1	13	14
F	13	install computers in Egypt	1	14	15
F	14	train Eg. Acq. Bureau staff member on lib. compute	1	7	8
F	15	train Eg. hardware engineer	1	13	14
F	16	library consultant to set up Acq. Bureau & compute	1	5	6
F	17	marketing consultant trip	05	6	7
F	18	database consultant visit	1	8	9
F	19	indexing consultant visit	1	10	11
F	20	computer consultant trip	1	13	14
F	21	computer network consultant visit	05	16	17
F	22	online search consultant visit	1	17	18
F	23	contingency travel money	36	1	36

APPENDIX III-1. IMPLEMENTATION PHASE STAFFING SCHEDULE

org	month		person	eft	position
	start	end			
A	1	24	1	0.3	EEA Executive secretary
A	5	24	10	0.2	Executive Committee members
B	24	36	1	0.4	Chairman, CISR
B	24	36	10	0.2	Board members, CISR
B	24	36	1	1.0	Executive Director, CISR
B	24	36	1	1.0	Legal and Financial Officers, CISR
B	24	36	3	1.0	Secretary
B	26	36	30	0.1	Advisory Committee members
C	2	24	1	1.0	Project Manager
C	2	24	1	1.0	Administrative officer
C	3	24	1	1.0	Head, Resources development
C	5	9	2	1.0	Union catalog data entry clerks
C	6	24	2	1.0	Acquisition bureau librarians
C	6	24	2	1.0	Acquisition bureau clerks
C	9	24	1	1.0	Union catalog data entry clerk
C	3	24	1	1.0	Head, Services development
C	5	24	1	1.0	Marketing specialist
C	6	15	1	1.0	Referral specialist
C	4	24	2	1.0	Database specialist
C	14	19	1	1.0	Publications specialist
D	5	36	1	1.0	Director, Information Service Node
D	5	36	1	1.0	Secretary to Director, Information Serv. Node
D	6	36	2	1.0	Marketing officer
D	8	36	2	1.0	Secretary/typist
D	7	36	2	1.0	Information search officers
D	8	36	1	1.0	Referral Officer
D	9	36	1	1.0	Mailroom clerk
D	12	36	1	1.0	Computer officer
D	15	36	1	1.0	Data entry clerk
D	16	36	3	1.0	Database officers (indexing/abstracting)
D	16	36	1	1.0	Vocabulary officer
D	16	36	1	1.0	Clerk/typist (database section)
D	17	36	1	1.0	Database search officer (online)
D	17	36	1	1.0	Publications officer
E	7	36	1	1.0	Library clerk (document delivery service)
F	1	36	1	1.0	Project director (US contract)
F	1	36	1	0.5	Administrative assistant
F	1	36	1	1.0	Executive secretary
F	1	36	1	0.3	Computer programmer (Grad. res. asst.)
F	2	36	1	0.1	Computer systems consultant/lecturer
F	5	13	3	1.0	Software system programmers

**APPENDIX III-1. IMPLEMENTATION PHASE STAFFING SCHEDULE
(CONTINUED)**

F	13	13	1	1.0	Computer system acceptance test consultant
F	14	14	1	1.0	Computer system installation consultant,
F	5	5	1	0.7	Library acquisition/automation consultant/lect.
F	6	6	1	0.5	Marketing consultant/lecturer
F	10	10	1	1.0	Database consultant/lecturer
F	10	10	1	1.0	Indexing/abstracting consultant/lecturer
F	13	13	1	0.7	Computer operations manager/consultant/lect.
F	16	16	1	0.5	Computer networks consultant/lecturer
F	17	17	1	0.7	Online search consultant/lecturer

APPENDIX III-2
SCHEDULE OF EGYPTIAN TRAINING IN U.S.

org	act	beg	end	task
C	1	2	24	appoint, train program Directorate
C	4	4	6	train 2 programmers
C	12	4	9	appoint, train Head, Acq. Bur.
C	14	7	9	appoint, train Acq. Bur. staff
C	21	3	24	appoint, train Head, Services Dev.
C	28	4	10	appoint, train Database Specialist
C	30	14	18	appoint, train Publications Specialist
D	2	6		appoint, train Doc. Rep. Node Director

APPENDIX III-3
TRAINING ACTIVITIES OF THE TECHNICAL IMPLEMENTATION GROUP

org	act	beg	end	task
C	6	12	13	execute hardware maint. w. E. co, train engr.
C	7	13	14	train Computer Officers of nodes
C	9	15	16	train nodes' staffs in computer use
C	20	8	9	train doc. del. personnel of libraries
C	23	7	11	train marketing staff of nodes
C	25	9	11	train referral service staff of service nodes
C	27	8	11	train search staffs of service nodes
C	29	10	11	Train database staffs of nodes
C	31	18	19	train Publication staff of service nodes

APPENDIX III-4

STAFF TRAINING AT NODES OF THE NATIONAL STI SYSTEM

org	act	beg	end	task
D	4	7	8	train Marketing Officers
D	7	8	9	train Search Officers
D	10	9	10	train Referral Officer
D	14	13	14	train Computer Officer
D	16	15	16	appoint and train Data Entry Clerk
D	18	17	18	train Database, Terminology Officers
D	24	18	19	train Publications Officer

APPENDIX III-5

SCHEDULE OF VISITS BY U.S. TRAINING CONSULTANTS

org	act	beg	end	task
F	16	5	6	library consultant to set up Acq. Bureau
F	17	6	7	marketing consultant trip
F	18	8	9	bibl. database search consultant visit
F	19	10	11	indexing consultant visit
F	20	13	14	computer consultant trip
F	21	16	17	computer network consultant visit
F	22	17	18	online search consultant visit
F	6	1	36	Contingency consultation

APPENDIX III-6
TIG POSITION CHARACTERISTICS: PROJECT MANAGER

POSITION RESPONSIBILITY

- o Overall responsibility for technical activities, schedule of implementation phase
- o Hire TIG staff
- o Supervise training of TIG staff
- o Direct detailed system development by TIG staff
- o Negotiate contracts with information service and repository nodes
- o Monitor development and activities of nodes

TECHNICAL EXPERTISE

- o Superior project management skill
- o Thorough command of the "system process" and procedures
- o Knowledge of state-of-the-art of computerized information systems

PREVIOUS EXPERIENCE

- o Principal responsibility for design/development/implementation of a computer-based system
- o Successful management of large technical effort(s) and team(s)

PERSONAL CHARACTERISTICS

- o Willingness to assume full responsibility, and to commit personal reputation for project performance
- o Ability to access and communicate with top executives
- o Firm decision maker, administrator, supervisor
- o Leadership characteristics: dedication to objectives and schedule

EDUCATION

- o Doctorate in a quantitative, system-oriented discipline

APPENDIX III-7
TIG POSITION CHARACTERISTICS: HEAD, RESOURCES DEVELOPMENT

POSITION RESPONSIBILITY

- o Develop and document Acquisition Bureau functions, procedures, forms
- o Train staff of Acquisition Bureau
- o Initiate and supervise activities of Acquisition Bureau
- o Develop and generate union catalog of STI materials in repository nodes
- o Train document delivery staff in repository nodes

TECHNICAL EXPERTISE

- o Able to develop acquisitions and cataloging system in complete detail
- o Able to flow chart operations, design forms, write manuals
- o Familiar with use of computers in acquisitions/cataloging

PREVIOUS EXPERIENCE

- o Designed or developed or implemented or managed a technical process in a modern library
- o Supervised professional staff for more than three years
- o Record of achievement

PERSONAL CHARACTERISTICS

- o Complete technical assignments on schedule with minimal supervision
- o Access to, and ability to communicate with, library directors
- o Ability to direct and supervise small technical teams
- o Ability to create a spirit of cooperation among autonomous parties
- o Considerable personal initiative

EDUCATION

- o Advanced degree in library science
- o In-depth study of modern acquisition/cataloging systems in industrialized countries
- o Introductory computer course or programming experience

APPENDIX III-8
TIG POSITION CHARACTERISTICS: HEAD, SERVICES DEVELOPMENT

POSITION RESPONSIBILITY

- o Direct and supervise TIG specialists to develop and document details of service functions: database building, database search, referral, publications, and marketing
- o Direct and supervise TIG specialists to develop materials and offer programs for training staffs of information service nodes
- o Assist information service nodes in staff selection, service organization

TECHNICAL EXPERTISE

- o Proven project management skill
- o Technical knowledge of modern database technology
- o Knowledge of computer software for non-numeric processing
- o Final editing and copy preparation of manuals

PREVIOUS EXPERIENCE

- o Primary responsibility for design and implementation of a nontrivial database
- o Successful team leader in a computer- or system-related project
- o Exposure to public information systems design

EDUCATION

- o Advanced degree in computer science or engineering

APPENDIX III-9
POSITION CHARACTERISTICS: TECHNICAL SPECIALISTS*

POSITION RESPONSIBILITY

- o Develop detailed system procedures, forms, etc. for information service functions: database building, database search, referral, publication
- o Develop operating manuals for service functions
- o Perform training of operations staffs of service nodes
- o Consult with service nodes during initial operations

TECHNICAL EXPERTISE

- o Fully professional system development skill
- o Command of system procedures of given service
- o Manual writing
- o Systematic organization of training presentations

PREVIOUS EXPERIENCE

- o Senior professional appointment that resulted in full familiarity with entire process of given function
- o Recent in-service training (not merely visits) in appropriate function in industrialized country

PERSONAL CHARACTERISTICS

- o Ability to complete technical assignments by own effort
- o Communication skills as trainer
- o Dedication to perfection of product

EDUCATION

- o University degree in a field appropriate to function

***Information search specialists, database specialists, referral specialist, publication specialist, computer specialist.**

APPENDIX III-10.
POSITION CHARACTERISTICS: MARKETING SPECIALIST

POSITION RESPONSIBILITY

- o Develop strategies and tools for clientele development and for marketing of information services
- o Develop course, materials for training marketing staffs of nodes
- o Conduct training of marketing staffs of nodes
- o Supervise and assist node marketing activities

TECHNICAL EXPERTISE

- o Understanding of information as social and economic resource
- o Understanding of functions, limitations of information services
- o Knowledge of strategies for developing and penetrating information user markets
- o Design of publicity materials

PREVIOUS EXPERIENCE

- o Extensive and direct work with information users
- o Advertizing or mass-communications experience

PERSONAL CHARACTERISTICS

- o Ability to communicate about information with professionals and executives, verbally and in writing
- o Strong initiative

EDUCATION

- o Advanced university degree
- o In-depth study of information marketing strategies

APPENDIX IV-1. ESTIMATED COST DETAILS:
EGYPTIAN PERSONNEL SALARIES

org	act	task	\$100	LE100
A	1	establish Eg. Exec. Agency		57
A	4	establish EEA Exec. Committee of 10		38
B	11	establish Council on Info. Services & Res. (CISR)		144
B	12	appoint Exec.Dir., 3 Prog.Off's, 3 secy		327
C	1	appoint program Directorate		320
C	4	Train E. programmers in US		16
C	5	software devel., 2 E. programmers in US		56
C	7	train Computer Officers of nodes		8
C	8	install computers in E.		16
C	9	train nodes' staffs in computer use		8
C	10	E. programmers continue training, assistance		64
C	11	Appoint Head, Resources Development		80
C	13	appoint 2 libs, 2 clerks, est. Acq. Bur.		216
C	17	develop union catalog of STI holdings		16
C	18	periodically update union catalog		26
C	21	appoint Head, Services Devel., and secretary		147
C	22	appoint Marketing Specialist, develop programs		8
C	23	train marketing staff of nodes		16
C	24	appoint Referral Specialist, develop program		12
C	25	train referral service staff of service nodes		8
C	26	appoint Search Specialist, develop instruction		12
C	27	train search staffs of service nodes		12
C	28	appoint Database Specialist		48
C	29	Train database staffs of nodes		8
C	30	appoint Publications Specialist		16
C	31	train Publication staff of service nodes		4
C	32	TIG Specialists consulting for service nodes		208
D	1	execute agreement to est. info. service node		10
D	2	appoint node Director, secretary		217
D	3	appoint 2 Marketing Officers		4
D	4	train Marketing Officers		12
D	5	appoint 1 secretary; start marketing programs		336
D	6	appoint 2 Search Officers		4
D	7	train Search Officers		12
D	8	appoint Mailroom Clerk; start search, doc.del.		270
D	9	Appoint Referral Officer		2
D	10	train Referral Officer		6
D	11	start referral service, directory compil.		104
D	13	appoint Computer Officer		2
D	14	train Computer Officer		4
D	15	install computer system, start operations		84
D	16	appoint and train Data Entry Clerk		2
D	17	appoint 2 Database O., 1 Termin. O., 1 Typist		9
D	18	train Database, Terminology Officers		27
D	19	start database building		400
D	20	start data entry		40
D	21	appoint 3rd Search Officer; train all in online		8
D	22	start online search of foreign databases		68

APPENDIX IV-1. ESTIMATED COST DETAILS:
EGYPTIAN PERSONNEL SALARIES (CONT'D)

org	act	task	\$100	LE100
D	23	appoint Publications Officer		4
D	24	train Publications Officer		4
D	25	start database publishing program		60
E	1	execute agreement to est. doc.del. service		10
E	2	install xerox in library		1
E	3	appoint Document Delivery clerk		2
E	4	train Document Delivery clerk		2
E	5	start doc. del. service from E. library		54
E	6	start receiving new subscription materials		50

**APPENDIX IV-2: ESTIMATED COST DETAILS:
EGYPTIAN CONSULTANTS**

org	act	\$100	LE100
A	5		20
A	7		20
A	8		50
A	9		10
C	2		1
C	6		2
C	12		3
C	4		2
C	17		3
D	11		10
D	12		3
D	15		5

**APPENDIX IV-3. ESTIMATED COST DETAILS:
U.S. CONTRACTOR SALARIES**

org	act	\$100	LE100
F	2	3150	
F	4	1125	

**APPENDIX IV-4. ESTIMATED COST DETAILS:
U.S. CONTRACTOR OVERHEAD**

org	act	\$100	LE100
F	2	1996	
F	4	669	
F	6	28	
F	9	6	
F	11	28	

APPENDIX IV-5. ESTIMATED COST DETAILS:
U.S. CONSULTANTS SALARIES

org	act	LE100
F	6	240
F	9	10
F	11	840
F	12	40
F	14	10
F	15	10
F	16	40
F	17	20
F	18	40
F	19	40
F	20	40
F	21	20
F	22	40
F	23	120
F	13	40

**APPENDIX IV-6. ESTIMATED COST DETAILS:
EQUIPMENT**

org	act	\$100	LE100
A	8	100	
B	12	150	
C	1	150	
C	13	15	
C	19	300	
O	21	15	
D	2	65	
D	12		20
F	3	240	
F	8	9000	

**APPENDIX IV-7. ESTIMATED COST DETAILS
EQUIPMENT MAINTENANCE**

org	act	\$100	LE100
B	12		9
C	1		9
C	6	400	
C	14	70	
C	19	20	
D	15		
F	3	30	
D	2	7	

**APPENDIX IV-8. ESTIMATED COST DETAILS:
DOCUMENT ACQUISITION**

org	act	\$100	LE100
B	12	5	
C	16	10000	
D	2	5	
D	11	10	
D	19		10

APPENDIX IV-9. ESTIMATED COST DETAILS:
VENDOR CHARGES

org	act	\$100	LE100
F	4	2625	

**APPENDIX IV-10. ESTIMATED COST DETAILS:
U.S. DOCUMENT DELIVERY SERVICE**

org	act	\$100	LE1
E	5		13
F	5	3750	

APPENDIX IV-11. ESTIMATED COST DETAILS:
SUPPLIES, REPROGRAPHY

org	act	\$100	LE100
A	8	400	
B	12		20
B	15		15
C	1		30
C	7		3
C	9		2
C	10		4
C	12		2
C	13		3
C	14		2
C	16		5
C	18		5
C	19		3
C	21		10
C	22		2
C	24		1
C	25	6	
C	26		2
C	27	200	1
C	28	6	2
C	29		1
C	30		1
C	31		1
D	2		10
D	4		1
D	5		15
D	7		1
D	8		2
D	10		1
D	11		5
D	14		1
D	18	5	2
D	19		10
D	25		2
F	2	150	
F	3	10	
F	10	10	
F	11	100	

**APPENDIX IV-12. ESTIMATED COST DETAILS:
TELECOMMUNICATIONS, MAIL**

org	act	\$100	LE100
A	1		10
B	12		15
C	1		30
C	10		1
C	14		1
C	16		5
C	21		5
C	32		3
D	2		25
D	8		80
D	11		1
E	5		1
F	2	150	
F	4	110	

APPENDIX IV-13. ESTIMATED COST DETAILS:
 TRAVEL TO U.S., PER DIEM

org	act	\$100	LE100
A	1	30	
B	11	90	
B	12	60	
C	1	60	
C	4	80	
C	5	140	
C	12	30	
C	14	35	
C	21	30	
C	28	90	
C	30	45	
D	2	60	

APPENDIX IV-14. ESTIMATED COST DETAILS:
TRAVEL TO EGYPT, PER DIEM

org	act	\$100	LE100
B	15	100	25
F	1	40	12
F	2	180	54
F	16	20	9
F	17	20	6
F	18	20	12
F	19	20	12
F	20	20	9
F	21	20	6
F	22	20	9
F	23	120	36
F	13	20	12

**APPENDIX IV-15. ESTIMATED COST DETAILS:
DOMESTIC TRAVEL**

org	act	\$100	LE100
A	4		19
B	11		7
B	13		40
C	1		5
C	8		1
C	10		4
C	20		1
C	23		1
C	25		1
C	27		1
C	29		1
C	32		6
D	5		15
D	11		1
F	2	45	

**APPENDIX IV-16. ESTIMATED COST DETAILS:
ORGANIZATIONAL, PUBLICITY EXPENSES**

org	act	\$100	LE100
A	1		20
A	2		5
A	3		20
A	6		10
A	8		30
A	10		30
B	11		30
B	12		50
B	14		15
B	15		50
C	1		20
C	7		1
C	9		5
C	16		3
C	18		1
C	20		1
C	21		10
C	23		1
C	25		1
C	27		1
C	29		3
C	32		6
D	1		1
D	2		15
D	5		3
D	8		5
D	25		3
D	25		3
E	1		1

**APPENDIX IV-17. ESTIMATED COST DETAILS:
CONTINGENCY**

org	act	\$100	LE100
B	12		50
C	1		50
C	9		1
D	2		10
D	11		10
D	12	10	10
E	6		5
F	11	100	

APPENDIX V.
DETAILS OF COST ESTIMATES, BY ENTITY AND ACTIVITY

org	act	task	bc	US\$100	L.E 100
A	1	establish Eg. Exec. Agency	a		57
A	1		h	30	
A	1		j		10
A	1		l		20
A	2	establish Technical Impl. Group (TIG)	s	30	87
A	2		l		5
A	3	execute agreements w/ service nodes	s		5
A	3		l		20
A	4	establish EEA Exec. Committee of 10	s		20
A	4		a		38
A	4		m		19
A	4		s		57
A	5	develop proposal for CISR	n		20
A	5		s		20
A	6	lobby for implementation of CISR	l		10
A	6		s		10
A	7	develop proposal on user ed. programs	n		20
A	7		s		20
A	8	execute user education programs	g	400	
A	8		e	100	
A	8		n		50
A	8		s	500	80
A	8		l		30
A	9	develop policy implementation strategy	n		10
A	9		s		10
A	10	execute policy implementation strategy	l		30
A	10		s		30
B	11	establish Council on Info. Services & Res. (CISR)	a		144
B	11		h	90	
B	11		l		30
B	11		m	0	7
B	11		s	90	181
B	12	appoint Exec.Dir., 3 Prog.Off's, 3 secy	a		327
B	12		e	150	
B	12		f		9
B	12		g		20
B	12		h	60	
B	12		j		15
B	12		k	5	
B	12		l		50
B	12		o		50
B	13	appoint 3 Advisory Committees	s	215	471
B	13		m		40
B	13		s		40
B	14	plan National Conference	l		15
B	14		s		15
B	15	hold National Conference	i	100	25

**APPENDIX V.
DETAILS OF COST ESTIMATES, BY ENTITY AND ACTIVITY
(CONTINUED)**

C	14		n		2
C	14		s	.105	5
C	15	Review selection of lib. computer	s		
C	16		g		5
C	16	start operating Acquisitions Bureau	j	0	5
C	16		k	10000	
C	16		l		3
C	16		x	10000	13
C	17	develop union catalog of STI holdings	a		16
C	17		n		3
C	17		x		19
C	18	periodically update union catalog	a		26
C	18		g		5
C	18		l		1
C	18		s		32
C	19	develop doc.del. procedures, purchase xerox machin	e	300	
C	19		f	20	
C	19		g	0	3
C	19		n	320	3
C	20	train doc. del. personnel of libraries	l		1
C	20		m		1
C	20		s	0	2
C	21	appoint, train Head, Services Dev. and secy	a		147
C	21		e	15	
C	21		g		10
C	21		h	30	
C	21		j		5
C	21		l		10
C	21		s	45	172
C	22	appoint Marketing Specialist, develop programs	a		8
C	22		s	0	2
C	22		s		10
C	23	train marketing staff of nodes	a		16
C	23		l		1
C	23		m		1
C	23		n		18
C	24	appoint Referral Specialist, develop program	a		12
C	24		s		1
C	24		s		13
C	25	train referral service staff of service nodes	a		8
C	25		g	6	
C	25		l		1
C	25		m		1
C	25		s	6	10
C	26	appoint Search Specialist, develop instruction pro	a		12
C	26		g		2
C	26		s	0	14
C	27	train search staffs of service nodes	a		12
C	27		g	200	1
C	27		l		1
C	27		m		1
C	27		s	200	15
C	28	appoint, train 2 Database specialists	a		48
C	28		g	6	2
C	28		h	90	
C	28		s	96	50

APPENDIX V.
 DETAILS OF COST ESTIMATES, BY ENTITY AND ACTIVITY
 (CONTINUED)

C	29	Train database staffs of nodes		8
C	29		0	1
C	29			3
C	29			1
C	29			13
C	30	appoint, train Publications Specialist		16
C	30		45	1
C	30		45	17
C	30			4
C	31	train Publication staff of service nodes		1
C	31			5
C	31	TIC Specialists consulting for service nodes		208
C	32			3
C	32			6
C	32			6
C	32		0	223
C	32	execute agreement to est. info. service node		10
D	1			1
D	1			11
D	1	appoint, train node Director, secy		217
D	2		65	
D	2		7	
D	2		60	
D	2			10
D	2			25
D	2		5	
D	2			15
D	2			10
D	2		137	277
D	2	appoint 2 Marketing Officers		4
D	3			4
D	3	train Marketing Officers		12
D	4			1
D	4			13
D	4	appoint 2 secret., start marketing		336
D	5			15
D	5			3
D	5			15
D	5			369
D	5	appoint 2 Search Officers		4
D	6			4
D	6	train Search Officers		12
D	7			1
D	7			13
D	7	appoint Mailroom Clerk; start search, doc.del. ser		270
D	8			2
D	8			80
D	8			5
D	8			357
D	8	Appoint Referral Officer		2
D	9			2
D	9	train Referral Officer		6
D	10			1
D	10			7
D	10			104
D	11	start referral service, directory compil.		

APPENDIX V.
 DETAILS OF COST ESTIMATES, BY ENTITY AND ACTIVITY
 (CONTINUED)

D	11							3
D	11							1
D	11							1
D	11					10		10
D	11							10
D	11					10		131
D	11							20
D	12	prepare computer site						3
D	12							10
D	12					10		33
D	12					10		2
D	13	appoint Computer Officer						2
D	13							2
D	14	train Computer Officer						4
D	14							1
D	14							3
D	15	install computer system, start operations						84
D	15					0		3
D	15					0		89
D	15							2
D	16	appoint and train Data Entry Clerk						2
D	16							2
D	17	appoint 3 Database O., 1 Termin. O., 1 Typist						9
D	17							9
D	18	train Database, Terminology Officers						27
D	18					3		2
D	18					3		29
D	19	start database building						400
D	19							10
D	19							10
D	19							420
D	20	start data entry						40
D	20							40
D	21	appoint 3rd Search Officer; train all in online se						8
D	21							8
D	22	start online search of foreign databases						68
D	22							68
D	23	appoint Publications Officer						4
D	23							4
D	24	train Publications Officer						4
D	24							4
D	25	start database publishing program						60
D	25							2
D	25							3
D	25							3
D	25							28
E	1	execute agreement to est. doc.del. service						10
E	1							1
E	1							11
E	2	install xerox in library						1
E	2							1
E	3	appoint Document Delivery clerk						2
E	3							2
E	4	train Document Delivery clerk						2
E	4							2
E	5	start doc. del. service from E. library				0		34

APPENDIX V.
 DETAILS OF COST ESTIMATES, BY ENTITY AND ACTIVITY
 (CONTINUED)

E	5		r		13
E	5		j		1
E	5		n		68
E	6	start receiving new subscription materials	a		50
E	6		o		5
E	6		n		55
F	1	execute USAID contract in Cairo	i	40	12
F	1		n	40	12
F	2	appoint Proj.Dir, Adm.Asst (50%), Secy, GRA (33%)	b	3150	
F	2		g	150	
F	2		i	180	54
F	2		m	45	
F	2		j	150	
F	2		c	1996	
F	2		n	5671	54
F	3	develop MIS for Phase 2	e	240	
F	3		f	30	
F	3		g	10	
F	3		n	280	
F	4	start US online search	b	1125	
F	4		c	669	
F	4		p	2625	
F	4		j	110	
F	4		n	4529	
F	5	start document delivery to Egypt	r	3750	
F	5		n	3750	
F	6	appoint Computer System Consultant	d	240	
F	6		c	28	
F	6		n	268	
F	7	develop RFP for E. computer systems	n		
F	8	execute all computer purchases	e	9000	
F	8		n	9000	
F	9	train 2 E. programmers on O/S, progr. lang.	d	10	
F	9		c	6	
F	9		n	16	
F	10	install one system at contractor site	g	10	
F	10		n	10	
F	11	appoint software subcontractor, start development	d	840	
F	11		c	28	
F	11		g	100	
F	11		o	100	
F	11		n	1068	
F	12	Test computer system and software	d	40	
F	12		n	40	
F	13	install computers in Egypt	d	40	
F	13		i	20	12
F	13		n	60	12
F	14	train Eg. Acq. Bureau staff member on lib. compute	d	10	
F	14		n	10	
F	15	train Eg. hardware engineer	d	10	
F	15		n	10	
F	16	library consultant to set up Acq. Bureau & compute	i	40	
F	16		i	20	9
F	16		n	60	9
F	17	marketing consultant trip	d	20	
F	17		i	20	6

APPENDIX V.
 DETAILS OF COST ESTIMATES, BY ENTITY AND ACTIVITY
 (CONTINUED)

F	17					
F	18	search consultant visit	z	40		6
F	18		d	40		
F	18		i	20		12
F	18		z	60		12
F	19	indexing consultant visit	d	40		
F	19		i	20		12
F	19		z	60		12
F	20	computer consultant trip	d	40		
F	20		i	20		9
F	20		z	60		9
F	21	computer network consultant visit	d	20		
F	21		i	20		6
F	21		z	40		6
F	22	online search consultant visit	d	40		
F	22		i	20		9
F	22		z	60		9
F	23	contingency travel money	d	120		
F	23		i	120		36
F	23		z	240		36

APPENDIX VI. LEGEND

Column Heading Codes

org = entity (A-F)
act = activity (task) number
task = activity description
dur = task duration in months
beg = month task begins
bc = budget category
\$100 = task US\$ cost, to be multiplied by 100
LE100 = task LE cost to be multiplied by 100

Budget (bc) Codes

a Egyptian personnel salaries
b US contractor salaries
c US contractor overhead
d US consultants salaries
e Equipment
f Equipment maintenance
g Supplies, reprography
h Travel to LS, per diem
i Travel to Egypt, per diem
j Telecommunications, mail
k Document acquisition
l Organizations, publicity, etc. expenses
m Domestic travel
n Egyptian consultants
o Contingency
p US database vendor charges
r US document delivery service costs
z Total