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DEPARTMENT OF STATE
AGENCY FOR INTERNATIONAL DEVELOPMENT
Washington, D.C. 20523

PROJECT PAPER

EGYPT: Telecommunications Project

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AGENCY FOR INTERNATIONAL DEVELOPMENT PROJECT PAPER FACESHEET	1. TRANSACTION CODE <input type="checkbox"/> A ADD <input type="checkbox"/> C CHANGE <input type="checkbox"/> D DELETE <div style="border: 1px solid black; display: inline-block; padding: 2px;">A</div>	PP 2. DOCUMENT CODE 3
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3. COUNTRY/ENTITY <p style="text-align: center;">Egypt</p>	4. DOCUMENT REVISION NUMBER <div style="border: 1px solid black; width: 20px; height: 20px; margin: 0 auto;"></div>
5. PROJECT NUMBER (7 digits) <div style="border: 1px solid black; display: inline-block; padding: 2px;">263-0054</div>	6. BUREAU OFFICE A. SYMBOL: NE B. CODE: <div style="border: 1px solid black; display: inline-block; padding: 2px;">03</div>
8. ESTIMATED FY OF PROJECT COMPLETION <p style="text-align: center;">FY <div style="border: 1px solid black; display: inline-block; padding: 2px;">8</div><div style="border: 1px solid black; display: inline-block; padding: 2px;">2</div></p>	7. PROJECT TITLE (Maximum 40 characters) <div style="border: 1px solid black; display: inline-block; padding: 2px;">Telecommunications Project</div>
9. ESTIMATED DATE OF OBLIGATION A. INITIAL FY <div style="border: 1px solid black; display: inline-block; padding: 2px;">78</div> B. QUARTER <div style="border: 1px solid black; display: inline-block; padding: 2px;">4</div> C. FINAL FY <div style="border: 1px solid black; display: inline-block; padding: 2px;">78</div> (Enter 1, 2, 3, or 4)	

10. ESTIMATED COSTS (\$000 OR EQUIVALENT \$) -						
A. FUNDING SOURCE	FIRST FY <u>78</u>			LIFE OF PROJECT		
	B. FX	C. L/C	D. TOTAL	E. FX	F. L/C	G. TOTAL
AID APPROPRIATED TOTAL	40,000		40,000	40,000		40,000
(GRANT)						
(LOAN)	40,000		40,000	40,000		40,000
OTHER U.S. 1						
OTHER U.S. 2						
HOST COUNTRY		8,500	8,500		8,500	8,500
OTHER DONOR(S)						
TOTALS	40,000	8,500	48,500	40,000	8,500	48,500

11. PROPOSED BUDGET APPROPRIATED FUNDS (\$000)									
A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE		E. 1ST FY <u>78</u>		H. 2ND FY		K. 3RD FY	
		C. GRANT	D. LOAN	F. GRANT	G. LOAN	I. GRANT	J. LOAN	L. GRANT	M. LOAN
(1) SA	664B		827		40,000				
(2)									
(3)									
(4)									
TOTALS					40,000				

A. APPROPRIATION	N. 4TH FY		O. 5TH FY		LIFE OF PROJECT		12. IN-DEPTH EVALUATION SCHEDULED
	C. GRANT	P. LOAN	R. GRANT	S. LOAN	T. GRANT	U. LOAN	
(1) SA						40,000	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> MM YY 10 79 </div>
(2)							
(3)							
(4)							
TOTALS						40,000	

13. DATA CHANGE INDICATOR. WERE CHANGES MADE IN THE PID FACESHEET DATA, BLOCKS 12, 13, 14, OR 15 OR IN PRP FACESHEET DATA, BLOCK 12? IF YES, ATTACH CHANGED PID FACESHEET.

1 - NO
 2 - YES

14. ORIGINATING OFFICE CLEARANCE			15. DATE DOCUMENT RECEIVED IN AID W. OR FOR AID W. DOCUMENTS, DATE OF DISTRIBUTION		
SIGNATURE	<i>JS</i>				
TITLE	John R. Oleson Acting Director				
			DATE SIGNED		
			MM	DD	YY
			08	07	78

EGYPT - TELECOMMUNICATIONS PROJECT

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CURRENCY CONVERSIONS, DEFINITIONS, ACRONYMS AND ABBREVIATIONS

CURRENCY EQUIVALENTS

Official Rate

1 Egyptian Pound (L.E.) = U.S. \$2.56

1 U.S. Dollar = L.E. 0.39

Parallel Market Rate

1 Egyptian Pound (L.E.) = U.S. \$1.43

1 U.S. Dollar = L.E. 0.70

ACRONYMS, ABBREVIATIONS AND DEFINITIONS

ARETO : Arab Republic of Egypt Telecommunications Organization

A.R.E. : Arab Republic of Egypt

GOE : Government of Egypt

CTC or CTHC : Continental Telephone Holdings Corp.

TRC : Telecommunications Research Center

IBRD : International Bank for Reconstruction and Development (World Bank)

GODE : Gulf Organization for Development of Egypt

FYP : Five Year Plan

DELS or MSs : Direct Exchange Lines or Main Stations (telephone connections)

SIP : Service Improvement Plan

AIE : Automatic International Exchange

PABX : Private Automatic Branch Exchange

STD : Subscriber Truck Dialing
 ISD : International Subscriber Dialing
 MHz : Megahertz
 Microwave : Radio system working at frequencies above 300 MHz, but normally applied to frequencies working above 1,000 MHz.
 Carrier : A system providing a number of circuits (telephone or telegraph) through one transmission bearer (radio, cable or open wire)
 Channel : One circuit of a carrier system carrying speech or telegraphic signals
 Coaxial Cable : A cable with a center conductor surrounded by a coaxial outer conductor. It is used for high-capacity transmission systems
 Crossbar Switching : An automatic telephone switching system utilizing a connecting matrix with horizontal bars and vertical bridges
 Electronic Switching : An automatic telephone or telex switching system electronically controlled
 Rotary Switching : A type of centrally motor driven rotary telephone switching system
 Telex : Teleprinter exchange system
 BTM : Bell Telephone Manufacturing of Belgium
 LME : L.M. Ericsson of Sweden

EGYPT - TELECOMMUNICATIONS PROJECT

SUMMARY AND RECOMMENDATION

1. Borrower: The Government of Egypt (GOE)
2. Executing Entity: Arab Republic of Egypt Telecommunications Organization (ARETO)*
3. Amount of Loan: \$40,000,000 (Forty Million Dollars)
4. Loan Terms: Two-step Loan Arrangement

To the GOE: Forty (40) years, including a 10 year grace period on the repayment of principal, with interest at 2% per annum during the grace period and 3% per annum thereafter.

To ARETO: On such terms as AID may agree. The expected terms will most likely be: Fifteen (15) years, including a 5-year grace period on the repayment of principal, with interest of 7.5% during the entire loan period.
5. Description of the Project: The primary purpose of the project is to strengthen ARETO institutional capability. A U.S. consulting firm will assist ARETO by working with ARETO staff to design and schedule implementation of modern management and operating systems, **procedures** and training. Some Advisors will be assigned to work in the Office of the Minister of Communications to improve the planning and telecommunications functions of the Ministry. ARETO is currently implementing its "crash program", which is sometimes called the SIP (Service Improvement Plan) or "Quick Fix"; however termed, this program or plan is an attempt to

* The name of the organization may change as the entire telecommunications sector may be structured as a holding company, with subsidiary companies individually responsible for various telecommunications functions.

gain significant improvement in basic telephone service from the existing telecommunications system. What is required to carry out this plan or program is a relatively small capital investment and a well managed effort on the part of ARETO with the assistance of a few select Advisors. ARETO has the capability and can responsibly execute the SIP. A.I.D.'s role will be minimal and limited to financing a few Advisors and providing some equipment (e.g., air conditioners, testing equipment, etc.).

The project will also provide for: a) replacement of an old, obsolete 20,000 line rotary exchange in Zamalek (in Cairo) with an electronic exchange, which will serve as a model exchange; b) PABX's and microwave links to the Cairo airport to improve communication to this center and other centers; c) mobile exchanges, which will permit the elimination of a number of old, rotary exchange systems with newer types of exchange systems; and d) various telecommunications replacement equipment.

This project - described in general terms above - is consistent with the Telecommunications Sector Study Report recommendations prepared by CTC. It takes into account ARETO's present absorptive capacity as well as Egyptian priorities in the telecommunications sector.

This proposed loan project in itself cannot satisfy the very substantial technical assistance, training and equipment needs of ARETO. CTC has estimated investments on the order of \$2.7 billion by 1984 and in excess of \$20.0 billion by the year 2000 are required in the telecommunications sector. However, this A.I.D. loan will provide modest improvements in the institutional capability of ARETO, will be supportive of ARETO's "crash program" or SIP, and provide a small portion of telecommunications replacement, operating and other related equipment urgently required by ARETO. While impos-

sible to quantify, the A.I.D. loan will make a relatively small contribution toward improving the efficiency of the telecommunications system in Egypt by assisting, albeit in a limited fashion, ARETO in its efforts.

The A.I.D. loan will provide foreign exchange to be used for the procurement of U.S. professional consulting services and telecommunications replacement, operating and other equipment. The Egyptian pound (L.E.) costs of the project will be provided by ARETO.

6. Loan Application: The GOE has requested A.I.D. to finance the U.S. share of the foreign exchange of the project (see Annex A for loan application).
7. Mission View: USAID/Cairo strongly endorses the proposed loan.
8. Issues: None
9. Source of U.S. Funds: Fiscal Year 1978 Supporting Assistance.
10. Statutory Checklist: Satisfied. See Statutory Checklist, Annex B.
11. Recommendation: That a loan for \$40,000,000 be authorized on terms and conditions set forth in the Draft Loan Authorization in Annex C.
12. Project Committees:

USAID/Cairo

Chairperson	Robert N. Bakely
Loan Officer	Domenick J. Scarfo
Economist	James Norris
Engineer	Philip S. Lewis
Legal Advisor	James R. Phippard

AID/Washington

Chairperson	William Fraser
Loan Officer	Charles Shorter
Desk Officer	James Roberts
Engineer	Alfred Hotvedt
Legal Advisor	John Mullen

I. INTRODUCTION

1.01 In mid-1978 the Government of the Arab Republic of Egypt (GOE) requested \$40 million from A.I.D. to finance the dollar costs of goods and services required for rehabilitating the existing telecommunications system in Egypt, with particular emphasis on Cairo. The GOE's application is attached as Annex A. As a result of a series of meetings with representatives of the Ministry of Communications (MOC) and the Arab Republic of Egypt Telecommunications Organization (ARETO), it was agreed A.I.D. would finance the \$40 million project, and that the GOE would become prime obligor of the A.I.D. loan. It was further agreed that ARETO, in turn, after receiving a loan from the GOE for \$40.0 million, would repay the GOE on terms agreeable to A.I.D.; most likely, on commercial terms (fifteen years to maturity, five years grace period on repayment of principal, with a 7.5 % rate of interest during the entire term of the loan).

1.02 The project is a result of the interest generated and pressure exerted by the Egyptian public and private industrial sector, individual telephone subscribers and potential foreign investors. The project will have a major impact in stimulating an expansion of industrial and commercial activity in Egypt.

1.03 The project is extremely important to Egypt. It is imperative that, if the GOE's economic development goals--as set out in the Five-Year Plan (FYP)--are to be achieved, an efficient and dependable telecommunications system must be operational. Telecommunications is the backbone of economic development.

1.04 The project is aimed at assisting in the strengthening of the telecommunications institution, ARETO, so the present telecommunications system can be improved and that maximum utilization of this system is realized. To accomplish this, A.I.D. will provide the necessary foreign exchange to be used for the replacement of an old rotary exchange and the procurement of various training, maintenance, business and mobile exchange equipment, as well as related training and technical management assistance programs.

1.05 A contract between the Continental Telephone Holdings Corp. (CTC) and Telecommunications Research Center (TRC) of the Ministry of Communications was funded by A.I.D.'s Feasibility Studies Grants No.s 263-11-995-013 and 263-11-995-025. The scope of study included 1) an investigation, review, and evaluation of the performance of the existing telecommunications system in Egypt, particularly Cairo; 2) the development of a Master Plan

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for meeting the telecommunications needs of the GOE for the near-term, five year (1980-1984), and the longer twenty year period (through 1999); 3) the preparation of a detailed planned program of remedial actions ("quick-fix") to improve the existing telecommunications network; and , 4) to prepare final reports on the above.

1.06 This comprehensive sector study took one year to accomplish (from May 1, 1977 to May 4, 1978). The final CTC report was presented to the GOE and A.I.D. in May 1978. The report concludes that the proposed investment program over the period of the Master Plan is technically and financially sound based on the past and projected financial performance of ARETO. The final study report is presently being reviewed by ARETO and A.I.D.

1.07 This is the United States' first capital assistance to Egypt's telecommunications sector since the resumption of aid to Egypt. We are, however, considering a continuation of assistance to the telecommunications sector in FY 1979 at a level to be determined. Other A.I.D. assistance to the telecommunications sector has been furnished under the FY 1977 Commodity Import Loan at a level of \$20 million, of which the majority portion is committed to procurements of telecommunications equipment. A summary of other assistance being channeled to ARETO is presented in Annex D.

1.08 In May 1978 U.S.A.I.D. learned that AMERITECH^{1/} prepared and submitted a proposal to the Minister of Communications

^{1/} AMERITECH is a consortium of three (3) U.S. Companies; Western Electric International, GTE Products Corporation and Continental Telephone International.

(approximately \$2.5 billion through 1984). We understand also that others have or intend to submit proposals (e.g., International Telephone and Telegraph Corp. (ITT), Philips, L.M. Ericsson, Japanese and German companies, etc.).

1.09 USAID and U.S. Embassy representatives met with the Minister of Communications to discuss the \$40.0 million A.I.D. Telecommunications Loan Project for FY 1976. The Minister stated that A.I.D. should move forward in processing the \$40.0 million loan requested by the Ministry of Economy and Economic Cooperation as this project is important to Egypt and would not conflict with succeeding programs.

1.10 U.S.A.I.D. is in agreement with the position of the GOE in moving forward with the A.I.D. Telecommunications Loan. We feel that is important for Egypt and that the project basically should not conflict with any of the proposals. The reason simply is that Egypt's technical assistance, training and telecommunications replacement, operating and other related equipment needs are enormous. In fact this project, by assisting ARETO improve its organization and the existing telecommunications system, should provide a firmer institutional base on which the implementation of any of the proposals can build.

II. BACKGROUND

A. The Present Telecommunications Network

2.01. The present telecommunications network in the Arab Republic of Egypt is composed of approximately 375,000 lines of switching equipment an associated network of inter-office junctions within multi-exchange areas (Cairo and Alexandria), and a national trunk network between manual and automatic trunk switchboards.

2.02. The exchanges vary in size from small manual switchboards, consisting of 6 to 10 lines, to multi-office installations consisting of up to 35, 000 lines of crossbar automatic switching equipment of reasonably modern design. The small remote villages are frequently served by a manual switchboard located in the local police station or agricultural center and are only operated during the daylight hours. Almost without exception, however, all units, regardless of size, are connected to the outside world by an extensive network of long distance circuits, many of which are open wire. These circuits converge on zone centers which are then linked to each other coaxial cable or microwave.

2.03. Current contracts and projects represent substantial increases in switch and network capability. 151,200 new automatic lines with a retirement of only 34,700 lines of aging automatic equipment represent an increase of 36% in central Cairo's busiest exchanges and in the Suez area. A digital microwave junction network is being installed in the Greater Cairo area. When completed, it will expedite rehabilitation of the existing cable junction system for reuse as feeder cable relief or junction relief or redundancy. Coaxial cable projects will complete the "backbone" of the national trunk network and in some cases will augment international routes.

2.04. Cairo exchanges number 16 at present containing an aggregate of 208,400 lines of dial equipment. The older offices, some of which date back to the 1930s are equipped with rotary equipment manufactured by Bell Telephone Manufacturing of Belgium. The newer offices are equipped with crossbar equipment designed by L. M. Ericsson of Sweden, with portions of the equipment manufactured locally in Egypt. The rotary equipment (101,800 lines) serves the older areas of the city. Plans for replacement have been delayed pending financial arrangements.

The crossbar equipment, LME ARF 102 is generally well configured and capable of providing good telephone service. Currently, 106,600 lines are in service in 9 locations with an additional 10,000 lines presently being installed as a replacement for an equal number of rotary lines. Two major tandem units are also installed in Cairo and are known as the Ramsis or Auto tandem (2,100 incoming trunks and 1,944 outgoing trunks), the other is the Abbassia Central tandem (980 incoming trunks and 94 outgoing trunks). Details of the Cairo exchanges and current projects are found in Annex E

2.05. Telephone service in Alexandria, Egypt's second largest city, is provided by 61,000 lines of automatic dial equipment installed in five locations. BTM rotary comprise 40,000 lines and LME ARF 102 provide the remaining 21,000 lines. Lower Egypt and the Suez Canal Area exchanges have 39,000 lines of automatic exchange equipment and manual exchanges operating on common battery or magneto number 21,240 lines. Offices with less than 50 lines have been omitted from above figures. Upper Egypt has 17,200 lines of automatic exchange equipment and manual exchanges operating on common battery or magneto number 11,800 lines. In the Red Sea area there are 580 manual lines. A listing of manual exchanges with their capacity is shown in Annex F.

2.06. Multi-exchange local junction systems exist only in the two major Egyptian metropolitan areas of Cairo and Alexandria. In Cairo, 87 cables containing 50,199 pairs interconnect the various exchange offices. There is, in addition, a microwave radio system providing junction facilities between the Dokki and the Opera Exchanges. Alexandria exchanges are interconnected by approximately 3,500 junctions.

2.07. The outside plant design is similar for both Cairo and Alexandria and is referred to as control point planning. The feeder cable is run underground in conduits, through manholes and terminated in cross-connect cabinets generally located on the sidewalk. Smaller cables radiate from the cross-connect cabinets and terminate in distribution points. Drop wire then connects the distribution pairs to the telephone instrument. The typical feeder cable is 1,200 pairs and the typical cross-connect cabinet has 200 to 250 pairs terminated toward the exchange and 300 to 350 toward the subscriber. This means that the average feeder cable is terminated in 5 or 6 cross-connect cabinets and serves

a specific geographic area. The type of exchange outside plant used in the smaller urban areas of Egypt is similar to that used in Cairo and Alexandria. In the smaller rural exchanges, subscribers are served by aerial open wire plant, cable being used only to enter the exchange. Open wire is used also as the principal means of interconnecting the rural exchanges.

2.08. ARETO operates an extensive national network of toll facilities throughout Egypt. A major project is underway to expand the coaxial system particularly to Upper Egypt and the microwave system from Cairo to the Libyan border through Alexandria.

2.09. There is a mobile telephone system (UHF) which provides communications service between mobile telephone subscribers in the Cairo area. The connection is accomplished by a normal dialing process. Capacity of existing system is 100 subscribers expandable to 1,000 subscribers. Forty-one subscriber units have been delivered to date.

2.10. International network communications are all accomplished through Cairo, although small international switchboards with limited capacity have recently been placed in service in Alexandria and Port Said. A third unit is planned for Suez. All international calls are handled on a manual basis and routed over two principal submarine cable outlets. One, Egypt to Italy (Catanzaro) with an ultimate 480-channel capacity, and Egypt to Lebanon (Beirut) with an ultimate 120-channel capacity. In addition, a non-standard earth station, which is currently being replaced by a standard station, provides connections to the United States and Paris on a limited basis. Sudan, to the south of Egypt is connected via a tropospheric scatter system. ARETO plans to open a new Automatic International Exchange (AIE) during the third quarter of 1978. The first phase will allow 720 business customers to have International Subscriber Dialing (ISD) facilities.

2.11. There are two telex exchanges, one in Cairo and the other in Alexandria. All international telex messages are routed via Cairo. There are 120 telex circuits on the international network.

B. The Condition of the Existing Equipment and Facilities

2.12 CTC reviewed the existing telecommunications equipment and facilities under the following headings:

- (i) Station Equipment and Wiring
- (ii) Exchange Cable Facilities
- (iii) National and International Toll Networks
- (iv) Sub-Sector Equipment and Facilities
- (v) Manholes and Conduits
- (vi) Buildings
- (vii) Vehicles and Equipment
- (viii) Traffic in Long Distance Network
- (ix) Telex Traffic
- (x) Network Control

2.13 The listing of problems is too numerous to list here; however, a sample of some of the findings should illustrate the thrust of CTC findings. Station equipment and wiring are almost all in poor condition. A majority of telephone instruments are obsolete and the remainder functioning poorly. Cable networks are inappropriate and in many faulted conductors observed. The National and International Toll Networks are characterized by the under-development of subscriber toll dialing, poor condition of switchboards and connecting local networks. While complete data on sub-sectors is not available, most sub-sectors complain that a high percentage of local trunks are out of service at any given time.

C. Problems with Structure of Telecommunications Sector

2.14. ARETO is one of several agencies reporting to the Minister of Communications. (The Minister's complete title is the Minister of Transport, Communication and Marine Transport). The other agencies include a telephone equipment manufacturing facility, the A.R.E. postal service, and the Telecommunications Research Center (TRC). There are ten (10) government sub-sectors that are related to ARETO service or facilities.

2.15. Most sub-sectors are large users of normal telephone service, lease line facilities and systems, including PBX, PABX, Telex/Teleprinters, Radio and Microwave. Most PABX systems are privately-owned, whereas ARETO usually owns the older PBX system. In the large majority of cases where a sub-sector wishes to modernize or upgrade PBX service to PABX service, they normally purchase and install their own system for one of two reasons: (a) they have no confidence in ARETO's ability to provide dependable service; and (b) ARETO has been unable to install the equipment due to a lack of funds.

2.16. Many sub-sectors are planning or installing private radio or microwave systems. Some also install and maintain their own telex or teleprinter machines. Many sub-sectors, according to CTC, would prefer to use ARETO service and equipment if they were assured of efficient and dependable service.

2.17. In brief, the existing quality of lease line and other special type services provided by ARETO to the ten (10) sub-sectors and other large commercial users in Egypt is so poor that many are looking to private systems for relief. This can only result in a continued deteriorating loss of revenue for services that should rightly be provided by ARETO.

2.18. In all fairness to ARETO a number of constraints to effective operations are due to the fact that ARETO is a government agency and subject to regulations which prevent ARETO management from taking certain of the steps which will be needed to improve the operations of the organization. The personnel and manpower policies of the GOE inhibit the sound management of ARETO's human resources. ARETO has been required to hire personnel which it may not need and finds it very difficult to fire unproductive employees. The promotion system is based largely on seniority. ARETO managers do not have the authority to offer the compensation they feel is required to retain qualified personnel.

2.19. The management of ARETO finances must conform to GOE policies and regulations. For example, ARETO is required to make available all net income to the Ministry of Finance. As a consequence, ARETO is prevented from relying with confidence on these funds to maintain or upgrade equipment and facilities. Funds for these purposes must be appropriated annually by the GOE. The accounting system prescribed by the GOE, moreover, does not meet the ARETO's operating needs.

2.20. ARETO possesses a large inventory of obsolete materials which count against the inventory levels which GOE policy allows it to carry. Cumbersome GOE regulations make it difficult to dispose of excess and otherwise unneeded materials.

D. Past Financial Performance of the Telecommunications Sector

2.21. ARETO income statements were analyzed for the four years ending in 1976. The reported net income for those years is presented below:

	(LE Millions)			
	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>
Operating Revenues	22.3	23.7	26.0	30.0
Operating Expenses	<u>17.6</u>	<u>19.1</u>	<u>21.4</u>	<u>23.2</u>
Operating Income	4.7	4.6	4.6	6.8
Miscellaneous Income/Deductions	<u>.8</u>	<u>.9</u>	<u>1.2</u>	<u>1.1</u>
Net Income	<u>3.9</u>	<u>3.7</u>	<u>3.4</u>	<u>5.7</u>

2.22. The analysis showed that: (1) the telephone plant is undervalued and the result is an understatement of depreciation expense, and (2) GOE provided loans with corresponding low interest rates. The understatement of depreciation was the result of two factors. First, ARETO acquired assets from the GOE as a donation or for nominal value. These assets were recorded at a value substantially less than the fair market value. Second, assets acquired from foreign sources were previously recorded at the official rate of exchange rather than an approximated market rate. Therefore, the assets were immediately understated based on differences in exchange rates.

2.23. The understatement of interest expense is due to ARETO having the benefit of low-cost loans from the GOE and other outside sources.

2.24. In terms of considering ARETO's past operating performance as a basis for planning the company's future operations as an independent agency*, it was necessary to make adjustments for the depreciation and interest expenses. The following presents a restatement of the 1973-1976 operations based on adjustments for depreciation and interest expenses:

* In the Management and Labor Section of this Paper there will be included a discussion of the recommended Telecommunication organization as an autonomous entity.

	(LE Millions)			
	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>
Net Income	3.9	3.7	3.4	5.7
Less: Depreciation Adjustment	(1.9)	(2.0)	(2.3)	(0.9)
: Interest Adjustment	(1.2)	(1.1)	(1.6)	(2.4)
Adjusted Net Income (Loss)	<u>0.8</u>	<u>0.6</u>	<u>(0.5)</u>	<u>2.4</u>

2.25. It is obvious from the above analysis that past revenues have been inadequate and a substantial increase in revenues is required before the telecommunications organization can become a commercially-viable organization.

III. THE PROJECT

3.01 The principal purpose of this project is to support and strengthen the telecommunications institution in Egypt (i.e., ARETO). To do so selective U.S. Consultants' services will be provided to assist ARETO improve its planning, management, operating and training functions. ARETO is also implementing a Service Improvement Plan-SIP- (ARETO refers to it as a "crash program") and the project will support in a small way ARETO's efforts by providing a few Advisors and some replacement and operating equipment. ARETO will be responsible for implementing this labor intensive activity and ARETO personnel will perform the actual work on improving the present telecommunications system. Other components of this project will provide financing for a) replacement of an old, obsolete 20,000 line rotary exchange in Zamalek (in Cairo) with an electronic exchange, which will serve as a model exchange; b) PABX's and micro-wave links to the Cairo airport to improve communication to this center and other centers; c) mobile exchanges, which will permit the elimination of a number of old, rotary exchange systems with newer types of exchange systems; and d) various telecommunications replacement equipment.

3.02 This project - described in general terms above - is consistent with the Telecommunications Sector Study Report recommendations. It also takes into account ARETO's present absorptive capacity as well as Egyptian priorities in the telecommunications sector. This proposed loan project in itself cannot satisfy the very substantial technical assistance, training and equipment needs of ARETO. Estimated investments on the order of \$2.7 billion by 1984 and in excess of \$20.0 billion by the year 2000 could be required in the telecommunications sector. However, this A.I.D. loan will provide modest improvements in the institutional capability of ARETO, will be supportive of ARETO's "crash program" or SIP, and provide a small portion of telecommunications replacement, operating and other related equipment urgently required by ARETO. While impossible to quantify, the A.I.D. loan will make a relatively small contribution toward improving the efficiency of the telecommunications system in Egypt by assisting, albeit in a limited fashion, ARETO in its efforts. The following paragraphs will provide additional details of the project.

A. Institution Building

a. Priority Programs

3.03 (i) Planning - assist ARETO establish a planning unit. The U.S. Consultant will develop plans and schedules in priority sequence - e.g., PERT or CPM for an entire range of management systems, operations, training and procurement. The U.S. Consultant will also modify and

update as necessary the Master Plan included in Telecommunications Sector Study Report so that an overall telecommunications expansion can reflect the realities of changing circumstances. Some technical assistance would also be provided to the Office of the Minister of Communications to strengthen the planning and oversee functions of the Ministry.

3.04 (ii) Training - As mentioned earlier, while ARETO is overstaffed, it faces shortages of certain skills, such as qualified engineers, technicians and craftsmen. This difficulty will be compounded during the expansionary period in the telecommunications sector (see paras. 4.11-4.14). What is expected to be accomplished under this loan is that a certain number of instructors, to be determined, will be trained and certain curriculum, also to be determined, will be developed by the U.S. Consultant. This is a modest target and reflects the fact that only a small portion of the substantial training requirements of ARETO can be satisfied by this project and also the long lead time required to develop curriculum and train instructors. (See Annex S for types of training programs possible).

3.05 (iii) Procurement - Much of ARETO's procurement to date has been undertaken on an ad hoc basis and not all the equipment procured may have been necessary, complementary to existing equipment or of the highest priority. The U.S. Consultant will assist ARETO to develop a rational annual procurement plan or program beginning in CY 1979 and projected out for the next three to five years. It is expected that the U.S. Consultant will review all of ARETO's proposed tender documents for conformance with the annual procurement plan.

3.06 (iv) Accounting, Financial, Personnel - The U.S. Consultant will assist ARETO in devising a range of systems and programs. These will include a personnel management program; systems and procedures for budgeting, accounting, financial reporting, cash management, internal auditing; and, perhaps, the development of an EDP plan, especially for billing.

b. SIP - (Service Improvement Plan)

3.07 The "Quick-Fix" or Service Improvement Plan (SIP) was devised on the basis of three most important considerations. First, the quality of ARETO services is in most serious and urgent need of improvement. Second, unless certain underlying causes are corrected it is probable that Master Plan additions will result in more serious network congestion. Third, however, with proper allocation and management of available resources, a clearly recognizable overall improvement in the quality of AERTO service in the Cairo area is achievable in two years. The

SIP is an ARETO program and is being undertaken and implemented by ARETO personnel. The foreign exchange required for capital investment (mainly air-conditioners) will be financed by the A.I.D. loan. A.I.D. will also finance a few Advisors to support this substantial ARETO effort. Consequently, SIP is generally limited to items which are mainly labor intensive and will be performed by ARETO staff. Included are maintenance, repair, logistics, traffic and commercial operations and such other service functions as directories and billing. The sum of these actions is a program which is capable of improving both the basic communications services of ARETO, and those non-communications services which have a strong influence on customer opinion. A summary of the network and service conditions which will be addressed by ARETO in the SIP is presented in Annex G.

B. Equipment

3.08 Volume 5 of the Telecommunications Sector Study presents a plan for the development of a model exchange in Zamalek (in Cairo). It covers the replacement of exchange equipment, an outside plant feeder cable plan, a detailed plan for a portion of the distribution plant, recommended general technical specifications, and a description of the methods and procedures to be employed as the Zamalek exchange is converted to a model exchange.

3.09 The U.S. Consultant will review the above mentioned Volume 5. After this review, the Consultant will prepare detailed specifications, prepare an IFB, advertise for the job in the U.S. and assist ARETO in evaluation of technical bid proposals so that an award can be made.

3.10 The U.S. Consultant will perform the same functions in competitively procuring: a) PABX's (approx. 3,000 lines) and microwave links for Cairo airport and other locations; b) mobil exchange station vans (approx. 3,000 lines); and c) other equipment such as air conditioners, vehicles, tools, test equipment and other miscellaneous hardware. The replacement of the Zamalek exchange will be contracted on a turn-key basis, as will the PABX's and microwave links. The remaining equipment items needed by ARETO to operate more effectively are primarily off-the-shelf items. Annex F presents a listing of the off-the-shelf type items which will be purchased under the A.I.D. loan.

3.11 The installation of a new 20,000 line exchange using the electronic switching system, which will replace the obsolete rotary exchange in Zamalek, is planned to serve as a model exchange.

Installation of an electronic PABX and microwave link at the Cairo Airport and other locations will substantially improve communications to and from important focal centers in Cairo. Finally, the provision of a range of equipment will be beneficial to ARETO in better equipping employees and facilities to expedite improvements in telecommunications service.

C. Project Assessment and Summary Comments

3.12 It is the opinion of U.S.A.I.D. that the Training and Equipment procurement aspects of this project appear to be reasonably implementable. In Training, a good basis exists upon which to build an efficient training capacity in ARETO. A Training Institute was established in 1970, with the assistance of the United Nations Development Program, for the telecommunications system. The Institute currently trains more than 3,000 students per year. Further, a new building is under construction which will increase the capacity of the Institute. While physical facilities and equipment had been expanded and the quality of training was improved somewhat, nevertheless many problems remain to be solved. There is inadequate planning and coordination on the part of ARETO. Unused training capacity results from an inadequate process of identifying training needs and coordinating these with training capacity.

3.13 From the Telecommunications Sector Study Report the U.S. Consultant should have no difficulty in identifying curriculum and a reasonable number of instructors it can develop and train in a two-year period to meet the most urgent training needs of ARETO. 1/

3.14 The procurement of telecommunications replacement, operating and other equipment should pose no major problems for a qualified U.S. Consultant. The preparation of technical specifications, IFB's and evaluation of bids can also be reasonably accomplished.

3.15 As mentioned earlier, the technical assistance, training and equipment requirements of ARETO are substantial and this project will only furnish FX for a small portion of these requirements.

1/ In Exhibit V-1-Cost Estimate - the technical assistance cost component of the project is based on a 600-650 man-month effort by the U.S. Consultant. The breakdown of man-month effort by category (training, procurement, planning, etc.) will be determined when technical proposals are received by ARETO and AID towards the end of 1978.

ARETO and U.S.A.I.D. are in agreement that technical assistance should be provided to assist and train ARETO personnel, rather than work full-time in taking over and substituting for ARETO staff.

3.16 Consequently, ARETO and U.S.A.I.D. agreed that a \$7.5 million technical assistance and training package - which could finance a 600-650 man-month level of effort - would be appropriate to accomplish the major part of the scope of work described in Annex C. During the preproposal conference with the short-listed qualified U.S. Consultants, ARETO will emphasize its desire to minimize the degree of expatriate presence and advise the U.S. Consultants that their proposals should reflect an "advisory approach". At this conference the firms selected to submit proposals will have been given a copy of the Telecommunications Sector Study Report (eight (8) volumes and appendices) for background information.

3.17 This initial project is not sufficient in itself to strengthen the ARETO organization to a point where it will have the institutional capability to effectively use an unprecedented and substantial infusion of capital (The Master Plan foresees an investment program of \$2.7 billion by 1984 and in excess of \$20.0 billion by 2000). In consultations between ARETO and U.S.A.I.D. it was agreed that the technical assistance should be directed toward the areas of priorities described above in paras. 3.03-3.11.

IV. MANAGEMENT AND LABOR

A. ARETO Present Organization

4.01. The ARETO present organization chart is presented in Annex H. As mentioned earlier, ARETO is one of several agencies reporting to the Minister of Communications. The other agencies include a telephone equipment manufacturing facility, the A.R.E. postal service, and TRC.

4.02. The Chairman of ARETO presides over a Board of Directors composed largely of representatives from governmental ministries and the Chairman is the chief executive officer of ARETO. While six staff offices of various sizes and responsibilities report directly to the Chairman, his principal line managers are the Deputy Chairmen for Operations and Maintenance, for the Planning and Execution of Projects, and for Administrative Financial and Commercial Affairs.

B. Senior Management

4.03. The Deputy Chairman for Operations and Maintenance is responsible for the day-to-day operations and maintenance of all telephone, telegraph and telex services. The seven sectors within Operations and Maintenance include four regional telephone service sectors in Cairo, Alexandria, and Upper and Lower Egypt, and three other service sectors for International Operations, Transmission Maintenance, and Inspection Maintenance. The four geographical telephone service sectors are further divided into zones, which may further be sub-divided into districts. The Operations and Maintenance sector employs 82% of the ARETO work-force and is by far the largest single functional grouping within the organization.

4.04. The Deputy Chairman for Planning and Execution of Projects is in charge of what is essentially a centralized engineering function. He and his staff plan, design, supervise, and execute the installation of new facilities for the telecommunications system. This sector accounts for 11% of ARETO employees. In addition, for construction projects outside of Cairo and Alexandria, laborers from the Operations and Maintenance sector may be supervised by the Projects Department.

4.05. The Deputy Chairman for Administrative, Financial and Commercial Affairs is responsible for establishing policies, implementing procedures, and controlling the financial, commercial and personnel activities of ARETO. Also reporting to this Deputy Chairman is the Telecommunications Training Sector and the Stores and Purchase sector.

4.06. The above senior management, including top assistants and the Chairman of ARETO, are capable, talented and dedicated individuals. The problem with senior management is one of the lack of a functional organizational structure and the systems needed to control its own operations. The functions of the Chairman and Deputy Chairmen should be to direct and control, but not to operate on a day-to-day basis the detailed operations of ARETO. Also, a number of constraints confronting ARETO senior management were described in paras 2.18-2.20. More will be said about eliminating or at least minimizing the degree of these constraints later in this section.

C. Composition and Performance of the ARETO Work-Force

4.07. The long-term growth of the telecommunications industry in Egypt has been accompanied by a significant growth and significant changes in the composition of the work-force as can be seen below:

EXHIBIT IV-1

Composition of ARETO Work-Force^{1/}

<u>Occupational Category</u>	<u>1961</u>		<u>1969</u>		<u>1977</u>	
	<u>No.</u>	<u>%</u>	<u>No.</u>	<u>%</u>	<u>No.</u>	<u>%</u>
Top Management	6	.03	13	.04	82	.15
Administrators	79	.40	607	1.70	950	1.80
Engineers	292	1.60	734	2.00	1,224	1.80
Technicians	1,721	9.40	3,639	10.20	7,235	13.50
Operators	5,006	27.20	9,390	26.18	11,484	21.40
Clerks	1,258 ^{2/}	6.80	2,961	8.30	5,406	10.10
Skilled Laborers	6,004 ^{2/}	32.64	10,169	28.38	16,624	31.00
Unskilled Laborers	<u>4,020</u>	<u>21.93</u>	<u>8,305</u>	<u>23.20</u>	<u>10,683</u>	<u>19.90</u>
Total	18,386	100.00	35,818	100.00	53,688	100.00

^{1/} Budgeted work-force.

^{2/} Actual only available for total laborers. Division into two categories was estimated using ratio of skilled to unskilled in 1966.

Source: Annual Manpower Budgets: ARETO Personnel Department

4.08. The ARETO manpower budget for 1977 included positions for 53,688 employees. The actual number of employees as of September 1, 1977, however, was only 46,030 or 86% of the budgeted number. Approximately two-thirds of this difference was due to budget vacancies, while one-third resulted from employees who technically occupied budgeted positions, but were on paid or unpaid loan to other ministries, in the military service or on unpaid leave (often to work temporarily in other countries).

4.09. Since 1961 the size of the ARETO work-force has nearly trebled from a budgeted 18,386 employees in 1961 to the 53,688 employees budgeted for 1977. This represents an average increase of 2,206 employees per year or an average annual growth of 7.1%. Nearly half of these employees were hired during the last six years of this period. Much of this growth was the result of GOE pressure to hire employees according to annual quotas designed to reduce unemployment. (This situation is, of course, not unique to ARETO but extends to other public sector entities.) The extent of these quotas is shown below:

Exhibit IV-2

GOE Hiring Quotas Imposed on ARETO
by Occupational Category: 1972-1976

<u>Occupational Categories</u>	<u>From Manpower</u>	<u>From Military</u>	<u>Total Hires</u>
Administrators	147	-	147
Engineers	488	-	488
Technicians	1,264	3	1,267
Operators	1,645	175	1,880
Clerks	682	471	1,153
Skilled Laborers	-	914	914
Unskilled Laborers	-	<u>4,370</u>	<u>4,370</u>
Total	4,226	5,933	10,159

4.10. While the impact of these quotas may have been beneficial to the unemployed, they are certainly detrimental to the efficiency of ARETO operations. Their impact on aggregate productivity is displayed in Exhibit IV-3 further below. The exhibit shows that the number of employees per 1000 main stations increased each successive year since 1971. This means that the average workload per employee during this period annually decreased resulting in significantly lower average productivity per employee in 1977 than was true in 1971.

Exhibit IV-3
 Number of Staff Employed by ARETO
Per 1000 Telephone Main Stations: 1968-1977

<u>Year</u>	<u>Number of Employees^{1/}</u>	<u>Number of Main Stations^{2/}</u>	<u>Employees Per 1000 Main Stations</u>
1968	30,045	259,145	115.9
1969	30,803	269,612	114.2
1970	31,657	284,352	111.3
1971	31,764	296,686	107.1
1972	33,018	304,725	108.4
1973	35,285	317,085	111.3
1974	38,504	333,388	115.5
1975	41,716	341,482	122.2
1976	44,711	352,162	126.9
1977	46,030	361,648	127.3

1/ Budgeted number of employees multiplied by .86 to estimate actual size of work-force.

2/ Since there are no multiple lines in the A.R.E. the number of main stations and subscribers are equal.

Source: Manpower budget from ARETO Personnel Department.
 Number of main stations provided by ARETO Planning Sector.

4.11 In most developed countries, a subscriber/employee ratio of from 1000 : 8 to 1000 : 30 generally prevails. While it is not possible at this time to determine the proper subscriber/employee ratio for the A.R.E., the influx of additional employees during the period 1972 to 1977 and the resulting decline in productivity per employee supports the conclusion of a substantially overstaffed and underutilized work-force. However, it should be emphasized that while overall ARETO is overstaffed, ARETO faces shortages of certain skills, such as engineers. Its current difficulties in recruiting qualified engineers, technicians, and craftsmen will grow to even greater proportions if industrial expansion within Egypt progresses in response to more liberal economic policies. The current low rate of employee turnover (in 1977 it was 3.2%, and from 1966 onward it never exceeded 4.0%) within ARETO is due to the non-availability of alternate employment rather than to a high level of employee job satisfaction. The establishment of new joint venture companies and general industrial expansion will create additional job opportunities which could result in a significantly higher rate of labor turnover within ARETO.

4.12. Given existing conditions and the constraints within and without ARETO, it is expected that there will be continued shortages of engineers, technicians, and skilled laborers. These shortages will continue into the time that the Master Plan foresees major operational expansion. In the absence of corrective action by ARETO or the large-scale use of foreign labor, the scheduled implementation of the Master Plan will be seriously impaired.

4.13. The solution of current and future manpower problems will require fundamental changes in the existing wage structure (seniority and not job responsibilities forms the basis of the structure); the establishment of an aggressive recruitment program; and the improvement of working conditions so as to create an environment conducive to effective operations.

4.14. To improve productivity will require basic changes in the structure of the basic training process, a major expansion of training facilities and staff, improvements in job supervision, an upgrading of employee wages, and more adequate tools and equipment. The implementation of such programs will not eliminate the problems of labor availability and productivity, but will go far toward minimizing them. However, by their nature, these programs require considerable lead time. They must be given immediate and serious management attention if the Master Plan is to proceed (in 1980-1981) as scheduled. As explained earlier, addressing these basic problems is one of the major thrusts of this proposed loan project.

D. Planned Organization for the Telecommunications Sector of the A.R.E.

4.15. Paras 2.18-2.20 showed that ARETO's identity as a government agency makes it subject to regulations which prevent ARETO from taking certain steps which will be needed to improve the operations of the organization. A new planned organization chart is presented in Annex I.

4.16. The Sector Study Report recommends that ARETO be re-constituted under its own special charter as an autonomous entity not subject to normal governmental or public sector regulations. The objective of this action is to provide the management of ARETO with the flexibility it needs to improve telecommunications services within Egypt.

4.17. The Report also recommends that, in addition to autonomy, that the entire telecommunications sector be structured as a holding company (see Annex I) composed of subsidiary companies individually responsible for various telecommunications functions, and able to participate in joint venture activities with foreign and Arab capital under the provisions of Investment Law No. 43.

4.18. Obviously, the rearrangement of an organization and its responsibilities into different boxes in an organization chart does not in itself improve telecommunications operations. However, autonomy and the ability to joint venture under Law 43 does. These actions will permit, inter alia: (1) the right of ARETO to establish a reasonable rate/tariff structure; (2) the establishment of a reasonable wage structure; (3) the ability to enjoy an 8-10 year income tax holiday; (4) the right not to accept GOE employment quotas; (5) the ability to fire unproductive workers; (6) the elimination of ARETO legal obligations to turn all its profits to the Ministry of Finance and to depend upon the GOE budgetary process to gain necessary operating and investment funds; (7) the right to appoint top managers without prior GOE approval; and (8) the right to establish accounting, financial reporting, inventory disposal, etc., systems which are not dictated by the GOE but are designed to serve and are in many ways unique to the telecommunications industry.

4.19. There are indications that the GOE is favorably disposed toward a new organizational structure for the telecommunications sector. The following Presidential decree, while admittedly a bit vague, does auger well for a new organization:

"Translation of Presidential Decree No. 124 for
1978

First:

ARETO is permitted to establish anonymous (incorporated companies, alone or jointly with other partners after the approval of the Minister. ARETO is also permitted to issue shares (stock) in the market as soon as those companies are established."

Second:

This decree is effective following publication.

Issued: March 16, 1978

/s/ President Sadat"

4.20. Recommendations to deal with a number of the problems with the present ARETO will be addressed in the section on Recommendations, Conditions and Covenants. USAID will attempt to reach agreement on a number of the actions required by the GOE that will lead to the resolution of these bottlenecks to successful project implementation.

V. TECHNICAL ANALYSIS

A. SIP ("Quick-Fix")

5.01. The telephone service in Cairo can and must be improved quickly. It is U.S.A.I.D.'s strong view that to undertake a large and costly Master Plan program without first taking reasonable steps to relieve the congestion in the Cairo network would be a mistake.

5.02. The technical consequences stem from the fact that the network, as it is today, is suffering mainly from the lack of effective maintenance or faulty workmanship. With a few exceptions, the network is capable of providing at least an acceptable grade of service.

5.03. The major faults are that:

(a) exchange equipment is overloaded--not because the equipment is underdesigned--but because of numerous ineffective call attempts that are overloading the registers; and

(b) the ineffective attempts, in turn, are caused by call failures at innumerable faults throughout every part of the exchange and junction networks.

5.04. Most faults are correctable by:

(i) Overhauling exchange equipment and cable facilities;

(ii) Repairing defective subscriber installations;

(iii) Repairing and/or replacing and improving the overall utilization of the junction network; and

(iv) Repairing or replacing defective and obsolete telephone sets.

5.05. Maintenance systems and records must also be improved to arrest the deteriorating trend in conditions and facilities and to preserve the gains made by the repair and rehabilitation work outlined above.

5.06. The Sector Study Report states that the performance of most of the elements of the existing Cairo networks can be improved before October 1980. What is required is a relatively small capital investment and a well-managed, consistent, coordinated, first-priority effort on the part of ARETO with the assistance of a few experienced expatriate advisors. ARETO management concurs in that the SIP is a first priority and there is every indication that it will lend its fullest support-- in time, money and human resources-- to carrying out this program. (Annex G presents a review of the present condition of ARETO equipment, facilities and services which must be addressed by the SIP program.)

B. Priority Programs

5.07. Paras 3.03 through 3.06 describe in some detail these priority programs where A.I.D. assistance will be directed; i.e., planning and procurement assistance, institutional strengthening and training.

5.08. ARETO has accepted the SIP (through 1980) as reasonable. ARETO is also aware that the immediate implementation of these priority programs is urgently required. Since ARETO is supportive of these priority programs, it is expected that it will make every effort to make qualified personnel available to work with the U.S. Consultant. It is most important that systems, procedures and training curriculum are not prepared for ARETO, but that ARETO participate in their formulation. In devising the scope of work for the US Consultant, USAID will discuss with ARETO the extent of ARETO personnel participation under existing conditions in devising and implementing these priority programs. It is important to note that the Chairman of ARETO is determined to have these programs devised rapidly and to have his staff develop the necessary skills so that ARETO can be self-sufficient in the shortest time possible.

C. Equipment Procurement

5.09. The development of technical specifications for replacement of an old rotary exchange in Zamalek, a PABX system and microwave link of the Cairo airport, and mobile exchange vans will be a routine matter for the U.S. Consultant and ARETO engineers. Procurement of other types of equipment include: Maintenance and other vehicles, some air-conditioning units, testing equipment and other small maintenance and related tools. Procurement of these items should also be a simple matter following A.I.D. procurement regulations. It is planned that the U.S. Consultant assist ARETO in the preparation of detailed specifications, IFB and evaluation format so that the award can be made for the replacement of the Zamalek rotary exchange, PABX and microwave links on a turn-key basis.

5.10. None of the above equipment is in the category of being technologically new and innovative. Consequently, the installation, procurement and utilization of this equipment should present no special difficulty.

D. Summary

5.11. A.I.D. will loan finance a \$7.5 million technical assistance package for the Egyptian telecommunications sector. The availability of this varied technical expertise is readily available in the United States, as is the telecommunications equipment to be procured under the loan. USAID foresees no serious technical obstacles to the successful implementation of this project.

E. Cost Estimate

5.12. The capital cost of the project has been estimated by CTC. These cost estimates have been reviewed by ARETO and USAID and are considered reasonable. Equipment cost estimates were based on market prices in effect in June 1978.

5.13. The total cost of the project, expressed in dollars at the parallel market rate (L.E. 1.00 = US\$1.43), is \$48.5 million, of which the equivalent of \$8.5 million is the Egyptian pound cost and \$40.0 million is the foreign exchange cost. The aforementioned Egyptian pound cost does not include the salary costs of ARETO personnel assigned to this project.* Technical assistance accounts for 18.75% (\$7.5 million) of total project costs; equipment and equipment-related activities, including shipping, accounts for 71.25% (\$28.5 million); and a contingency and escalation factor of 10% (\$4.0 million) has been included. Both ARETO and USAID consider that the \$7.5 million for technical assistance is the maximum amount which should be disbursed under the A.I.D. loan. This represents a 600-650 man-month effort by a US Consultant and is considered satisfactory to accomplish the tasks described in Annex O. Consequently, the \$4.0 million contingency and escalation factor included in the cost estimate is actually 14% of the total costs of equipment and equipment-related activities, and is considered satisfactory.

* The estimated cost of salaries for ARETO personnel assigned to this project is L.E. 2.0 million (or the U.S. dollar equivalent of \$2.8 million). If the salary costs of ARETO personnel are considered as part of the COE contribution, the COE contribution (U.S. \$11.3 equivalent) would amount to slightly more than 28% of total project costs.

EXHIBIT V-1

ESTIMATED COST SUMMARY
(in 000s L.E. and U.S.\$)

<u>Category</u>	<u>\$ (A.I.D.)</u>	<u>L.E. (G.O.E.)</u>
<u>Technical Assistance & Training</u>		
<u>Assistance to ARETO & MOC:</u>	\$ 7,500 ^{1/}	L.E.1,500
Planning		
Training		
Procurement		
Accounting, Financial & Personnel		
SIP		
<u>Equipment & Equipment-Related</u>	28,500	3,750
a. Replacement of 20,000-Line Zamalek Exchange		
(i) Exchange Equipment	\$ 8,000	
(ii) Outside Plant	10,000	
b. PABXs (3,000 Lines); E.G., for Cairo Airport	2,000	
c. Microwave Links to Important Locations; E.G., Cairo Airport	1,000	
d. Mobile Exchange Station Vans (3,000 Lines)	1,500	
e. Relief Equipment for Customers Using Rotary Exchanges	3,000	
f. Air-Conditioning, Vehicles, Tools, Test Equipment & Miscellaneous Hardware	3,000 ^{2/}	
<u>Contingency and Escalation</u>	<u>4,000</u>	<u>750</u>
<u>Total</u>	\$40,000	L.E.6,000

^{1/} See Annex O for scope of work.

^{2/} See Annex P for illustrative list of equipment which will be financed by the A.I.D. loan.

VI. MARKET ANALYSIS

A. Need for Improved Telecommunications System-

6.01 While the need for an improved telecommunications system is obvious, it is worthwhile to present the following general statement. In the modern industrialized world fast and efficient telecommunications service is essential for the smooth and efficient functioning of business. Industrialization is defined here as the process of increased specialization of the factors of production; as the level of specialization increases, each factor performs a smaller portion of the productive process. Increased industrialization and industrial complexity bring about the interdependence of all participants in the economy. In an economy of subsistence agriculture where each family produces its own food, clothing, and shelter, and has little or no trade or even contact with others, there is little need to communicate. The family itself is the economic unit. On the other hand, in an industrialized and diversified market economy, fast and efficient means of communications are necessary to carry out the exchange of information required among all of the participants. Since no person produces all of the goods he consumes, everyone is dependent upon others for many goods and services. With increasing industrialization and interdependence, an increasing amount of information must be exchanged among the participants of the economy. Telecommunications constitute a vital link in tying the various sectors together into a smoothly functioning economic unit.^{1/}

B. Reason for Condition of Past and Present Telecommunications System in Egypt

6.02 Paras. 2.12 and 2.13 explain, in very general terms, the poor condition of the telecommunications system in Egypt. There are various reasons why Egypt's telecommunications system has not kept pace with the needs of the country. Because of the heavy defense burden the country has carried for many years, as well as other factors, funds have not been available to improve and expand telecommunications facilities. In addition, the sudden increase in Cairo's population after the 1973 war (largely because of refugees from cities on the Suez Canal) caused particular problems for Cairo. As a result, the present system is congested, and service is not available to many who need it and are willing to pay. CTC conducted

^{1/} Linda Lee Bower, "Telecommunications Market Demand and Investment Requirements", Telecommunications Journal, March 1972, p. 178.

interviews with a number of large international firms in Cairo who indicated that business is seriously impaired by the deterioration in telephone service and most consider it a grave problem. To make a local call requires many dialing attempts; international calls may take several days to complete; and when completed, conversation is frequently difficult.

C. Telecommunications Demand Forecasts

6.03 As mentioned repeatedly, one of the principle purposes of the project is to assist ARETO to improve the efficiency and effectiveness of the present telecommunications system and to develop and install a program to improve ARETO's management and operations (see paras. 2.01-2.11). Indeed even if there were no expansion in demand contemplated, the validity and integrity of this project would remain intact. Nevertheless, expansion is a necessary ingredient of Egypt's economic development and the following paragraphs will discuss CTC's demand projections.

1. Methodology for Demand Forecasts

6.04 There are a number of elements in the demand forecasts for telecommunications service. These include domestic and international telephone, telegraph, and telex. For each of these elements a correlation was developed with an economic parameter and an equation developed.^{1/} The correlation parameters used in these equations are listed below.

<u>Dependent Variable</u>	<u>Independent Variable</u>
Telephone Density	GDP per capita
Domestic telegrams per capita	GDP per capita
Domestic telex calls per capita	GDP per capita
International telephone calls	Foreign trade and tourist receipts
International telegrams	Foreign trade and tourist receipts
International telex messages	Foreign trade and tourist receipts

^{1/} The individual equations developed are too long and complicated to be included in this Paper but can be located in CTC's final report, Volume 3.

6.05 Each of the equations developed for the above provides a model for forecasting demand for one of the elements. A model used in telecommunications planning must provide a specific economic framework for the necessary projections, because it is economic activity that generates telecommunications traffic.

a. Domestic Demand

6.06 The basis of the telephone forecast is a correlation between GDP per capita and telephone density. This correlation, according to CTC, has proved to be a simple but effective means of predicting the number of telephones that will be demanded in a country at a given level of economic development. This method is based on macro analysis and provides a good basis for forecasting demand at the national level, but it cannot be used for forecasting at the exchange level. A separate procedure was carried out by CTC which plotted growth factors for individual exchange areas. This was done by taking expressed and unexpressed demand in each case and predicting growth based on an inspection of the existing and forecasted economic activity in the area. The aggregate number of telephones predicted by the two methods closely approximated one another.

b. International Forecast

6.07 These forecasts predict future levels of demand for international telephone, telegraph and telex services in Egypt. As Egypt's internal economic situation changes, so does its relationship with the international economic community.

6.08 The forecast growth in international telephone, telegraph and telex traffic is based on a correlation between foreign trade plus tourist receipts and international outgoing telecommunications. Planning studies have demonstrated that this is a suitable and effective basis for an international demand forecast.

c. Sub-sector Needs

6.09 The sub-sectors typically are large users of communications whose requirements tend to be concentrated near or between specific locations. These factors, coupled with the discretionary authority of sub-sectors to use either ARETO systems or their own networks, make it virtually impossible for ARETO to predict their long-term needs. Demand forecasts of sub-sectors have, therefore, not been included in a subsequent demand forecast exhibit.

d. Comments on Methodology

6.10 U.S.A.I.D. considers the methodology used (see para. 604) as reasonable. It presents a reasonable model and this model is susceptible to sensitivity analysis. That is, ARETC will be able to observe how the relative magnitude of change in one (or more) factors in the analysis (such as GDP) affects the magnitude of change in the final line forecast.

6.12 The present telecommunications network was described in the Background section of this Paper. CTC's twenty year forecast is presented below:

Exhibit VI-1
Egypt
Summary of
Telecommunications
Demand Forecast

	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1989</u>	<u>1994</u>	<u>1999</u>
<u>Domestic</u>								
Telephone Lines (Thousands)	1,080	1,167	1,271	1,400	1,548	2,141	3,099	4,481
Total Outgoing Telegraph Words (Thousands)	174,760	183,702	192,508	201,348	212,585	232,237	250,495	270,385
Total Outgoing Telex Minutes (Thousands)	6,497	7,220	7,965	8,771	9,619	13,862	20,421	31,013
<u>International</u>								
Total Telephone Minutes (Thousands)	27,327	29,372	31,569	33,932	37,358	53,583	78,381	115,671
Total Telegraph Words (Thousands)	264,726	275,616	283,635	298,716	315,183	385,440	477,774	592,185
Total Telex Min- utes (Thousands)	121,152	129,713	138,881	148,698	162,878	229,176	330,731	474,857

VII. FINANCIAL ANALYSIS

A. Historical Financial Performance of ARETO

7.01. ARETO's Balance Sheet and Income Statements for the period 1973-1977 are presented further on in this section. ARETO's accounting statements do not present ARETO's financial performance and situation in accordance with normal international telecommunications accounting practices. The reason for this is that, as a Government Board, ARETO follows the Egyptian Standardized Accounting System (SAS), whose main objective is to provide comparable basic data through standardized accounting statements for macroeconomic planning and control purposes.

1. Balance Sheet

7.02. ARETO's assets at December 31, 1977 were estimated to total L.E. 228.3 million, of which approximately L.E. 61.6 million were classified as current, liabilities totaled approximately L.E. 174.1 million, of which L.E. 136.5 million were long-term, and equity was approximately L.E. 54.2 million. ARETO's current ratio was 1:9:1.0 and its long-term debt to equity ratio was 2.5:1.0, both very conservative. Following are the Summary Balance Sheet figures for the years 1973-1977, more detailed figures are presented in Annex K.

Historical Balance Sheets (in L.E. 000,000)

	<u>Actuals</u>				<u>Estimated</u>
	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>
Cash and Receivables	13.0	15.6	18.5	25.0	26.4
Total Current Assets	27.7	34.3	43.5	57.4	61.6
Total Assets	96.2	106.7	130.3	178.6	228.3
Current Liabilities	13.0	15.6	24.7	29.8	32.2
Total Liabilities	46.6	55.7	79.2	132.5	174.1
Total Equity	49.4	50.9	50.9	46.1	54.2
Current Ratio	2.1	2.2	1.8	1.9	1.9
Long-Term Debt/Equity Ratio	0.6	0.7	1.0	2.1	2.5

2. Income Statement

7.03. The results of ARETO's operations for the years 1973-1977, with significant performance ratios, are shown below. Detailed statements are presented in Annex L.

Historical Income Statements
(in L.E. 000,000)

	<u>Actuals</u>				<u>Estimated</u>
	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>
Operating Revenue	22.4	23.8	26.0	30.0	40.8
Operating Expenses	17.7	19.2	21.4	23.2	27.1
Operating Income	4.7	4.6	4.6	6.8	13.7
Other Income (Net)	.4	.6	.7	1.5	1.5
Other Expense (Int. & Comm.)	1.2	1.5	1.9	2.5	6.5
Net Income	3.9	3.7	3.4	5.7	8.7

As a percentage of sales (Operating Revenue), the above represent the following:

Operating Ratio-%	79	80	82	77	66
Operating Profit-%	21	19	18	23	33
Net Profit-%	17	15	13	19	21

3. Comments on Past Financial Performance

7.04. ARETO's past financial performance has been mixed. The IBRD in its appraisal report (no. 1765-EGT) showed the ARETO's financial rate of return on historically-valued assets averaged 9.9% for 1973-1976 (9.3%-1973; 9.1%-1974&5; 12.4%-1976). ARETO's revenue per main station averaged only US\$137 per annum in the 1973-1976 period, while corresponding revenues for countries at a similar stage of development were as follows: Ghana \$211; Pakistan \$224; Ethiopia \$236; and India \$253.

7.05. The low return stemmed mainly from the imbalance between staffing and pricing practices. Increases in the number of employees outpaced by far increases in productive assets main stations, while tariff levels were kept unchanged. By year-end 1976, ARETO's staff exceeded the employee/telephone ratio attained in 1973 by some 9,426 employees, or by about 2% (see para 410, Exhibit IV-3). The disproportionate staff increase resulted largely from GOE policies (see para 409, Exhibit IV-2). It is estimated that the cost of the excess staff over the 1973-1976 period amounted to 14% of the operating expenses and 8% of the operating revenues. Without this expense IBRD has estimated that ARETO's financial rate of return would have ranged from 10% to 19% on the historically-valued assets, averaging more than 12%.

B. Project Financing Plan

7.06. It is proposed that this \$40.0 million project be financed as a loan on a two-step basis; that is, the GOE be required to relend the A.I.D. loan to ARETO on commercial terms. Proposed terms to the GOE are recommended to be at A.I.D.'s lowest concessionary terms--principal repayment in 40 years with a 10-year grace period, with interest at 2% during the grace period and 3% during the repayment period. Proposed terms to ARETO will probably be on the order of principal repayment over a 15-year period including a 5-year grace period, with interest at 7.5% during the entire life of the loan.

7.07. Total project costs are \$48,500,000, of which \$40,000,000 are foreign exchange costs and \$8,500,000 are local currency costs.* The A.I.D. loan will finance all of the foreign exchange costs of the project and the local currency costs will be financed from ARETO's internal cash generation. In the event that ARETO does not free itself of GOE regulations during the period of this loan, then ARETO's net profits will continue to be transferred to the GOE and the Ministry of Finance will provide the necessary local currency.

C. Project Profitability

7.08. This project is one directed mainly at infrastructure building; in this instance the telecommunications sector. The telecommunications equipment to be financed by the A.I.D. loan will be mostly replacement equipment of the type required to maintain and improve the present telecommunications network in Egypt.

7.09. This project will finance a very negligible expansion of telephone, telegraph or telex facilities. Consequently, this project will not directly generate any notable additional funds for ARETO.

7.10. Indirectly, however, it is expected that at the end of this project ARETO will be operating at a higher level of efficiency and, consequently, there should be some operating cost savings.

* Does not include value of ARETO payroll costs for a substantial number of ARETO staff assigned to work with the U.S. Consultant.

7.11. ARETO sees itself on the threshold of a possible expansion program where by 1989 ARETO will be able to effectively satisfy domestic demand. There is general consensus that the present telecommunications system is seriously deficient and could not efficiently absorb this magnitude of capital investments. It is for this reason that the GOE has requested A.I.D. to assist ARETO in strengthening its management, planning and operating capacity. It is further understood by the GOE that this A.I.D. loan can only establish a foundation for improving ARETO's capabilities and that continuing professional assistance will be required if ARETO is to begin to undertake an expansion program of the size and scope envisioned in the Master Plan.

7.12. In this initial stage, project profitability is not a consideration. It is practically impossible to quantify the incremental benefits and costs to determine the financial internal rate of return.

7.13. Nevertheless, ARETO's profits through 1980 will be satisfactory as recapped below:

	<u>1/</u> <u>1978</u>	<u>1/</u> <u>1979</u>	<u>2/</u> <u>1980</u>
Operating Revenues-LE Millions	58	92	93
Operating Expenses-LE Millions	33	41	50
Operating Income -LE Millions	25	50	43
Operating Ratio -Percentage	57	45	54
Debt/Equity Ratio	3.3	3.0	4.2
Debt Service Coverage-Times	1.1	1.4	1.5

7.14. It is significant to note that the above figures are projected on the assumption that the domestic tariff structure will, in fact, become effective as shown in Annex J. Also, the above figures have not been adjusted for depreciation and interest (see paras 222-224).

1/ CTC's financial projections do not begin until 1980, the year the Master Plan is to begin to be implemented. Figures for 1978 and 1979 are taken from IBRD Report No. 1756-EGT.

2/ From CTC's Telecommunications Sector Study - Volume 7.

7.15 Earning capacity in relation to currently-valued assets is not known because ARETO's assets have not been systematically revalued. ARETO's overall financial performance is also unclear due to the existing GOE/ARETO financial relationship. To insure the integrity of its financial statements and to permit the necessary net local currency generations to service debt and contribute to the proposed investment program (Master Plan), the following actions by ARETO and/or the GOE should be completed fairly promptly: (1) revalue its assets accounts and adjust those assets which were entered at a cost of less than fair market value; (2) ARETO should be reconstitute under its own special charter as an autonomous entity, which will permit it to establish tariff structures; (c) limit staff growth; and (4) that L.E. 20.0 million of the total debt of ARETO to the GOE be capitalized (the amount of this debt is in excess of L.E. 40 million). The Recommendation, Conditions and Covenants section of this paper addresses the above points.

D. ARETO's Debt Service Capability

7.16 A Projected Statement of Funds Flow for the period 1980-1999 is presented in Annex M. As mentioned in an earlier section, these projections should be viewed as estimates only. It is nonetheless worth noting that earnings from operations in the 1980-1984 period could finance approximately 20% of a substantial investment plan; from 1985 onward earnings from operations more than 50% of the investment plan.

7.17 If the GOE commits itself to undertaking an expansion of the telecommunications sector similar to that shown in the Investment Plan in Annex M and if the necessary debt and equity financing can be arranged--both domestically and from foreign sources--then indications are that ARETO could service debt as long as it maintains a 70:30 or better debt/equity ratio. Additionally, A.I.D. will attempt to have LE 20.0 Million of debt--ARETO to GOE--transferred to ARETO's equity account. This stipulation should significantly improve ARETO's ability to maintain a 70:30 ratio.

E. Egypt's Debt Service Capability

7.18 Egypt's external debt amounted to about \$12 billion at the end of 1976 (figures for 1977 are not available). Of this, roughly one-third was to Eastern European countries and primarily for past military equipment imports. The \$8 billion balance includes almost \$2 billion in deposit liabilities of the Egyptian Central Bank to the various Arab OPEC countries. It is estimated that nearly \$1 billion in principal repayments on medium and long-term debt were made in 1976. In 1977, Egypt received a loan of \$1.5 billion from CODE which was used to substantially reduce its current short-term debt problem.

7.19 Debt service requirements in the future depend heavily on the extent to which new short-term debt can be avoided and this prospect appears favorable. The Consortium meeting in Paris in June of this year (which included the principal bilateral and multilateral aid lenders, as well as Egypt) appeared to result in a favorable disposition on the part of the lenders to provide more long-term debt financing in the foreseeable future to Egypt. Over the near term, it is expected that the debt service ratio (including short-term debt) will move to between 25% and 30% of export and service earnings.

7.20 In view of Egypt's heavy debt burden, A.I.D.'s normal concessional loan terms are proposed--40 years including a 10-year grace period on the repayment of principal, with an interest rate of 2% per year during the grace period and 3% per year thereafter. With these concessional terms and in view of the longer-term favorable prospects for the Egyptian economy, we believe that the prospects for repayment of the \$40 million loan is reasonable.

VIII. ECONOMIC ANALYSIS

- 8.01. As economic activity increases, communication needs grow, and as Egypt becomes increasingly developed and urbanized, the least cost means of communication for an increasing proportion of the population becomes some form of telecommunications. With rising urbanization and expanding private and public sector economic development, the supply of telecommunications facilities in Egypt has fallen far short of demand. This has been caused by stagnation in telephone expansion over a decade; the average rate of growth in telephone connections was only about 3.7% per year between 1967 and 1977 as compared with a normal 10 to 14% per year in most developing countries. In Egypt, with rapidly expanding telephone waiting lists, connection waiting periods of up to 14 years, and call failure rates in some areas of over 75%, the production and distribution of goods, and the provision and administration of services are being adversely constrained. This is creating a major bottleneck in the development process and causing scarce resources to be wasted on more costly means of communication, or wasted because adequate communication does not take place.
- 8.02. The current project will contribute both equipment and technical assistance to ARETO in order to improve its operation and efficiency. Expansion or more revenue producing entities are not a purpose of this project. The main purpose is to improve the efficiency of ARETO and thereby improve telephone service.
- 8.03. Improving the existing system is a prerequisite to proceeding with any Master Plan. For example, telephone subscribers are now heavily subsidized by controlled low tariffs, but the service received is also substandard. If ARETO is to apply the increased tariffs that are needed to justify a large expansion in telephone services, it must first improve the existing service so that subscribers will accept the higher rates. At present it is estimated that 24% of calls attempted actually go through. A major purpose of the project is to improve this performance so that subscribers will be willing to pay higher tariffs. The economic benefits of the project could be measured by the increased revenues ARETO is able to obtain through these higher tariffs.
- 8.04. The project will enable more intense usage of local lines, and additional lines for both automatic and manual connections to

(a) help slow the growth of telephone waiting lists, (b) reduce loss of time caused by having to make repeated call attempts, (c) reduce waste of resources consumed by higher cost means of communications, and (d) reduce losses of production and marketing efficiency resulting from lack of communication. A further economic benefit of the project is in improved life expectancy for the equipment now in service.

- 8.05. There are alternative ways to improve and expand the telephone system in order to bring it to the point where it satisfies demand. The Master Plan is only one of these alternatives, and others should be designed and analyzed before a decision is made. The first step before any such plan can be implemented, however, is a rehabilitation of the existing system, for which there is no alternative. The existing system must be brought up to a level of efficiency adequate on which to build a Master Plan. This will require the replacement and repair of certain equipment along with technical assistance. This project is designed to contribute to this necessary task.
- 8.06. The World Bank is considering a project with ARETO to begin expanding telephone service in Egypt. As stated above, improvement of the existing system is a necessary preliminary step so that expanded service can charge remunerative tariffs. Assuming ARETO can charge higher tariffs, the World Bank estimates an economic rate of return for expanded telephone service of 20%. This rate is calculated with labor shadow priced at 75% of going wage rates and local taxes and duties excluded.
- 8.07. However, the estimate of benefits in this calculation was based on revealed willingness to pay current tariff levels and therefore is a significant underestimate of total benefits since it does not include the consumer surplus which callers or subscribers receive. Attempts to measure some portion of the consumer surplus were made by (a) observing the historical willingness of subscribers to pay for telephone service, and (b) taking into account the apartment and office rent differentials which some consumers now pay to have a telephone, and estimating the value of time waste in Cairo

and Alexandria on unsuccessful calls. Including estimates of these additional benefits raises the economic internal rate of return to 23%. This rate of return is still, however, a significant understatement of total benefits since it does not include other elements of the consumer surplus that cannot as easily be estimated, such as the savings in time lost throughout the country on wasted call attempts, nor benefits incurred by receivers of calls and by all other subscribers when additional subscribers pay to join the system, nor by those who benefit indirectly through the better administration of regional development, health, transport, and agriculture programs, and increased urban and regional business, and government efficiency.

- 8.08. The proposed AID \$40 million project to improve the existing telecommunications system is a prerequisite to eventually obtaining the above benefits of system expansion.

IX. ENVIRONMENTAL CONSIDERATIONS

9.01. At the end of 1977, AID/W provided the Mission with the services of an Environmental Officer to perform an initial environmental examination of this proposed telecommunications project.* No environmental action was recommended at the time as the environmental assessment yielded a negative determination.

9.02. Based on the U.S. Consultant's recommendations and plans included in its final feasibility study report, this project will have no adverse effects on the environment. This project will implement a program of quick-fix remedial actions to improve the existing telecommunications network in Cairo; will provide wide-ranging management and technical assistance; and will provide a variety of telecommunications equipment, principally to replace obsolete and deteriorated equipment. Little, if any, equipment financed under this loan is destined for any expansionary activities, such as new exchange facilities or outside plant.

9.03. In fact, this project should improve the working environment for a good number of ARETO employees. This project will encompass the repair of facilities and the institution of good housekeeping and maintenance procedures which will result in ARETO employees working in an atmosphere which is cleaner and has a lower level of noise pollution.

9.04. The U.S. Consultant working with ARETO under this project will be required to evaluate the environmental effects of any major telecommunications equipment procurement and these considerations will be included in the bid evaluation format. As mentioned previously, the effects of this type of equipment procurement on the environment will at worst be minimal. The purpose of the U.S. Consultant in its procurement activities will be more to instruct and raise the level of environmental consciousness on the part of ARETO, especially since a very ambitious expansion program in telecommunications is envisioned in Egypt during the period of implementation of the Master Plan (1980-1999).

* See Annex Q for the Initial Environmental Assessment.

X. SOCIAL ANALYSIS

A. General

10.01 It is impossible to identify with any precision the beneficiaries of this project so as to perform a social analysis. Consequently, we have restricted this section to an analysis of the role of women. Annex R contains a comparison of ARETO and other public sector companies' policies regarding salaries, allowances and incentives as well as a discussion on employee satisfaction.

B. Role of Women

10.02 The CTC is silent on the composition of the ARETO work force in terms of the numbers of men and women employed. However, an AID/Washington Telecommunications Engineer, during one of his TDY assignments in Egypt on this project, has explored this question. The Engineer was advised that women comprise at least 15% of the entire ARETO work force. In economic terms, women enjoy equal pay with men. Additionally, and more important, there appears to be a fair number of women occupying various professional positions. This the Engineer verified physically during his tours of the ARETO offices, outside and inside plant facilities, and the Training Center. His discussions with top ARETO management officials indicated that it is ARETO's policy not to discriminate against women. There is no reason to indicate that this stated policy is not being implemented.

XI. IMPLEMENTATION PLAN

A. Schedule

- 11.01 At this time, it is not possible to provide a detailed implementation schedule. A firmer and realistic project schedule will be available once ARETO and A.I.D. receive technical proposals toward the end of this year based on a scope of services required for this project (see Annex O for proposed project scope of work).
- 11.02 A precise project schedule will be prepared by the U.S. Consultant based on its technical proposal. A notice inviting interested firms to submit their qualifications to undertake this project was published in the Commerce Business Daily (CBD) in mid-June, with a closing date of July 31, 1978. This pre-implementation action should allow for a contract to be signed and the U.S. Consultant to commence work by March, 1979.
- 11.03 With the above qualification, the overall project schedule should be as follows:

Loan Authorization Approved	Aug.	1978
Loan Agreement Signed	Aug.	1978
Conditions Precedent Met <u>1/</u>	Jan.	1978
Project Consultant Employed	Mar.	1979
Preparation of Training Program	Mar.-Sept.	1979
Preparation of Priority Programs and SIP	Mar.-Sept.	1979
Preparation of IFB's	Mar.-Sept.	1979
Project Evaluation	Oct.	1979
Project Evaluation	Oct.	1980
Consultant Final Report	March	1981
Final Date for Opening L/C	Sept.	1981
Turn-Key Projects Completed	March	1982
Equipment Delivered	March	1982
Project Assistance Completion Date	March	1982
Final Evaluation (end of project)	Aug.	1982
Terminal Disbursement Date	Sept.	1982

B. Contracting Procedure/Procurement

- 11.04 ARETO will adhere to Handbook 11 (Country Contracting-Procurement of Professional Services) in selecting and contracting for all consultants. The U.S. Consultant will assist ARETO to prepare IFB's - technical specifications and general terms and conditions - and evaluation formats for selecting the lowest responsive bidder. Some of the IFB's (e.g., for the replacement of the Zamalek exchange) will be bid out on a turnkey basis. The U.S. Consultant will advise ARETO to insure that the procurement of equipment to

1/ Peoples Assembly will reconvene in November, 1978 after the period of Ramadan and this is the reason for the 150 day requirement to meet CP's.

be financed by A.I.D. is conducted in conformity with A.I.D. regulations. The U.S. Consultant will also work with ARETO to monitor turnkey contractors' performance; i.e., that work is progressing on schedule and maintenance of quality of work and equipment is in accordance with plans and specifications. As mentioned in para. 107, it is expected that the U.S. Consultant will review all ARETO's proposed tender documents to determine reasonableness in light of ARETO's needs and in conformance with a rational procurement plan.

- 11.05 All equipment, materials and services financed by the A.I.D. loan will be of U.S. source and origin.

C. A.I.D. Financing Procedures

- 11.06 All procurement financed by this loan will be financed by Letters of Commitment (L/Comm), as well the cost of services performed by U.S. Consultant. At the request of ARETO, A.I.D. will either issue direct L/Comms for procurement and services to the U.S. firms or open L/Comms with a U.S. bank(s) selected by ARETO. The procurement L/Comms will list the items eligible for loan financing, and appropriate Letters of Credit will be issued thereunder to eligible suppliers furnishing equipment and materials.

D. Monitoring and Reporting

- 11.07 Upon signing of the Loan Agreement, U.S.A.I.D. will issue an Implementation Letter which, among other things, will contain the necessary guidance and details on the types of reports (e.g., progress and shipping) and the reporting formats to be followed. Throughout the life of the project, the U.S. Consultant will monitor the project to ensure satisfactory project progress. Any routine problems, together with corresponding suggested solutions, will be brought to the attention of U.S.A.I.D. in the form of monthly reports from the Consultant and ARETO. Serious problems requiring immediate attention will be brought to the personal attention of the U.S.A.I.D. Project Manager and his counterpart in ARETO. Project progress will be determined by measuring actual results against the project schedule developed by the U.S. Consultant (see para. 11.01-11.02) and will be discussed at semi-annual meetings between ARETO, the U.S. Consultant and U.S.A.I.D.

E. Evaluation

- 11.08 One year after the execution of the Loan Agreement, a joint USAID/ARETO evaluation of the project will be conducted to examine whether:

- (a) the delivery of projects inputs is on schedule;
- (b) the assumptions made are still valid; and
- (c) the project outputs can be completed as originally scheduled.

11.09 One year after the first evaluation, a second evaluation will be conducted in the same manner and with the same scope as the initial evaluation. The annual evaluations will, of course, determine if any corrective steps should be undertaken and if redesign is necessary.

11.10 ARETO and U.S.A.I.D. will conduct an "ex post facto" evaluation to determine that the end of project conditions have been established.

F. Eligibility Date

11.11 The eligibility date for financing any U.S. dollar project cost will be the date of signing of the Loan and Sub-Loan Agreement by authorized representatives of the Arab Republic of Egypt, the Government of the United States of America, and the Arab Republic of Egypt Telecommunications Organization (ARETO).

G. Terminal Dates

11.12 (i) Conditions Precedent

The terminal date for meeting Conditions Precedent will be 150 days from the date of Loan Agreement signing; the date by which funds will be needed to finance the services of the U.S. Consultant (see footnote para 11.03).

11.13 (ii) Letters of Commitment and Disbursement

The terminal date for opening Letters of Commitment will be September 30, 1981, the date by which all orders will be placed; and the terminal date for disbursement will be September 30, 1982, six months after all equipment has been received to permit time for testing and allow for final payments. The Project Assistance Completion Date (PACD) is March 1982.

XII RECOMMENDATION, CONDITIONS AND COVENANTS

A. Recommendation

1201. Subject to the conditions and covenants listed below, we recommend that A.I.D. authorize a Loan to the Government of Egypt in the amount of \$40 million for technical assistance for improvement of the present telecommunications system and to strengthen the management, operations, planning, training and financial functions of ARETO; and for the purchase of telecommunications and related equipment. We further recommend that the loan terms to the GOE be that the Loan principal be repaid in 40 years, including a 10-year grace period, with interest at two percent (2%) per annum during the grace period and at three percent (3%) thereafter; and that the Government of Egypt relend the funds to ARETO at terms and conditions satisfactory to A.I.D. Procurement of equipment and services shall be of United States source, origin and nationality.

B. Conditions Precedent to Disbursement

1. Conditions Precedent to First Disbursement of Loan Funds

1202. Prior to the first disbursement under the Loan, or to the issuance by A.I.D. of documentation pursuant to which disbursement will be made, the Borrower will, except as the Parties may otherwise agree in writing, furnish to A.I.D. in form and substance satisfactory to A.I.D.:

* (a) An opinion of the Egyptian Minister of Justice or other Legal Counsel acceptable to A.I.D., that the Loan Agreement and the Reloan Agreement have been duly authorized and/or ratified by, and executed on behalf of the Borrower and ARETO, and that they constitute valid and legally-binding obligations in accordance with all of their terms.

* (b) A statement of the names of the persons holding or acting in the offices of the Borrower and ARETO specified in the Loan Agreement, and of any additional representatives, together with a specimen signature of each person specified in such statement.

* (c) A Reloan Agreement satisfactory to A.I.D. for the Project between the Borrower and ARETO pursuant to the Covenant described in Section 1205(c) below.

* (d) An executed contract acceptable to A.I.D. for the consulting services for the project with a firm acceptable to A.I.D.

2. Conditions Precedent to Disbursement for Equipment

1203. *Prior to any disbursement under the Loan, or to the issuance by A.I.D. of documentation pursuant to which disbursement will be made for equipment, the Borrower will, except as the Parties may otherwise agree in writing, furnish to A.I.D. in form and substance satisfactory to A.I.D. a Procurement Plan, approved by the U.S. Consultant funded under the Loan, for all procurement planned by ARETO through the end of calendar year 1981, showing specific items, quantities, estimated prices and timing of such procurement.

3. Condition Precedent to Disbursement for Training

1204. *Prior to disbursement under the Loan, or to issuance by A.I.D. of documentation pursuant to which disbursement will be made for training, the Borrower will, except as the parties may otherwise agree in writing, furnish to A.I.D. in form and substance satisfactory to A.I.D., a proposed training program showing the category of the trainees, and the nature, length and purpose of the training.

C. Covenants

1205. The Loan Agreement will contain A.I.D. Standard Covenants. In addition, the following covenants will be included:

* (a) The Borrower agrees to provide or cause to be provided for the Project all funds, in addition to the Loan, and all other resources required to carry out the Project effectively and in a timely manner.

* (b) In order to assist ARETO in carrying out the Project, the Borrower shall relend to ARETO the proceeds of the Loan under a Reloan Agreement ("Reloan Agreement") to be entered into between the Borrower and ARETO under terms and conditions satisfactory to A.I.D.

* CP's and covenants to be included in the authorization are marked with an asterisk.

(c) Except as A.I.D. may otherwise agree in writing, within one year from the date of the Loan Agreement, Borrower and ARETO agree that ARETO shall prepare a tariff rate structure for the 1980-1985 period, taking into account the observations of A.I.D. and the IBRD on the subject. The proposed rate structure should show that the projected local currency and foreign exchange generations are sufficient to cover the costs of future operations, service local and foreign debt and provide an acceptable contribution to capital investment.

(d) Except as AID may otherwise agree in writing, within one year from the date of the Loan Agreement, the Borrower and ARETO shall take the necessary legal action to reorganize ARETO under its own special charter as an autonomous entity, with the following authorities and rights:

(1) To establish subsidiary companies able to participate in joint ventures under the provisions of Investment Law No. 43.

(2) To establish a reasonable rate/tariff structure.

(3) To establish a reasonable wage rate structure.

(4) To be free from Egyptian Government employment quotas.

(5) To discharge unproductive workers.

(6) To eliminate the ARETO legal obligation to turn over all its profits to the Ministry of Finance and to depend upon the Government budgetary process to gain necessary operating and investment funds.

(7) To appoint top managers without prior Governmental approval.

(8) To establish accounting, financial reporting and inventory disposal systems designed to serve the telecommunications industry, free of Governmental requirements.

(e) Except as A.I.D. may otherwise agree in writing, within one year from the date of this Agreement, Borrower and ARETO shall take all necessary actions such that ARETO will revalue the following asset accounts using replacement value less depreciation: (1) the assets acquired from the Borrower either as a donation or for nominal amounts, and (2) the assets acquired and recorded at the official exchange rate.

(f) Except as A.I.D. may otherwise agree in writing, within one year from the date of this Agreement, ARETO shall freeze the number of its staff at its then present level, and adopt a policy that the number of new hires cannot exceed the annual turnover rate.

(g) Except as A.I.D. may otherwise agree in writing, within one year from the Date of this Agreement, Borrower and ARETO agree that ARETO will transfer LE 20 million of the monies owed by ARETO to the Borrower from a liability account to an equity account.

(h) Except as A.I.D. may otherwise agree in writing, within one year from the date of this Agreement, Borrower and ARETO agree that ARETO will maintain a debt to equity ratio of 70:30.

(i) Actions of Borrower. The Borrower shall not take or permit any of its political sub-divisions, or any of its agencies or instrumentalities, or any agency or instrumentality of any of its political sub-divisions, to take any action which would prevent or materially interfere with the performance by ARETO of any of its obligations under this Agreement or the Reloan Agreement, and shall take or cause to be taken all reasonable actions which shall be required on its part in order to enable ARETO to perform such obligations.

(j) ARETO will take all reasonable steps to implement the Service Improvement Plan (SIP) as detailed in the Telecommunications Sector Study Report.

INVESTMENT AND FREE ZONES AUTHORITY



OFFICE OF THE DEPUTY CHAIRMAN

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Mr. Donald S. Brown, Director, Agency for International Development, American Embassy, Cairo.

July 22nd. 1978

Dear Mr. Brown,

One of the major problems Egypt faces in its economic development efforts is the lack of a modern, dependable and efficient telecommunications network to service the commercial and industrial sectors of the country. Egypt's Five Year Plan FYP-1978-1982 will result in a substantial expansion in the commercial and industrial activities and a reliable telecommunications system is imperative if this projected economic expansion is to become a future reality. Also the growth in the demand for telephones by the Egyptian citizens is very substantial during the coming period. However, additional assistance to ARETO is necessary. Assistance is especially required in a whole range of management activities, from planning to training, as well as for replacing old and obsolete telecommunications equipment.

With the limited resources at its disposal, the Arab Republic of Egypt Telecommunications Organization (ARETO) has undertaken a number of projects aimed at rehabilitating the present telecommunications system and expanding the number of lines to satisfy a very small portion of telephone subscriber requests.

We, therefore, request financial assistance from the Government of the United States, on a loan basis, to cover the estimated \$ 40.0 million foreign exchange require-

CAPITAL DEVELOPMENT	
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**INVESTMENT
AND
FREE ZONES
AUTHORITY**



OFFICE OF THE DEPUTY CHAIRMAN

ments of this project. ARETO will provide all the local currency necessary for the project from its operating revenues.

Sincerely Yours,

Gamal El-Nazer
Deputy Chairman
For Investment Authority
In Charge of American Aids to Egypt

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5C(2) - PROJECT CHECKLIST

Listed below are, first, statutory criteria applicable generally to projects with FAA funds, and then project criteria applicable to individual fund sources: Development Assistance (with a sub-category for criteria applicable only to loans); and Security Supporting Assistance funds.

CROSS REFERENCES: IS COUNTRY CHECKLIST UP TO DATE? IDENTIFY. HAS STANDARD ITEM CHECKLIST BEEN REVIEWED FOR THIS PROJECT?

A. GENERAL CRITERIA FOR PROJECT.

1. App. Unnumbered; FAA Sec. 653(b)
 - (a) Describe how Committees on Appropriations of Senate and House have been or will be notified concerning the project;
 - (b) is assistance within (Operational Year Budget) country or international organization allocation reported to Congress (or not more than \$1 million over that figure plus 10%)?

(a) The project was included in the FY 1978 Congressional Presentation.

(b) The amount is included within the level of funds appropriated for Egypt for FY 1978.
2. FAA Sec. 611(a)(1). Prior to obligation in excess of \$100,000, will there be (a) engineering, financial, and other plans necessary to carry out the assistance and (b) a reasonably firm estimate of the cost to the U.S. of the assistance?

Yes
3. FAA Sec. 611(a)(2). If further legislative action is required within recipient country, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purpose of the assistance?

No further legislative action is required other than ratifying the loan agreement.
4. FAA Sec. 611(b); App. Sec. 101. If for water or water-related land resource construction, has project met the standards and criteria as per Memorandum of the President dated Sept. 5, 1973 (replaces Memorandum of May 15, 1962; see Fed. Register, Vol 38, No. 174, Part III, Sept. 10, 1973)?

N.A.
5. FAA Sec. 611(e). If project is capital assistance (e.g., construction), and all U.S. assistance for it will exceed \$1 million, has Mission Director certified the country's capability effectively to maintain and utilize the project?

Yes. See Annex N.

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A.

6. FAA Sec. 209, 619. Is project susceptible of execution as part of regional or multi-lateral project? If so why is project not so executed? Information and conclusion whether assistance will encourage regional development programs. If assistance is for newly independent country, is it furnished through multi-lateral organizations or plans to the maximum extent appropriate?

This project is not susceptible of execution as part of a regional or multilateral project. However, future aid assistance to the telecommunications sector may be so susceptible, especially when the institutional base can support an expansionary program. Egypt is not a newly independent country.

7. FAA Sec. 601(a); (and Sec. 201(f) for Development loans). Information and conclusions whether project will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce; and (f) strengthen free labor unions.

(d) This project will improve the technical efficiency of industry, agriculture and commerce. It will do so by improving the management and operations of ARETO, the Egyptian Telecommunications operating company; and a more efficient ARETO will lead to a more efficient and dependable telecommunications network, which is the backbone of economic development.

8. FAA Sec. 601(b). Information and conclusion on how project will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).

All commodities and services financed under the loan will be procured from U.S. suppliers.

9. FAA Sec. 612(b); Sec. 636(h). Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the U.S. are utilized to meet the cost of contractual and other services.

The loan agreement will so provide. All local currency required will be provided by ARETO and/or the GOE.

10. FAA Sec. 612(d). Does the U.S. own excess foreign currency and, if so, what arrangements have been made for its release?

Yes. Release by the GOE is not a problem at present.

B. FUNDING CRITERIA FOR PROJECT1. Development Assistance Project Criteria

a. FAA Sec. 102(c); Sec. 111; Sec. 281a. Extent to which activity will (a) effectively involve the poor in development, by extending access to economy at local level, increasing labor-intensive production, spreading investment out from cities to small towns and rural areas; and (b) help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward better life, and otherwise encourage democratic private and local governmental institutions?

N.A.

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- b. FAA Sec. 103, 103A, 104, 105, 106, 107. Is assistance being made available?
 [Include only applicable paragraph -- e.g., a, b, etc. -- which corresponds to source of funds used. If more than one fund source is used for project, include relevant paragraph for each fund source.]
- (1) [103] for agriculture, rural development or nutrition; if so, extent to which activity is specifically designed to increase productivity and income of rural poor; [103A] if for agricultural research, is full account taken of needs of small farmers; N.A.
- (2) [104] for population planning or health; if so, extent to which activity extends low-cost, integrated delivery systems to provide health and family planning services, especially to rural areas and poor; N.A.
- (3) [105] for education, public administration, or human resources development; if so, extent to which activity strengthens nonformal education, makes formal education more relevant, especially for rural families and urban poor, or strengthens management capability of institutions enabling the poor to participate in development; N.A.
- (4) [106] for technical assistance, energy, research, reconstruction, and selected development problems; if so, extent activity is: N.A.
- (a) technical cooperation and development, especially with U.S. private and voluntary, or regional and international development, organizations; N.A.
- (b) to help alleviate energy problem; N.A.
- (c) research into, and evaluation of, economic development processes and techniques; N.A.
- (d) reconstruction after natural or manmade disaster; N.A.
- (e) for special development problem, and to enable proper utilization of earlier U.S. infrastructure, etc., assistance; N.A.
- (f) for programs of urban development, especially small labor-intensive enterprises, marketing systems, and financial or other institutions to help urban poor participate in economic and social development. N.A.

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- (5) [107] by grants for coordinated private effort to develop and disseminate intermediate technologies appropriate for developing countries. N.A.
- c. FAA Sec. 110(a); Sec. 208(e). Is the recipient country willing to contribute funds to the project, and in what manner has or will it provide assurances that it will provide at least 25% of the costs of the program, project, or activity with respect to which the assistance is to be furnished (or has the latter cost-sharing requirement been waived for a "relatively least-developed" country)? N.A.
- d. FAA Sec. 110(b). Will grant capital assistance be disbursed for project over more than 3 years? If so, has justification satisfactory to Congress been made, and efforts for other financing? N.A.
- e. FAA Sec. 207; Sec. 113. Extent to which assistance reflects appropriate emphasis on; (1) encouraging development of democratic, economic, political, and social institutions; (2) self-help in meeting the country's food needs; (3) improving availability of trained worker-power in the country; (4) programs designed to meet the country's health needs; (5) other important areas of economic, political, and social development, including industry; free labor unions, cooperatives, and Voluntary Agencies; transportation and communication; planning and public administration; urban development, and modernization of existing laws; or (6) integrating women into the recipient country's national economy. N.A.
- f. FAA Sec. 281(b). Describe extent to which program recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage institutional development; and supports civic education and training in skills required for effective participation in governmental and political processes essential to self-government. N.A.

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g. FAA Sec. 201(b)(2)-(4) and -(8); Sec. 201(e); Sec. 211(a)(1)-(3) and -(8). Does the activity give reasonable promise of contributing to the development of economic resources, or to the increase of productive capacities and self-sustaining economic growth; or of educational or other institutions directed toward social progress? Is it related to and consistent with other development activities, and will it contribute to realizable long-range objectives? And does project paper provide information and conclusion on an activity's economic and technical soundness?

N.A.

h. FAA Sec. 201(b)(6); Sec. 211(a)(5), (6). Information and conclusion on possible effects of the assistance on U.S. economy, with special reference to areas of substantial labor surplus, and extent to which U.S. commodities and assistance are furnished in a manner consistent with improving or safeguarding the U.S. balance-of-payments position.

N.A.

2. Development Assistance Project Criteria (Loans only)

a. FAA Sec. 201(b)(1). Information and conclusion on availability of financing from other free-world sources, including private sources within U.S.

No other donor has indicated an interest in participating in this project.

b. FAA Sec. 201(b)(2); 201(d). Information and conclusion on (1) capacity of the country to repay the loan, including reasonableness of repayment prospects, and (2) reasonableness and legality (under laws of country and U.S.) of lending and relending terms of the loan.

Yes. (1) See paras on Egypt's Debt Service capacity in this Paper. (2) Lending and relending terms are appropriate. Relending terms are similar to those of recent IBRD loan.

c. FAA Sec. 201(e). If loan is not made pursuant to a multilateral plan, and the amount of the loan exceeds \$100,000, has country submitted to AID an application for such funds together with assurances to indicate that funds will be used in an economically and technically sound manner?

N.A.

d. FAA Sec. 201(f). Does project paper describe how project will promote the country's economic development taking into account the country's human and material resources requirements and relationship between ultimate objectives of the project and overall economic development?

Yes.

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e. FAA Sec. 202(a). Total amount of money under loan which is going directly to private enterprise, is going to intermediate credit institutions or other borrowers for use by private enterprise, is being used to finance imports from private sources, or is otherwise being used to finance procurements from private sources?

N.A.

f. FAA Sec. 620(d). If assistance is for any productive enterprise which will compete in the U.S. with U.S. enterprise, is there an agreement by the recipient country to prevent export to the U.S. of more than 20% of the enterprise's annual production during the life of the loan?

N.A.

3. Project Criteria Solely for Security Supporting Assistance

FAA Sec. 531. How will this assistance support promote economic or political stability?

By helping to strengthen Egypt's telecommunications institution. Dependable and effective telecommunications are a necessary ingredient of economic development; and economic development, in turn, will enhance the possibility of continued political stability in Egypt.

4. Additional Criteria for Alliance for Progress

[Note: Alliance for Progress projects should add the following two items to a project checklist.]

N.A.

a. FAA Sec. 251(b)(1), -(8). Does assistance take into account principles of the Act of Bogota and the Charter of Punta del Este; and to what extent will the activity contribute to the economic or political integration of Latin America?

b. FAA Sec. 251(b)(8); 251(h). For loans, has there been taken into account the effort made by recipient nation to repatriate capital invested in other countries by their own citizens? Is loan consistent with the findings and recommendations of the Inter-American Committee for the Alliance for Progress (now "CEPCIES," the Permanent Executive Committee of the OAS) in its annual review of national development activities?

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5C(3) - STANDARD ITEM CHECKLIST

Listed below are statutory items which normally will be covered routinely in those provisions of an assistance agreement dealing with its implementation, or covered in the agreement by exclusion (as where certain uses of funds are permitted, but other uses not).

These items are arranged under the general headings of (A) Procurement, (B) Construction, and (C) Other Restrictions.

A. Procurement

1. FAA Sec. 602. Are there arrangements to permit U.S. small business to participate equitably in the furnishing of goods and services financed? Yes.
2. FAA Sec. 604(a). Will all commodity procurement financed be from the U.S. except as otherwise determined by the President or under delegation from him? Yes.
3. FAA Sec. 604(d). If the cooperating country discriminates against U.S. marine insurance companies, will agreement require that marine insurance be placed in the U.S. on commodities financed? Yes.
4. FAA Sec. 604(e). If offshore procurement of agricultural commodity or product is to be financed, is there provision against such procurement when the domestic price of such commodity is less than parity? N.A.
5. FAA Sec. 608(a). Will U.S. Government excess personal property be utilized wherever practicable in lieu of the procurement of new items? N.A.
6. MMA Sec. 901(b). (a) Compliance with requirement that at least 50 per centum of the gross tonnage of commodities (computed separately for dry bulk carriers, dry cargo liners, and tankers) financed shall be transported on privately owned U.S.-flag commercial vessels to the extent that such vessels are available at fair and reasonable rates. Yes.
7. FAA Sec. 621. If technical assistance is financed, will such assistance be furnished to the fullest extent practicable as goods and professional and other services from private enterprise on a contract basis? If the facilities of other Federal agencies will be utilized, Yes. It is anticipated that only the U.S. private sector will provide services under this loan.

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are they particularly suitable, not competitive with private enterprise, and made available without undue interference with domestic programs?

8. International Air Transport. Fair Competitive Practices Act, 1974

If air transportation of persons or property is financed on grant basis, will provision be made that U.S.-flag carriers will be utilized to the extent such service is available?

Yes.

B. Construction

1. FAA Sec. 601(d). If a capital (e.g., construction) project, are engineering and professional services of U.S. firms and their affiliates to be used to the maximum extent consistent with the national interest?

Yes.

2. FAA Sec. 611(c). If contracts for construction are to be financed, will they be let on a competitive basis to maximum extent practicable?

Yes.

3. FAA Sec. 620(k). If for construction of productive enterprise, will aggregate value of assistance to be furnished by the U.S. not exceed \$100 million?

Yes.

C. Other Restrictions

1. FAA Sec. 201(d). If development loan, is interest rate at least 2% per annum during grace period and at least 3% per annum thereafter?

Yes.

2. FAA Sec. 301(d). If fund is established solely by U.S. contributions and administered by an international organization, does Comptroller General have audit rights?

N.A.

3. FAA Sec. 620(h). Do arrangements preclude promoting or assisting the foreign aid projects or activities of Communist-Bloc countries, contrary to the best interests of the U.S.?

Yes.

4. FAA Sec. 636(i). Is financing not permitted to be used, without waiver, for purchase, long-term lease, or exchange of motor vehicle manufactured outside the U.S. or guaranty of such transaction?

Yes.

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5. Will arrangements preclude use of financing:
- a. FAA Sec. 114. to pay for performance of abortions or to motivate or coerce persons to practice abortions? N.A.
 - b. FAA Sec. 620(g). to compensate owners for expropriated nationalized property? N.A.
 - c. FAA Sec. 660. to finance police training or other law enforcement assistance, except for narcotics programs? N.A.
 - d. FAA Sec. 662. for CIA activities? N.A.
 - e. App. Sec. 103. to pay pensions, etc., for military personnel? N.A.
 - f. App. Sec. 106. to pay U.N. assessments? N.A.
 - g. App. Sec. 107. to carry out provisions of FAA Sections 209(d) and 251(h)? (transfer to multilateral organization for lending). N.A.
 - h. App. Sec. 501. to be used for publicity or propaganda purposes within U.S. not authorized by Congress? N.A.

PROJECT AUTHORIZATION AND REQUEST FOR ALLOTMENT OF FUNDS

PART II

Name of Country/Entity:
Arab Republic of Egypt

Name of Project: Telecommunications
Number of Project: 263-0054

Pursuant to Part 2, Chapter 2, Section 532 of the Foreign Assistance Act of 1961, as amended, I hereby authorize a Loan to the Arab Republic of Egypt, ("Cooperating Country") of not to exceed Forty Million United States Dollars (\$40,000,000) ("Authorized Amount") to help in financing certain foreign exchange costs of goods and services required for the project as described in the following paragraph.

The project consists of assistance to the Government of the Arab Republic of Egypt to provide foreign exchange costs of materials, equipment and services in order to improve its telecommunications system and to strengthen the management, operations, planning, training and functions of the Arab Republic of Egypt Telecommunications Organization ("ARETO") (hereinafter referred to as the "Project"). The Authorized Amount will be made available by reloan to ARETO. The entire amount of the A.I.D. financing herein authorized for the project will be obligated when the Project Agreement is executed. I hereby authorize the initiation of negotiation and execution of the Project Agreement by the officer to whom such authority has been delegated in accordance with A.I.D. regulations and Delegations of Authority subject to the following essential terms and covenants and major conditions; together with such other terms and conditions as A.I.D. may deem appropriate:

a. Interest Rate and Terms of Repayment.

The Cooperating Country shall repay the Loan to A.I.D. in United States Dollars within forty (40) years from the date of first disbursement of the Loan, including a grace period of not to exceed ten (10) years. The Cooperating Country shall pay to A.I.D. in United States Dollars interest from the date of first disbursement of the Loan at the rate of (a) two percent (2%) per annum during the first ten (10) years, and (b) three percent (3%) per annum thereafter, on the outstanding disbursed balance of the Loan and on any due and unpaid interest accrued thereon.

b. Source and Origin of Goods and Services.

Except as A.I.D. may otherwise agree in writing, goods and services financed by A.I.D. under the project shall have their source, origin and nationality in the United States.

c. Conditions Precedent to First Disbursement of Loan Funds

Prior to the first disbursement under the Loan, or to the issuance by A.I.D. of documentation pursuant to which disbursement will be made, the Borrower will, except as the Parties may otherwise agree in writing, furnish to A.I.D. in form and substance satisfactory to A.I.D.:

(a) An opinion of the Egyptian Minister of Justice or other Legal Counsel acceptable to A.I.D., that the Loan Agreement and the Reloan Agreement have been duly authorized and/or ratified by, and executed on behalf of the Borrower and ARETO and that they constitute valid and legally-binding obligations in accordance with all of their terms.

(b) A statement of the names of the persons holding or acting in the offices of the Borrower and ARETO specified in the Loan Agreement, and of any additional representatives, together with a specimen signature of each person specified in such statement.

(c) A Reloan Agreement satisfactory to A.I.D. for the Project between the Borrower and ARETO pursuant to the Covenant described in Section e(c) below.

(d) An executed contract acceptable to A.I.D. for the consulting services for the project with a firm acceptable to A.I.D.

d. Condition Precedent to Disbursement for Equipment

Prior to any disbursement under the Loan, or to the issuance by A.I.D. of documentation pursuant to which disbursement will be made, for equipment, the Borrower will, except as the Parties may otherwise agree in writing, furnish to A.I.D. in form and substance satisfactory to A.I.D. a Procurement Plan, approved by the U.S. consultant funded under the Loan, for all procurement planned by ARETO through the end of calendar year 1981, showing specific items, quantities, estimated prices and timing of such procurement.

e. Covenants

The Loan Agreement will contain A.I.D. Standard Covenants. In addition, the following covenants will be included:

(a) The Borrower agrees to provide or cause to be provided for the Project all funds in addition to the Loan, and all other resources required to carry out the Project effectively and in a timely manner.

(b) In order to assist ARETO in carrying out the Project, the Borrower shall relend to ARETO the proceeds of the Loan under a reloan agreement ("Reloan Agreement") to be entered into between the Borrower and ARETO under terms and conditions satisfactory to A.I.D.

Signature _____

Name of Authorizing Officer

Office Symbol

SUMMARY OF CURRENT ARETO CONTRACTS AND PROJECTS

Ref No	ARETO Project Title	Supplier	Contract Date	Start Date	Svc. Date	Project Description
1	Canal Zone Coaxial Network	S.T.C. (England)	12/5/77	10/77	1/80	Project provides a coaxial cable network (4 tube, 4 MHz) having a capacity of 960 channels each between Cairo-Suez-Ismailia. Is part of new automatic trunk network.
2	Alex-Salloum Coaxial	S.T.C. (England)	22/5/77	12/77	12/79	A coaxial cable network (4 tube, 4 MHz) having a capacity of 960 channels each between Alexandria-Salloum. It will serve the west border of ARE and will be redundant routing for microwave projects to Arab West African countries.
3	75 PABX's (rural exchanges)	CIT (France)	23/4/77	23/5/77	20% each month. 100% by 23/5/78	Supply and assistance during ARETO installation of 75 PABX type switches to replace manual exchanges in the provinces. Capacities to be 20 ea. 120 lines; 30 ea. 240 line; 10 ea. 300 line; 5 ea. 600 line. Locations are not completely planned at this time. Specification model to be CIT Module 60C and CIT 100/800. Total 20,100 lines, 75 exchanges.
4	Arab Teleprinters 310	Siemens (Germany)	6/77	12/77	1/78	Supply 310 each, Arabic character teleprinters for new customers in Cairo, Alexandria, Port Said, Ismailia & Suez.
5 & 6	Arabic & Latin Teleprinters 310 Arab, 610 Lat.	Sagem (France)	6/77			Supply 310 each, Arabic character and 610 each Latin character teleprinters for new customers in Cairo, Alexandria, Port Said, Ismailia and Suez.
7	Latin Teleprinters 610	OKI (Japan)	6/77			Supply 610 each, Latin character teleprinters for new customers in Cairo, Alexandria, Port Said, Ismailia and Suez.
8	6-Mobile Exchanges	NEC (Japan)	18/8/77	4/78	4/79	Provides 6 containerized mobile exchanges of 2000 lines each for temporary relief at Maadi, Koubba, and Imbaba in Cairo; Mansoura and Tanta in the provinces; and Maz in Alexandria. Equipment to be NEC-ND205 stored program common control. Junctions will be to transit exchanges. Earthing, foundations and outside plant will be by ARETO. Total: 12,000 lines, 6 exchanges.
9	Qena to Aswan Coaxial	Ericsson (Sweden)	2/6/77	11/77	12/78	Complete the installation of Qena-Aswan section of Cairo-Aswan coaxial cable network previously acquired. Network is 4 tube, 4 MHz having a capacity of 960 channels each.

SUMMARY OF CURRENT ARETO CONTRACTS AND PROJECTS

Ref No	ARETO Project Title	Supplier	Contract Date	Start Date	Svc. Date	Project Description
10	Coaxial cables between ABC stations	Siemens (Germany)	20/11/76			A coaxial cable network (2 tube, 4 MHz) between Qussair-Marsa Alam-Idfu-Ramish. Will ultimately extend to Saudi Arabia via submarine cable across Red Sea.
11	Cairo Junction Microwave	Raytheon (USA)	18/8/77	6/78	10/80	Provides M/W junctions between existing and proposed exchanges in Cairo (see path drawing & channel information in Exhibit 11-9 through 11-15). Systems are 11 GHz, 4 phase PSK radio modulation with ITT T324 PCM channel tanks (24 channels each). Each system capacity is 1344 channels (28 T1 lines per multiplexer x 2 per system x 24 channels each T1 line).
12	Canal Zone Exchanges	C-ETOH (Japan)	10/8/77	10/77	10/80	New trunk & local exchanges for: Port Said, 10,000 lines; Ismaili, 4000 L; Suez, 4000 L. New local exchanges for: Port Tewfik, 1000 lines; Matara, 600 L; Payed, 400 L; 9 Hardaka, 600 L; El-Tel-Ez-Kebir, 400 L. Exchanges to be Hitachi C-5 (4W) and C-23, C-400 (2W) machines. Trunk exchanges to be connected to new automatic trunk network. Total: 21,000 lines, 8 exchanges.
13	Maintenance of rotary exchanges	Bell Telephone Antwerp (Belgium)	18/8/77	1/11/77	1/11/78	Provides for clearing, adjusting and replacement parts for all Cairo rotary exchanges (92,000 lines). ARETO employees will be trained and utilized.
14	Ramsis-Dokki Ramsis-Shoubra Microwave	Collins (USA)	18/8/77	11/1/77	1/11/78	Provides supply, installation and operation of 2 microwave systems for 240 channels each in Ramsis-Dokki and Ramsis-Shoubra junction routes. Equipment to be FMN, 6Mz.
15	Ramsis Outside Plant	Telefunken (Germany)	25/3/77	6/77	12/78	Provides replacement of cable and conduit for lines and junctions in Auto 1, Auto 2, and Gezira exchanges (collectively called Ramsis). Plans, specifications and quantities not available. Primarily replacement of defective plant with 33% increase in capacity.
16	Installation of Ramsis Exchange I, II	Ericsson (Sweden)	18/8/77	1/11/77	1/1/79	For supply & installation of 20,000 initial M-bar lines to partially replace Auto 1, Auto II and Gezira for phase II (another 20,000 lines) see Project 22 below. Contract provides for training for ARETO personnel during installation.

SUMMARY OF CURRENT ARETO CONTRACTS AND PROJECTS

Ref No	ARETO Project Title	Supplier	Contract Date	Start Date	Svc. Date	Project Description
17	PCM Mobile Microwave	Siemens (Germany)	20/8/77	-	20/6/78	Supply 2-30 PCM channel mobile microwave systems, plus one repeater.
18	PCM Fixed Microwave	NEC (Japan)	20/8/77	-	20/6/78	Supply 6-30 PCM channel fixed microwave systems. To be used for undesignated junction relief.
19	500 Subscriber carrier systems	Siemens (Germany)	21/8/77		200 immed. 300 with- in 12 mos.	Supply 500 systems of ZIT (1+1) subscriber carrier. To be used for relief of congested Cairo cables.
20	Rural Exchanges	North E. & CIT	24/8/77	11/78	11/80	PE&I PCM digital exchanges in the following sizes & locations. Toll centers: Shobha El Kom, 5000 lines; Toukh 1000 L; Tala, 1000 L; El Badrasheina, 1000 L. Local exchanges: Minuf, 2000 lines; Mit Elminya, 200 L; Bahi, 200 L; Digwa, 100 L; El Anar, 100 L; Toukh Bahaka, 100 L; Kafr Bahi, 600 L; El Aiyat, 1000 L; Bahi Bahar, 100 L; Atfih, 200 L; El Saifi, 600 L; El Ikhsas, 200 L; Matruh, 600 L; El Hawandiya, 400 L; El Shobak, 600 L. Total: 15,100 Lines, 19 Exchanges.
21	Supply 43000 Local lines - X-Bar	Local Manufacturer	Contract 28/10/77		1979	Provides for delivery of equipment for extension of the following existing exchanges; Shoubra 4000 lines; Opera 5000L; Pyramid, 3000 Barrage, 1200 L; Qalub, 1200 L; Bahja, 2000 L; Mit Ghaar, 1000 L; Kafr El Sheikh, 1800 L; Dar elhour, 1000 L; Kafr El Dawar, 1200 L; Desouk, 1800 L; Marsa Matruh, 1000 L; Beni Suef, 1500 L; Fayoum, 1000 L; Assuit, 4000 L; Sohag, 1500 L; Quena, 1200 L; Luxor, 1400 L; Asswan, 1200 L; Minia, 2000 lines.
22	Ramsis III, IV, Extension of Cairo Intl. & 17 new trunk exchanges	Ericsson (Sweden)	Contract 27/10/77		15 mos.	Provides delivery of the following ARE & ARM X-Bar equipment: 20,000 lines of APE for Ramsis III & IV (See also Project 16 at p. 10). Extension of Cairo International ARE 13 according to Ericsson proposal 189738. New ARM 20 trunk switches at Bahari, Beni Suef, Luxor, Souhag, Minia, Quena, Asswan and Fayoum in Upper Egypt; Kafr El Bahar, Kafr El Zayat, Kafr El Sheikh, Bahari, Mit Ghaar, Fagous, Bahariya, Tanta, Damshout and Metalla in Lower Egypt. This completes the replacement of AUTO I, II, and Gezira and adds 10,000 lines to central Cairo.
23	Telecommunications Loan Project	Unknown IBRD-financed				a. Approx. 220,400 lines of automatic telephone exch. equipment b. Approx. 6,000 lines of manual telephone systems c. Approx. 35,000 lines of PABX's d. Approx. 5,000 lines of additional automatic trunk exch. capac. e. A 3,000 line telex exchange in Cairo and 2,000 teleprinters

CAIRO EXCHANGE EQUIPMENT

<u>Exchange</u>	<u>Capacity</u>		<u>Date of Operation.</u>	<u>Type of Exchange</u>	<u>Working Lines</u>
	<u>Total</u>	<u>In Service</u>			
Auto I, II	20,000	(16,600 (3,400	Oct. 1931 May 1940	Rotary) ")	15,124
** Current project #16 changes out to X-Bar (Ramsis I & II)					
Heliopolis I Extension " "	7,000	(3,000 (1,000 (2,000 (1,000	Jan. 1934 Jan. 1941 Feb. 1949 May 1953	Rotary) ") ") ")	6,986
Heliopolis II	10,000	10,000	April 1957	Rotary	9,982
Giza Extension	5,000	(1,000 (1,000 (2,000 (1,000 (Jan. 1936 July 1938 April 1949 Jan. 1958 & Changed	Rotary) ") ") 6 digit))	4,710
Gezira	10,000	(4,000 (1,600 (2,400 (2,000	Dec. 1948 May 1951 Aug. 1961 Oct. 1961	Rotary) ") ") ")	7,781
** Current project #22 changes out to 20,000 X-Bar lines in 1979					
Bab-El-Louk I, II Extension	14,000	(10,000 (2,000 (1,000 (1,000	July 1952 Oct. 1955 Aug. 1956 Oct. 1956	Rotary) ") ") ")	13,553
* Maadi Extension	4,000	(1,400 (600 200 (1,800	July 1952 May 1955 16/4/65 15/1/66	Rotary) ") ") ")	3,014
** Satellite	2,000	2,000	-- 79	ND-20S	
Helwan	2,000	(1,000 (1,000	July 1952 May 1955	Rotary) ")	1,831

* A 120 line FABX installed.

In the Maadi C.O. also serves exchange customers.

** Current projects and plans.

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CAIRO EXCHANGE EQUIPMENT

Exchange	Capacity		Date of Operation	Type of Exchange	Working Lines
	Total	In Service			
Helwan I	10,000	10,000	Feb. 55	Rotary)	
Helwan II	10,000	(6,000	Dec. 58	Rotary)	
Extension		(1,400	4 Jan 62	")	19,763
"		(2,600	1/4/62	")	
Heliopolis III	10,000	(3,600	7/7/63	Rotary)	
Extension		(1/8/63	")	
		(5,800	18/7/63	")	9,978
		(600	11/6/65	")	
Abbassia I	10,000	(3,000	15/2/62	X Bar)	
Extension		(1,000	16/8/62	")	
		(2,000	23/9/62	")	9,344
		(4,000	6/1/63	")	
Abbassia II	10,000	(1,000	12/3/64	X Bar)	
Extension		(1,000	15/5/64	")	
"		(1,000	1/6/64	")	9,459
"		(7,000	10/6/64	")	
Opera I	10,000	10,000	31/5/63	X Bar	9,753
Opera II	10,000	10,000	1.4.64	"	9,799
Opera III	5,000	5,000	24/4/65	"	4,881
			1/9/69		
** Addition		5,000	1979-80	X Bar	-
Opera IV	10,000	10,000	14/12/68	X Bar	9,899
Roda I	10,000	10,000	30/5/65	X Bar	9,746
Shoubra I, II	12,000	(10,000	7/11/65	X Bar)	11,930
		(2,000	2/74	")	
** Addition		4,000	1979-80	X Bar	-
Galub	800	800	9/12/65	X Bar	682
** Addition		1,200	1979-80	"	-
Barrage	800	800	30/12/65	X Bar	662
** Addition		1,200	1979-80	"	-
Pyramid	6,000	6,000	7/12/67	X Bar	5,898
** Addition		3,000	1979-80	"	-
Roda III	10,000	10,000	11/3/69	X Bar	9,525

CAIRO EXCHANGE EQUIPMENT

<u>Exchange</u>	<u>Capacity</u>		<u>Date of Operation</u>	<u>Type of Exchange</u>	<u>Working Lines</u>
	<u>Total</u>	<u>In Service</u>			
Heliopolis. I (B)	2,000		1st half year of 1973	X Bar	1,974
Dokki	10,000	8,000	1976	"	6,142
Nasr	10,000	10,000	1977	"	850
** Koubba	2,000	2,000	1979	ND-20S	-
** Imbaba	2,000	2,000	1979	"	-
Mounira	Building under const. See Exchange Devel. Plans. Vol. 5. Chapter VI.				
Tebbin	"	"	"	"	"

** Current Projects & Plans

Annex F

Present Manual Exchanges (over 50 lines)

Lower Egypt and the Suez Canal Area

<u>Province</u>	<u>Capacity</u>
Baheira	3,360
Dakahlia	6,460
Gharbiya	1,720
Ismailia	670
Kafir el Sheikh	1,970
Minufiya	2,880
Qaiub	660
Sharqiya	<u>3,520</u>
	21,240

Upper Egypt

<u>Province</u>	<u>Capacity</u>
Assuit	3,700
Beni Suef	1,120
Fayoum	590
Giza	1,050
Minia	2,270
Qena	1,360
Souhag	1,230
Wadi-el-Gidid	<u>480</u>
	11,800
Red Sea	580

CONDITIONS TO BE ADDRESSED BY SIP

I. A REVIEW OF THE CONDITION OF ARETO EQUIPMENT, FACILITIES AND SERVICES IN THE CAIRO AREA

This Chapter presents a summary of the network and service conditions which must be addressed by the SIP.

1. THE CONDITION OF EQUIPMENT AND FACILITIES

(1) Station Equipment and Wiring

Of the 100 station installations inspected, all had wiring which was defective in some way. Telephone sets were obsolete and many were defective. Test desk records were in poor condition and storerooms were not stocked with suitable types or quality of material.

(2) Exchange Cable Facilities

Of the 200 feeder cable pairs tested, 47% were defective. Cable pressurization, where used, was not adequate. Of a sample

of 50 junction cable pairs tested, 48% did not meet transmission and noise limits. Records show a high percent of defective junction pairs throughout the Cairo network. There is no central junction record or assignment system. Exchange distribution cables are in poor condition throughout the city. Distribution terminals and cross-connect cabinets are in poor condition but can be restored.

(3) Exchange Switching Equipment

All exchanges in the Cairo area were visited. The environmental conditions for the equipment were found to be very poor. Technical equipment maintenance practices are adequate, but performance of routines and assignments of the work force vary widely. There is little evidence of effective reporting and management control. Requisitioning of materials and supplies is difficult and unavailable spare parts for rotary exchanges are the cause for much equipment being out of service. Adequate tools and test equipment were made available with each new exchange but appear to be used very little now. Main distribution frames are poorly maintained using inadequate tools and frame materials, especially fuses. Battery maintenance varies. Emergency generators are not well maintained and are not installed in some exchanges. Call failure rates are high in all offices. Some failures in crossover translators disable entire routes.

(4) National and International Toll Networks

Connection through the local Cairo network is a problem for both types of calls. Working conditions at the National and International exchanges are not good, although less poor at International. Operator equipment is old and in poor condition, especially at the National Exchange. Quality of transmission on international circuits varies widely. A planned new automatic

International exchange and new cordless switchboards will provide a potential for improving service that may not be fully realized until calls are able to move freely on the local network.

(5) Sub-Sector Equipment and Facilities

The ten sub-sectors studied offered many critical comments about the equipment used by ARETO to serve them. Generally, many similar complaints were heard from nearly every sub-sector. The local dial network was the subject of the most complaints including shortages of facilities, various dialing and call completion problems, frequent cable failures and others.

Leased lines, it was reported, are often not available where needed. Service is unreliable and frequently out for long periods. Up to 90% of the pairs in special cables were out of service. The lines provided by ARETO are of poor quality and are frequently out of service; 50% on a given day in one case.

Sub-sectors also were critical of other special services. Frequent troubles and outages on radio control, facsimile, telex, and other special lines were reported. Services are frequently unavailable in the required locations. Switchboards are old, poorly maintained and spare parts are a problem.

In all of the categories sub-sectors were critical of ARETO maintenance and their slow response to service orders and trouble reports.

(6) Manholes and Conduit

While cleaning and repairs are needed in the majority of cases, manholes were found to be structurally sound. Arrangements are required to properly rack and support cables.

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(7) Buildings

Buildings frequently appear to be in poor condition but are, in fact, structurally sound. The main problems are the need to restore a closed, air conditioned environment and to improve the general level of housekeeping.

(8) Vehicles and Equipment

Most of ARETO's vehicles are over-age (50% over 18 years) and about 50% are out of service waiting for spare parts and other repairs. Unrepairable vehicles are not promptly disposed of. Much heavy work is performed by hand, for which power equipment would be safer and more efficient.

(9) Traffic in the Local Networks

A special traffic study in Zamalek and a review of traffic data taken elsewhere by ARETO lead to the general conclusions that: (a) the link system of most exchanges has been adequately designed, (b) the number of junctions assigned to the interoffice groups should generally be adequate for the traffic offered, and (c) registers are tremendously overloaded.

(10) Traffic in the Long Distance Networks

The trunks between national centers are averaging 110% of capacity originating and 98% terminating. STD groups appear adequate except for Cairo, 180% of capacity, and Alexandria, 110%. Terminating calls to Cairo exchanges are 110% of capacity. Common control registers average 101% of capacity, code senders, 97%.

(11) Telex Traffic

Telex equipment and facilities are seriously overloaded. The register required for all international calls is operating at 246% of capacity; for national calls the register is operating at 164%. The international trunk group averages 216% of capacity. Difficulty in completing telephone calls through the local network is undoubtedly responsible for a large amount of this Telex traffic.

(12) Network Control

There is little evidence of effective network control.

(13) Network Conditions

Studies made by the Consultant basically confirmed the conditions reported by the sub-sectors and others. The main problems are: dial tone delay, register overloads, ineffective call attempts and junctions out of service.

2. THE PRESENT QUALITY OF SUBSCRIBER SERVICES(1) Commercial Services

The main conclusion of the Consultant's review of commercial service is that the systems and procedures used do not give any particular consideration to the customer's convenience. Offices are poorly organized and maintained; practices and procedures are not documented, employee skills are taught on the job, procedures for handling applications and work orders are slow and cumbersome, manual procedures are used to check computer billing computations - yet no method could be found to check billing accuracy and, telephone directories are published every four years -- too long a period for accuracy -- and the cost is added to the customer's bill.

(2) Traffic Operations

The most significant service affecting traffic operations problems are operator performance and productivity, and the equipment conditions in the National and International Exchanges.

Problems affecting operator performance and productivity include the generally poor working conditions in both exchanges. Noise and lighting are serious defects. The National Exchange is not air conditioned. Traffic management does not have sufficient authority over personnel factors involved in employee motivation, recruitment and training. The use of "delay" working and credit checking affect productivity. No formal measurement systems are used for traffic planning and administration.

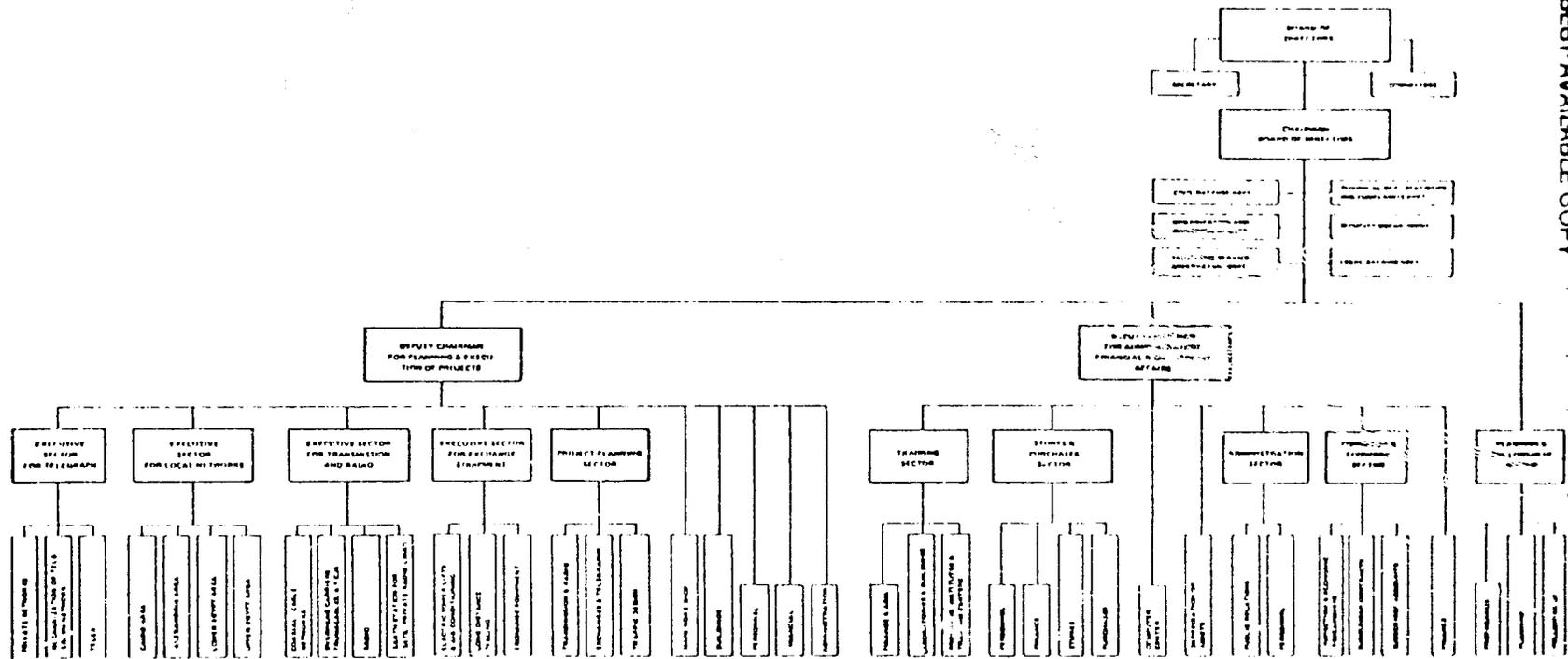
Various improvements are being implemented in the equipment arrangements at both exchanges, including the addition of an automatic international exchange and some switchboard additions and replacements. Delay working, credit checking delays, and delays in completing calls through the local dial network will continue to affect service, however.

(3) Standard Voice Telephone Service

Call completion tests made by ARETO in March of 1977 placed the call completion rate in Cairo at 23.9%. The Consultant's observations have also identified a long list of dial service problems ranging from slow dial tone to poor connections and telephones completely out service for long periods.

Annex II

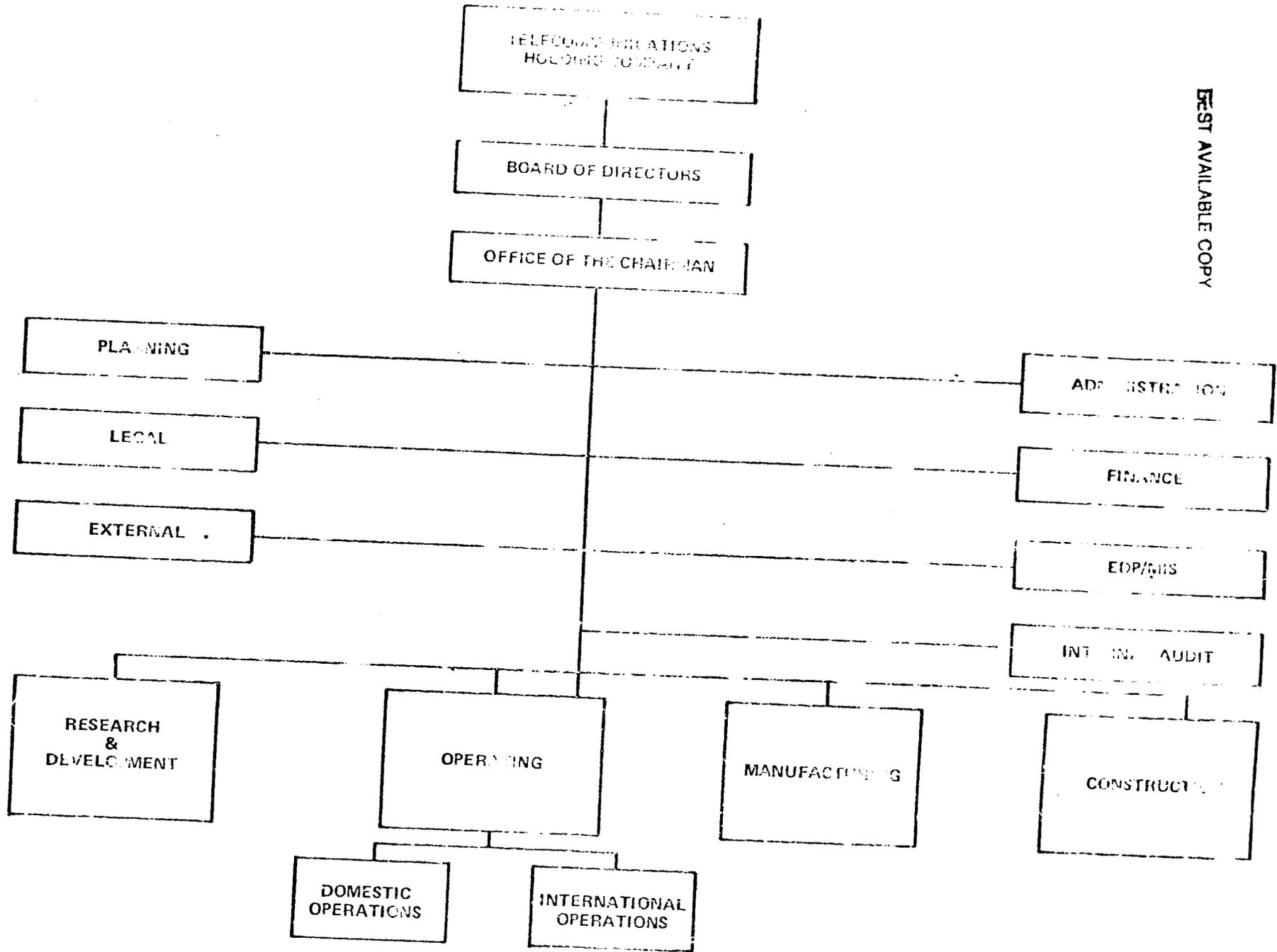
ARETO
CURRENT OFFICIAL ORGANIZATION



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ARETO's Proposed Organizational Structure

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Comparison of Existing and Proposed Domestic Rate Structures
 As of July 1, 1977
 (Expressed in Current Egyptian Pounds)

<u>Revenue Source</u>	<u>Existing</u> <u>1978</u>	<u>Proposed</u> <u>1979</u>
<u>Telephone Subscriptions</u>		
A. Manual		
(1) Business	1/ 15,21.00	22/32.00
(2) Residence	1/ 15/21.00	22/32.00
B. Automatic		
(1) Business		
- Metropolitan	18.00	28.00
- Non-metropolitan	18.00	28.00
(2) Residence		
- Metropolitan	18.00	20.00
- Non-metropolitan	18.00	20.00
<u>Installation Charges</u>		
A. Main Line	10.00	20.00
B. Extension Lines	3.00	6.00
<u>Excess Calls 2/</u>		
A. Residential	1500 / .015	1000 / .015
B. Business	300 / .015	0 / .015
C. Government	1000 / .015	0 / .015
D. Joint Venture	1000 / .015	0 / .015
E. Public Service	300 / .010	0 / .015

1/ Manual rates vary depending upon available calling hours (the hours an operator is on duty). CTC estimates that the rate range of LE 22.00 to LE 32.00 in 1979 will translate into an annual average subscription charge of LE 28.00.

2/ The number above the diagonal line indicates the number of free telephone calls per year. The number below the diagonal line indicates the charge per call in excess of the allowable number of free calls.

Annex J (Cont'd)

<u>Revenue Source</u>	<u>Existing</u> <u>1978</u>	<u>Proposed</u> <u>1979</u>
<u>Toll Calls</u> 3/		
A. Up to 25 km	.015 / .015	.030 / .030
B. From 26 to 50 km	.030 / .015	.050 / .030
C. From 51 to 75 km	.045 / .030	.100 / .050
D. From 76 to 100 km	.075 / .045	.100 / .050
E. From 101 to 125 km	.100 / .060	.150 / .100
F. From 126 to 150 km	.120 / .075	.150 / .100
G. From 151 to 175 km	.140 / .090	.200 / .150
H. From 176 to 200 km	.160 / .100	.200 / .250
I. From 201 to 250 km	.180 / .110	.250 / .200
J. From 251 to 300 km	.200 / .120	.250 / .200
K. From 301 to 500 km	.250 / .150	.350 / .300
L. More than 500 km	.350 / .250	.350 / .300
<u>Service Stations</u>	.02	.02
<u>Miscellaneous</u> 4/		
A. General	-	-
B. Special Equipment	-	-
<u>Domestic Telegraph</u>		
A. General	.02	.02
B. Miscellaneous	-	-
<u>Domestic Telex</u>		
A. Subscription Fee	600.00	600.00
B. Usage Charge	.01	.02

3/ The figure above the diagonal line indicates the daytime charge, while the number below indicates the nighttime charge. All are expressed in piastres per time unit.

4/ Too many items included in this category to justify a breakdown and rate. Examples are warehouses, security devices, telephone directories, service fees, etc. No significant increase in these charges is proposed by ARETO.

EGYPTARAB REPUBLIC OF EGYPT TELECOMMUNICATIONS ORGANIZATION (ARETO,Balance Sheets, 1973-77
(in LE thousands)

	<u>Actuals</u>				<u>Estimated</u>
	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>
<u>ASSETS</u>					
Plant in operation	85,631	88,665	91,630	102,202	142,202
Less: Accumulated depreciation	34,294	37,814	41,199	43,833	49,593
	51,337	50,851	50,431	59,059	92,609
Work in progress	17,084	21,570	36,351	60,539	72,519
Net Fixed Assets	68,421	72,421	86,782	119,598	165,128
Long-term investments	-	-	-	1,615	1,615
Cash and banks	-	790	932	4,681	7,131
Accounts receivable - trade	12,372	13,337	15,652	15,537	13,592
Accounts receivable - other	752	1,492	1,876	4,741	5,689
Inventories	4,772	6,895	9,160	10,363	12,255
Other assets	9,839	11,749	15,923	22,039	22,900
Total Assets	<u>96,156</u>	<u>106,684</u>	<u>130,325</u>	<u>178,574</u>	<u>228,310</u>
<u>LIABILITIES</u>					
Capital	18,717	18,717	18,717	18,717	18,717
Asset valuation reserve	20,735	20,735	20,735	10,901	10,901
Retained earnings	9,934	11,492	11,492	16,494	24,622
	49,386	50,944	50,944	46,112	54,240
Subscriber deposits	3,739	4,095	4,298	5,134	5,324
Long-term debt					
Domestic	25,198	31,249	39,978	57,831	78,429
Foreign	4,831	4,773	10,409	39,684	58,104
Total	30,029	36,022	50,387	97,515	136,533
Accounts payable	9,965	13,525	22,509	28,516	30,916
Provisions	1,888	1,925	2,014	1,124	1,124
Overdrafts	1,149	173	173	173	173
Total Liabilities	<u>96,156</u>	<u>106,684</u>	<u>130,235</u>	<u>178,574</u>	<u>228,310</u>
Current Ratio	2.1	2.2	1.8	1.9	1.9
Long-term debt/equity Ratio	0.6	0.7	1.0	2.1	2.5

Source: IBRD-Egypt: Report No. 1756-EGT

EGYPT

ARAB REPUBLIC OF EGYPT TELECOMMUNICATIONS ORGANIZATION (ARETO)Income Statements - 1973-77
(LE thousands)

Year ending December 31:	Actuals				Estimated
	1973	1974	1975	1976	1977
<u>Operating Revenues</u>					
Telephone	18,809	19,333	20,726	24,155	26,238
Telegraph	3,120	3,547	4,636	6,184	6,802
Telex	681	1,017	1,361	1,753	3,090
Miscellaneous	9	7	12	62	70
Prior years' adjustment	(251)	(108)	(696)	(2,151)	-
From tariff increases ^{1/}	-	-	-	-	4,580
Total Operating Revenues	<u>22,368</u>	<u>23,796</u>	<u>26,039</u>	<u>30,003</u>	<u>40,780</u>
<u>Operating Expenses</u>					
Salaries	12,080	12,846	14,988	15,311	17,789
Materials	1,280	1,590	1,934	1,901	2,190
Other	760	877	944	1,178	1,340
Prior year's adjustment	189	320	189	47	-
Depreciation	3,350	3,520	3,385	4,800	5,760
Total Operating Expenses	<u>17,659</u>	<u>19,153</u>	<u>21,440</u>	<u>23,237</u>	<u>27,079</u>
<u>Operating Income</u>	4,709	4,643	4,599	6,766	13,701
Other income (net)	<u>392</u>	<u>581</u>	<u>724</u>	<u>1,517</u>	<u>1,500</u>
<u>Net Income (before financial expense)</u>	5,101	5,224	5,323	8,283	15,201
<u>Financial Expense (int. & comm.)</u>	<u>1,194</u>	<u>1,503</u>	<u>1,927</u>	<u>2,542</u>	<u>6,532</u>
<u>Net Income</u>	<u>3,907</u>	<u>3,721</u>	<u>3,396</u>	<u>5,741</u>	<u>8,669</u>
Rate of Return ^{2/} - %	9.3	9.1	9.1	12.4	18.1
Operating Ratio - %	79	80	82	77	66

^{1/} Increase in International tariff rate effective 7/1/77

^{2/} On historically-valued assets

Source: IBRD-Egypt: Report No. 1756-EGT

PROJECTED STATEMENT OF FUND FLOW
LE (000's)

	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>Total 5 Years</u> <u>1980-1984</u>	<u>Total 5 Years</u> <u>1985-1989</u>	<u>Total 5 Years</u> <u>1990-1994</u>	<u>Total 5 Years</u> <u>1995-1999</u>	<u>Total 5 Years</u> <u>2000-2004</u>
<u>FUNDS REQUIRED</u>										
<u>Investment Plan</u>										
Construction Program	253,543	249,049	421,243	392,563	376,107	1,693,505	2,506,963	3,503,733	4,467,459	12,471,212
Priority Program	47,168	39,525	20,813	12,525	4,832	124,863	(28,011)	(54,085)	(73,084)	(12,212)
Total	300,711	288,574	442,056	405,088	380,939	1,818,368	2,478,952	3,449,648	4,394,375	12,459,000
Working Capital	13,006	8,908	13,024	10,912	12,701	59,691	72,205	69,348	75,475	277,719
Investor Payout	--	--	--	--	--	--	168,675	2,056,441	6,132,744	8,327,500
Total	313,947	298,282	455,990	416,000	393,640	1,877,859	2,719,412	5,575,437	10,602,594	20,786,519
<u>FUNDS PROVIDED</u>										
Contributions	40,859	55,531	57,279	68,487	99,753	321,909	1,495,366	4,230,005	8,190,439	11,085,537
Debt - Term Debt	207,620	188,066	284,449	242,432	212,951	1,136,518	1,224,046	1,443,642	1,190,155	5,207,112
Equity	55,468	53,765	114,262	164,981	80,936	419,652	-0-	-0-	-0-	419,652
Total	313,947	298,282	455,990	416,000	393,640	1,877,859	2,719,412	5,575,437	10,602,594	20,786,519

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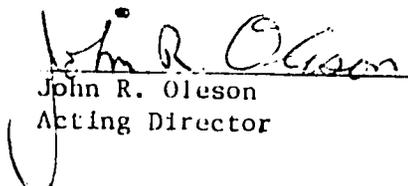


UNITED STATES AGENCY for INTERNATIONAL DEVELOPMENT

CAIRO, EGYPT

CERTIFICATION PURSUANT TO
SECTION 611(c) OF THE
FOREIGN ASSISTANCE ACT OF 1961, AS AMENDED

I, John R. Oleson, the Principal Officer for the Agency for International Development in Egypt, having taken into account, among other things, the maintenance and utilization of projects in Egypt previously financed or assisted by the United States and technical assistance and training planned under this project, do hereby certify that in my judgment Egypt has both the financial capability and human resources capability effectively to maintain and utilize the capital assistance to be provided for the rehabilitation and modernization of the Arab Republic of Egypt Telecommunication Organization (ARETO).


John R. Oleson
Acting Director

August 7, 1978
Date

MANAGERIAL AND TECHNICAL ADVISORY
SERVICES TO THE ARAB REPUBLIC OF EGYPT
TELECOMMUNICATIONS ORGANIZATION

SCOPE OF WORK

OBJECTIVES AND GENERAL DESCRIPTION:

The objectives are to provide managerial and technical services, support and assistance to ARETO in the following areas:

- A. In the design and implementation of modern management and operating systems, procedures and training aimed at strengthening its institutional capabilities.
- B. In the design, specification and implementation of high-priority service improvement programs for the Cairo area.
- C. In the design, specification and implementation of selected telecommunications system expansion and modernization projects.
- D. In addition to the above, two experienced consultants are to be made available to the Ministry of Communications for the purpose of providing advice and assistance on a broad range of matters relating to telecommunications development in the Arab Republic of Egypt.

BACKGROUND

Present telecommunications equipment and operations are inadequate and the quality of services is poor due to lack of sufficient capital investment over a number of years. Now, with an increase in economic activity in the country, there is an urgent need for the improvement of services, particularly in the Cairo area, and for the implementation of expanded facilities and activities to satisfy the growing telecommunications requirements.

A recently completed comprehensive study of the ARE Telecommunications Sector has provided a Cairo Service Improvement Plan, a Master Plan for Telecommunications System Development for the near-term (five-year) and longer-term (subsequent 15-year) periods, and specific recommendations for improving the institutional capabilities of ARETO. A complete copy of ARE Telecommunications Sector Study Final Report will be made available to each qualified organization or joint venture prior to the time of the pre-proposal conference.

The provisions of improved service and various improvements in ARETO institutional capability during 1979 and 1980 are considered to be important prerequisites for the implementation of the Master Plan. Certain system expansion and modernization projects, if implemented during this same period, would also contribute to service improvement, the relief of some of the most urgent new service requirements, and would provide ARETO personnel with training and experience of substantial value as they enter the Master Plan period beginning in 1980.

PARTICIPATION BY EGYPTIAN PERSONNEL

The contractor will be expected to perform all work in close cooperation with the personnel of ARETO and to maximize their participation in all activities related to this scope of work. The proposal should include specific plans and schedules for the utilization of ARETO personnel and for the coordination and direction of their work.

CONTRACT TASKS

The contractor's work shall include but not be limited to providing managerial and technical services, support and assistance to ARETO in the performance of the tasks described in the following pages. All technical and management assistance tasks must be completed within a two year period. The only exception to this is the supervision of construction projects which continue beyond two years.

A. MANAGEMENT, OPERATIONS AND TRAINING PROGRAMS

- A-1 The restructuring of its internal organization according to the guidelines contained in the previous sector study. Specifically, assistance should be provided in the development of text and exhibits documenting the proposed organizational structure of major divisions, departments, and offices; identification of specific functions and responsibilities of these units; development of staffing plans for selected units; and the preparation of a projected schedule for the implementation of proposed changes. (Ref. Vol 6, Chap I)
- A-2 The establishment of planning and project control systems in order to support the implementation of the proposed master plan. The Contractor will assist ARETO management in establishing a central planning office and project control group; in designing and developing planning and control procedures and practices; and in performing selected planning engineering functions. Consideration should be given to both manual and computer assisted planning and control techniques. (Ref. Vol. 6, Chap II)
- A-3 The strengthening of financial management systems including reorganization of the accounting and financial functions; design and development of an improved accounting system; establishment of a budget office and budgetary practices and procedures; development of an improved cash management capability; upgrading of the existing internal audit capability, and improvement of the current financial reporting function. Consideration should be given to strengthening the existing financial control capability and the ability of ARETO management to utilize financial and accounting information in planning and decision making. (Ref. Vol 6, Chap II)
- A-4 The improvement of commercial operations (defined broadly as encompassing those activities involving contracts between ARETO and its customers) including; customer contract availability, office environment,

A-4 Cont'd

service contract rules and regulations, customer work orders, handling of unfilled applications, customer billing, customer payments, and directory development. Consideration should be given to matters of organization, practices, procedures, and training. New procedures should be introduced in a model exchange area such as Zamalek. (Ref. Vol 6, Chaps II and III; Vol. 8 Chap. II)

- A-5 The strengthening of purchasing and inventory management capability including: reorganization of the purchasing and stores functions; development of a coordinated purchasing/inventory stock identification system; establishment of procurement and inventory control practices and procedures; examination of the feasibility of establishing an automated inventory reporting system; implementation of an economic ordering quantity or other system capable of reducing procurement costs; and examination of existing inventory storage facilities and development of a comprehensive facilities utilization plan, including recommendations for the systematic disposal of obsolete and unusable items. (Ref. Vol 6, Chap. II)
- A-6 The establishment of an organization, procedures and priorities for the standardization of purchased equipment, materials and services. Consideration should be given to the role of the Telecommunications Research Center in the evaluation of available technical products and services and in an ongoing program for the review of the influences of new technology.
- A-7 The provision of technical and management related training for ARETO personnel. It is expected that technical training will be provided to a core of ARETO training specialists in areas related to service improvement. These areas include, but are not necessarily limited to, station installation and maintenance; workshop repairs to equipment; central office maintenance; outside plant maintenance; tools and test equipment; equipment, engineering, and customer services records; commercial practices; and building maintenance. It is expected that

A-7 Cont'd

management training will be provided to selected ARETO personnel in middle and upper management positions in such management related areas as management theory and practice, problem solving and decision making, and supervisory concepts and practices. Specific training should also be provided in those management related areas involving the design, development, and implementation of management systems and practices. (Ref. Vol. 6, Chap. V)

A-8 The preparation of an EDP plan for ARETO and the design and implementation of computer based systems for the Telephone Research Center (TRC). The EDP plan should catalog existing computer equipment and programs and identify all potential applications, describe their system components, prioritize and schedule their implementation, and outline a suitable system environment. The systems developed for TRC should contribute to the organization's ability to assist ARETO in the areas of traffic analysis, network planning, and radio frequency planning and utilization. (Ref. Vol. 6, Chap. II)

B. SERVICE IMPROVEMENT PROGRAMS

B-1 The provision of a suitable operating environment for modern telecommunications switching and transmission equipment. This program will involve the repair, modification, rehabilitation or replacement of air-conditioning equipment in all Cairo exchange buildings; and other steps necessary to ensure an acceptable range of temperature, humidity and cleanliness. Consideration should also be given to continuing maintenance programs including such factors as organization, procedures, training, and the availability of necessary tools, materials and spare parts. (Ref. Vol. 8, Chap II).

B-2 Improvements in the overall administration, maintenance and performance of Cairo local exchange equipment. Manufacturers personnel are presently engaged in a general overhaul of BTM rotary and LME crossbar equipment throughout the Cairo area, including the retraining of ARETO maintenance personnel. This task is intended to complement the work being done by the manufacturers and includes:

- (a) Provision of an optimum size maintenance work force in each exchange.
- (b) Steps to improve the availability of spare parts, tools and test equipment:
- (c) Improve the maintenance of batteries and power plants;
- (d) The introduction of modern traffic usage measuring and recording equipment;
- (e) Reconditioning of main distributing frames;
- (f) Steps to reduce permanent signals and improve register availability in both rotary and crossbar exchanges;
- (g) Correction of the strapping of markers and incoming registers to provide the desired translation functions;
- (h) Development and implementation of alternate means of providing subscriber trunk dialing in rotary exchange areas;
- (i) Development and application of measures to reduce traffic overload caused by ineffective calling attempts; and
- (j) The coordination of all of the above activities, including the work being done by manufacturers personnel, in order to insure the maximum overall service improvement. (Ref. Vol 8, Chap II)

Implementation of measures to improve operations in the national toll center and to improve service on international toll calls. This work would have the objectives of improving operator efficiency and accuracy in both the national and international exchanges, and of improving the transmission and speed of connection on international calls. (Ref. Vol 8, Chap II)

- B-4 The establishment of a central organization and the necessary records and procedures to improve the maintenance and utilization of Cairo junction facilities; and the implementation of a program to verify, test and repair junction cable facilities and associated equipment. Records and procedures should be devised in such a manner as to facilitate the possible future employment of mechanized testing and assignment routines. This task should be completed at the earliest possible date. (Ref. Vol 8, Chap II)
- B-5 The implementation of programs and priorities for the rehabilitation or replacement, as required, of exchange outside plant. Consideration should be given to the introduction of new technology, methods and procedures. In this connection a model exchange such as Zamalek should be chosen and given first priority for improvement and for the training of ARETO personnel. A program should be established and work initiated to the maximum extent practicable toward the rehabilitation of exchange outside plant throughout the Cairo area. (Ref. Vol 8, Chap II)
- B-6 Establishment of an ARETO organization and implementation of a program to improve service to major business and government telecommunications users. (Ref. Vol 8, Chap II)
- B-7 Implementation of a program to improve subscriber equipment and installations for users of subscriber toll dialing and international telephone service. This program should include organization, training, tools, practices and new materials necessary to carry out work in a selected exchange area such as Zamalek during the contract time frame. Consideration should be given to extending the program subsequently to all Cairo telephone users. (Ref. Vol 5, Chap VIII)

B-8 Goals and objectives should be proposed for service improvement programs, together with methods for the measurement of the actual improvement achieved during the contract period. Proposals should include statements of the degree to which and under what conditions the contractor would be prepared to guarantee the results of each service improvement task.

C. SYSTEM EXPANSION AND MODERNIZATION

The following projects for expansion and modernization of ARETO networks and services are to be undertaken under separate contracts, to the extent that the total funds to be provided by USAID for these projects, when added to funds required for this scope of work, shall not exceed \$40 million.

The consultant will be required to provide assistance to ARETO in the prioritization and scoping of these projects; in the preparation of detailed specifications and tender documents; in the evaluation of tenders; and, to the extent possible during the period of this contract, in the supervision of implementation, and in testing inspection and acceptance of completed installations.

The projects being considered are:

- C-1 Exchange cable systems (see Task B-5)
- C-2 Mobile telephone exchanges, junction carrier transmission facilities, or equipment modifications or additions as required to extend the availability of subscriber toll dialing to customers in rotary exchange areas until the rotary equipment is replaced. (see Task B-2)
- C. Replacement of a rural exchange in a selected area with modern, state-of-the-art automatic switching equipment and upgrading of outside plant as required. (Ref: Vol. 4, Ch. III; Vol. 5, Ch. XI)

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- C-4 EPABX systems for selected major business or government telephone users such as the Cairo Airport Authority. (Ref: Vol. 3, Ch. V; Vol. 5, Ch. VII.)
- C-5 Microwave radio links to provide improved service to major, high-priority, customers. (Ref: Vol. 3, Ch V; Vol. 5, Ch. VII.)
- C-6 Replacement of the rotary exchange equipment in Zamalek and/or other selected locations. (Ref: Vol. 4, Ch. III; Vol.5, Chs. VI and VIII.)

D. REPORTING REQUIREMENTS

- D-1 All reports shall be prepared in English. All progress reports, semi-annual reports and draft final reports shall be submitted to ARETO in 10 copies. All final reports shall be submitted to ARETO in 15 copies. ARETO will forward 3 copies of all reports the USAID/Cairo for distribution within appropriate AID offices.
- D-2 Progress Reports: The Consultant shall submit a monthly progress report to ARETO not later than the 20th of the following month. The progress report shall contain information on activities in the field and in the home office and shall list the names of all project personnel employed on the project during the month and the functions performed by them. The report shall indicate the degree of progress during the month toward achieving the project goals and shall point out any difficulties and impediments to such achievement. The Consultant shall recommend, where appropriate, remedies to overcome such difficulties. The report shall contain milestone and other appropriate charts which will display progress of each task during the report period.
- D-3 Semi-Annual Reports: The Semi-Annual Reports will replace the regular monthly report and will summarize progress and status of

D-3 Cont'd

the project for the six months period. Successive semi-annual reports will be cumulative in nature.

- D-4 Final Report: Not later than fifteen days after completion of the Consultant's work, the Consultant shall submit a draft final report covering his activities during the entire contract period. ARETO will review and submit comments within 30 days, after which the final report will be submitted fifteen days after receipt of ARETO's comments.
- D-5 Acceptance Reports: See Section C. The Consultant shall monitor acceptance testing of projects financed by funds provided by USAID. After completion of the acceptance test, the Consultant shall list any deficiencies found and on behalf of ARETO shall order the Contractor to make the necessary corrections. Upon completion of the corrections and following successful completion of the acceptance tests, the Consultant shall make a final acceptance report and certification to ARETO that the Contractor has met all requirements of his contract. ARETO then will review the report and certify its acceptance. Initial and final acceptance reports shall be submitted to ARETO in 10 copies.
- D-6 At the end of each six months period and following the issuance of the semi-annual report, the principals from ARETO and AID will meet with the Consultant to review the status of the effort.

Illustrative Equipment List of
Items to Be A.I.D. Financed 1/

- I. Air Conditioning Equipment, Spare Parts, Filters, Tools (Task B1)*
- II. Recorded Announcement Equipment, Traffic Usage Equipment, Tools and Test Gear (Task B2)*
- III. Operators Headsets, Timing Mechanisms, Operators Chairs, Miscellaneous Tools, Transmission Test Equipment (Task B3)*
- VI. Subscriber PCM Carrier Systems & Station Carrier Systems, Rotary Files & Inventory Tubs, Cable Books, Tools, and Test Gear (Task B4)*
- V. Outside Plant Hardware, Cable Drop Wire, Interior Wire, Tools and Test Gear to Carry Out Rehabilitation OJT Program (Task B5)*
- VI. Subscriber Installation Apparatus, Hardware Tools, Test Equipment & Records & Assignment Supplies, (Task E7)*
- VII. Installation of 60 Replacement Switchboards at National Exchange C airo
- VIII. Mobil Electronic Exchanges

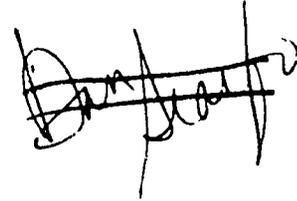
1/ Value of Equipment Listed herein exceeds the \$3.0 million shown in Cost Estimate. The order of priority is I to VIII.

* Tasks refer to those items shown in Scope of Work, Annex O of this Paper.

UNITED STATES GOVERNMENT

memorandum

DATE: August 2, 1978
REPLY TO: *I.E. Wallen*
ATTN OF: I.E. Wallen (TDY), CDE
SUBJECT: Telcommunications Project
TO: Mr. Robert N. Bakley, CDE



On August 1 I looked through the file of the telecommunications project with Mr. Scarfo and I agree with your staff and Hend Gorchev that this project does not have an important environmental component.

I believe that the project should be considered without regard for any further environmental papers. The threshold decision was, should have been, and should remain negative.

CDE:I.E. Wallen:(TDY):st:8/2/78



Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

USAID/CAIRO EGYPT
THRESHOLD ENVIRONMENTAL
INITIAL EVALUATION EXAMINATION

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Project Location: Cairo, Egypt

Project Title: Telecommunications (63-0054)

Funding (Fiscal Year and Amount): \$20.0 Million

IEE Prepared By: Philip S. Lewis 1/23/78

Environmental Action Recommended: No Negative Determination

Mission Decision:

(Approval/Disapproval of Environmental Action Recommended in the IEF)

Approved: [Signature]
Disapproved: _____
Date: 1/31/78

Clearances:

JRSnead Environmental Coordinator: [Signature]
RNBakley Other Mission Offices: [Signature]
[Signature]

1/25/78
1/24/78
1/30/78

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INITIAL ENVIRONMENT EXAMINATION
NARRATIVE DISCUSSION

1. Project Location: Cairo, Egypt
2. Project Title: Telecommunication (No. 263-0054)
3. Funding (Fiscal Year and Amount): FY 78, \$20.0 Million
4. IEE Prepared By: Philip S. Lewis Date: 1/23/78
5. Action Recommended: Negative Determination
6. Discussion of Major Environmental Relationships of Project Relevant to Attached Impact Identification and Evaluation Form:

This project consists of rehabilitation, repair, and some expansion of major portions of Cairo's existing Telephony and Telegraphic communication systems. It will involve, primarily, replacement or installation of additional central office switching equipment, replacement or addition of related cable connections between exchanges and to subscribers, and related training of Egyptian staff in operation and maintenance skills. Only minor new civil works construction (possible exchange office expansions, new cable laying) is involved, such construction involving only the minor environmental annoyances typically associated with urban civil works. During project implementation, efforts will be made to minimize fugitive dust, noise, traffic interference, etc. We conclude that project implementation will not have a significant impact on the urban, human environment and that, therefore, a Negative Determination is appropriate. (The completed project is environmentally neutral.)

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IMPACT IDENTIFICATION AND EVALUATION FORM

<u>Impact Areas and Sub-areas</u>	<u>Impact Identification and Evaluation/</u>
A. <u>LAND USE</u>	
1. Changing the character of the land through:	_____
a. Increasing the population	_____ N _____
b. Extracting natural resources	_____ N _____
c. Land clearing	_____ N _____
d. Changing soil character	_____ N _____
2. Altering natural defenses	_____ N _____
3. Foreclosing important uses	_____ N _____
4. Jeopardizing man or his works	_____ N _____
5. Other factors	_____
_____	_____
_____	_____
B. <u>WATER QUALITY</u>	
1. Physical state of water	_____ N _____
2. Chemical and biological state	_____ N _____
3. Ecological balance	_____ N _____
4. Other factors	_____
_____	_____
_____	_____

- 1/N -- No environmental impact
- L -- Little environmental impact
- M -- Moderate environmental impact
- H -- High environmental impact
- U -- Unknown environmental impact

IMPACT IDENTIFICATION AND EVALUATION FORM

C. ATMOSPHERIC

- 1. Air additives N
 - 2. Air pollution N
 - 3. Noise pollution N
 - 4. Other factors
-
-

D. NATURAL RESOURCES

- 1. Diversion, altered use of water N
 - 2. Irreversible, inefficient commitments N
 - 3. Other factors
-
-

E. CULTURAL

- 1. Altering physical symbols N
 - 2. Dilution of cultural traditions N
 - 3. Other factors
-
-

F. SOCIOECONOMIC

- 1. Changes in economic/employment patterns L
 - 2. Changes in population N
 - 3. Changes in cultural patterns N
 - 4. Other factors
-
-

IMPACT IDENTIFICATION AND EVALUATION FORM

G. HEALTH

1. Changing a natural environment

N

2. Eliminating an ecosystem element

N

3. Other factors

H. GENERAL

1. International impacts

N

2. Controversial impacts

N

3. Other factors

I. OTHER POSSIBLE IMPACTS (not listed above)

Prepared By: Philip S. Lewis

Date: 1/22/78

Project Location: Cairo, Egypt

Project Title: Telecommunications (No. 263-0054)

Annex R

Analysis on Questions of Wages Allowances and Incentives and Job Satisfaction

1. Base Salaries

ARETO entry levels are lower than the average entry level wage reported by other companies in the CTC survey (see Exhibit IX-1 below). This observation holds true for all occupational categories surveyed. However, it must be emphasized that this comparison is limited to base wages and does not include allowances.

ARETO maximum wage levels are lower than average maximum wage levels reported by other companies in the survey for occupational categories of engineers and accountants, but higher for all other categories. This indicates that ARETO represents a favorable employer for those without a university education since the civil service system offers better promotion possibilities than those available elsewhere.

2. Allowances and Incentives

In addition to base wages, the companies surveyed by CTC were asked to explain their system of allowances, bonuses and incentive awards. Since the amounts of these awards vary on the basis of the specific circumstances of the employee, it was difficult for CTC to quantify the impact on the occupational categories examined. Nevertheless, these awards play a major role in determining an employee's compensation package. A summary of CTC's findings is presented in Exhibit IX-2 below.

The Exhibit IX-2 indicates that in terms of the range of special awards which are offered, ARETO compares favorably with the other organizations surveyed. Only other government-associated organizations offer similar awards. The private sector and joint-venture companies offer higher base wages, but few additional allowances and awards.

Exhibit IX-1

Summary of Findings From Wage Information Survey

<u>Occupational Category</u>	<u>(A)</u> <u>ARETO</u>			<u>(B)</u> <u>Public Sector Companies</u>			<u>(C)</u> <u>Joint Venture Company</u>			<u>(D)</u> <u>Suez Canal Authority</u>		
	<u>Min</u>	<u>Max</u>	<u>No.</u>	<u>Min</u>	<u>Max</u>	<u>No.</u>	<u>Min</u>	<u>Max</u>	<u>No.</u>	<u>Min</u>	<u>Max</u>	<u>No.</u>
Engineer	240	1,440	1,621	300	1,440	185	900	3,120	3	552	2,340	300
Accountant	240	1,440		240	1,440	120	780	2,040	5	432	2,340	118
Technician	180	1,440	3,845	180	1,440	513	516	840	7	240	1,140	5,211
Skilled Laborer	162	1,440	14,482	180	1,440	1,800	432	2,160	n.r.	240	1,140	5,211
Laborer	144	780	9,349	144	780	3,250	180	300	n.r.	162	600	2,000
Clerical	180	1,440	2,649	180	780	634	768	876	2	240	1,140	612
Telephone Operator	162	1,440	1,801	144	780	14	None Reported			None Reported		
No. Employees Reported							6,516			8,241		
Total Employees	46,030			7,137			173			11,620		

n.r.: not reported

Note: Wages shown are in L.E. and are annual wages.

Annex R Continued

(Cont'd)

Exhibit IX-1Summary of Findings From Wage Information SurveyPrivate Sector Companies

<u>Occupational Category</u>	<u>(E)</u>			<u>(F)</u>			<u>(G)</u>			<u>(H)</u>		
	<u>Min</u>	<u>Max</u>	<u>No.</u>	<u>Min</u>	<u>Max</u>	<u>No.</u>	<u>Min</u>	<u>Max</u>	<u>No.</u>	<u>Min</u>	<u>Max</u>	<u>No.</u>
Engineer	360	720	2	720	5,400	17	1,800	1,800	2	480	1,440	3
Accountant	360	720	1	840	1,800	2	1,200	1,920	1	540	1,440	1
Technician	108	540	6	480	1,440	100	180	2,400	13	None Reported		
Skilled Laborer	None Reported			360	840	100	None Reported			360	720	30
Laborer	108	540	50	168	480	350	None Reported			216	420	12
Clerical	108	360	5	300	960	46	300	720	1	192	720	4
Telephone Operator	180	360	1	300	840	1	None Reported			None Reported		
No. Employees Reported	65			616			17			50		
Total Employees	65			750			18			50		

Annex R Continued

Exhibit IX-2

Comparison of Various Special Allowances and Awards
Granted by Companies Surveyed

Type of Special Allowance	ARETO	Public Sector Companies	Private Companies				Joint Venture Company	Suez Canal Authority
			A	B	C	D		
1. Representation Allowance	X	X						
2. Professional Allowance	X	X						
3. Nature of Work	X	X					X	
4. Overtime	X	X	X	X		X	X	
8. Production Allowance	X	X						
9. Performance Allowance	X	X			X			
10. Annual Bonus				X	X	X		
11. Holiday Bonus					X	X		
12. Residence Allowance	X	X						
13. Profit Sharing		X			X		X	
14. Transportation	X	X		X	X			
15. Meals		X						
16. Uniforms	X	X						
17. Medical Care	X							
							X	

Source: Project Team Survey

Annex R Continued

3. Employee Satisfaction

The sample size chosen by CTC for the survey was designed to achieve no less than a 5% error rate at a 95% confidence level. Since the estimated number of employees in the Cairo area, including the headquarters office and the various support staff in the Projects Department, was estimated at approximately 20,000 employees, a sample size of 760 was chosen. The sample was stratified to assure that 100 employees in each occupational classification were surveyed. Insofar as the sample size for each occupational category is much smaller than for the entire work force, the confidence level of conclusions is lower than for the sample as a whole.

The results of the survey disclosed that a significant percentage of ARETO employees are not satisfied with their wages and working conditions. However, the survey also indicated that employees were generally satisfied with the type of work performed.

4. Summary

From the above it appears that ARETO management has an opportunity to build upon the favorable attitude of ARETO employees toward their work. Aggressive action to improve wages and working conditions would have a positive impact upon morale and productivity. The composition of this project will tend to strengthen ARETO in carrying out an improvement program which will lift morale and productivity.

Possible Types of Training Programs
by "Occupational Category"^{1/}

I. Programs for Administrators

- Financial Operations
- Commercial Operations
- Personnel Operations
- Purchasing and Stores Operations
- Traffic Operations
- Plant Operations
- Planning Procedures and Practices

II. Programs for Engineers

- Traffic Analysis
- Exchange Engineering
- Radio and Transmission Engineering Procedures and Practices
- Exchange Construction
- Radio and Transmission Installation/Maintenance
- Exchange Maintenance Procedures and Practices
- Outside Plant Engineering
- Outside Plant Construction
- Outside Plant Maintenance
- Buildings and Grounds Maintenance

^{1/} Not all the above training programs will be developed under financing by the A.I.D. loan. ARETO is currently conducting a number of training programs and these may be adequate. Also, the cost of training instructors and preparing curriculum for all the above categories will exceed funds available under the A.I.D. loan. Consequently, the U.S. Consultant will have to review the ARETO training program as it now exists (this is described in the Telecommunications Sector Study) and devise a training program and schedule to meet ARETO's most urgent needs.

III. Programs for Technicians

Same as II. above, except training for new technicians will be on basis of short programs in specific skill areas and not as sophisticated as that for Engineers.

IV. Operator Training Program

V. Clerical Staff Program

VI. Skilled Labor Program

- Outside Plant Construction/Maintenance
- Outside Plant Installation and Repair
- Exchange Installation
- Radio and Transmission Installer/Repairman
- Exchange Repairman
- Building and Power Maintenance
- Vehicles and Heavy Equipment Training

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project 1978-1
 From FY 1978 to FY 1980
 Total U.S. Funding \$12,000,000
 Date Prepared 16 Aug. 1978

Project Title & Number: Egypt Telecommunications Project (201-0024)

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>Program or Sector Goal. The broader objective to which this project contributes:</p> <p>An efficient telecommunication system capable of supporting Egypt's economic and social growth</p>	<p>Measures of Goal Achievement:</p> <p>Better communication in commercial government and social intercourse.</p>	<p>1. ARETO records and statistics</p> <p>2. Field checks with private, commercial and government subscribers</p>	<p>Assumptions for achieving goal targets</p> <p>1. Egypt's economic picture will improve in tandem with an improved telephone system.</p> <p>2. An improved telephone system facilitates economic growth.</p>
<p>Project Purpose:</p> <p>Support and strengthen the Arab Republic of Egypt Telecommunications Organization (ARETO)</p>	<p>Conditions that will indicate purpose has been achieved: End of project status.</p> <p>1. A reorganized ARETO operating under modern industry standards</p> <p>2. Reduction of dial attempt/contact ratio</p> <p>3. Private telephone systems diminished in number</p> <p>4. Greater use of telephones</p>	<p>1. Rational dial attempt/contact ratio reduced from present max. 1 to 15 to 1 to 8 or better.</p> <p>2. Private telephone users switching to ARETO services</p> <p>3. Poll of ARETO subscribers to determine extent of utilization of system.</p> <p>4. Organizational records of ARETO</p>	<p>Assumptions for achieving purpose.</p> <p>1. Modern industry management techniques and telephone equipment can improve telephone service in Egypt.</p> <p>2. ARETO will have the capacity to improve management of telephone system</p> <p>3. New equipment can be installed within present Egypt telephone system.</p>
<p>Outputs:</p> <p>1. Planning Unit established in ARETO</p> <p>2. Internal training capability developed</p> <p>3. Annual procurement plan implemented</p> <p>4. Accounting, financial & personnel systems developed and operating</p> <p>5. Zamalek rotary exchange replaced</p> <p>6. Cairo airport telecommunication system operating</p> <p>7. Selected obsolete rotary exchanges replaced with mobiles</p>	<p>Magnitude of Outputs:</p> <p>1. Areto organized along lines recommended by CTC study (see PP Annex 1)</p> <p>2. _____ key ARETO managers trained and functioning</p> <p>3. A training system operating</p> <p>4. New 20,000 line ESS in Zamalek</p> <p>5. Mobile ESS systems installed</p> <p>6. Increase in no. of calls to and from Cairo airport</p>	<p>1. Review of ARETO organizational chart.</p> <p>2. Review of ARETO statistics, records, and reports.</p> <p>3. Reports of U.S. Consultant</p>	<p>Assumptions for achieving outputs:</p> <p>1. GOE law and regulations will permit ARETO reorganization along lines recommended by CTC study</p> <p>2. ARETO will provide accurate records of telephone system's performance</p> <p>3. Consultant will perform competently</p>
<p>Inputs:</p> <p>1. Technical asst. for ARETO's planning management, operating & training functions</p> <p>2. Tech. asst. & equipment for implementing Cairo Service Improvement Plan(SIP)</p> <p>3. ESS exchange to replace Zamalek rotary exchange</p> <p>4. Mobile ESS exchanges</p> <p>5. PABX's & microwave equipment for Cairo airport</p> <p>6. Misc. equip. vehicles, tools, air conditioners</p>	<p>Implementation Target (Type and Quantity)</p> <p>1. Completion of technical & training services approx. two years after loan agreement.</p> <p>2. Procurement and installation of all equipment approx. four years after loan agreement.</p> <p>*All magnitudes cannot be determined at this stage.</p>	<p>1. Final training and technical services report by Consultant.</p> <p>2. Installed exchanges, other equipment, and arrival of other equipment in Egypt for project use.</p>	<p>Assumptions for providing inputs:</p> <p>1. A competent consulting firm can be contracted for desired services</p> <p>2. Equipment suppliers are available with reasonable prices</p> <p>3. GOE will meet OP's and covenants in loan agreement</p> <p>4. A satisfactory second step loan will be executed</p>