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AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT PAPER FACESHEET

1. TRANSACTION CODE: A (A = ADD, C = CHANGE, D = DELETE)

PP

2. DOCUMENT CODE: 3

3. COUNTRY ENTITY

4. DOCUMENT REVISION NUMBER

5. PROJECT NUMBER (7 digits): 263-0147

6. BUREAU/OFFICE: A. SYMBOL: NE; B. CODE: 03

7. PROJECT TITLE (Maximum 40 characters): Telecommunications Project III

8. ESTIMATED FY OF PROJECT COMPLETION: FY 84

9. ESTIMATED DATE OF OBLIGATION: A. INITIAL FY 79; B. QUARTER 4 (Enter 1, 2, 3 or 4); C. FINAL FY 79

10. ESTIMATED COSTS ($000 OR EQUIVALENT $1 –

A. FUNDING SOURCE	FIRST FY 79 B. FX	C. L/C	D. TOTAL	LIFE OF PROJECT E. FX	F. L/C	G. TOTAL
AID APPROPRIATED TOTAL	80,000		80,000	80,000		80,000
GRANT	80,000		80,000	80,000		80,000
LOAN						
OTHER U.S. 1						
OTHER U.S. 2						
HOST COUNTRY		20,000	20,000		20,000	20,000
OTHER DONOR(S)						
TOTALS	80,000	20,000	100,000	80,000	20,000	100,000

11. PROPOSED BUDGET APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE C. GRANT	D. LOAN	E. 1ST FY 79 F. GRANT	G. LOAN	H. 2ND FY — I. GRANT	J. LOAN	K. 3RD FY — L. GRANT	M. LOAN
1. ESP	664B	827		80,000					
2.									
3.									
4.									
TOTALS				80,000					

A. APPROPRIATION	N. 4TH FY — O. GRANT	P. LOAN	Q. 5TH FY — R. GRANT	S. LOAN	LIFE OF PROJECT T. GRANT	U. LOAN
1. ESF					80,000	
2.						
3.						
4.						
TOTALS					80,000	

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

1 NO
2 YES

16. ORIGINATING OFFICE CLEARANCE

SIGNATURE

TITLE
Donald S. Brown
Director

DATE SIGNED 01/02/79

17. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION

EGYPT - TELECOMMUNICATIONS PROJECT

Table of Contents

	Page
Table of Contents	
Currency Conversions, Definitions, Acronyms and Abbreviations	i
Summary and Recommendation	iii
I. Introduction	1
II. Background	7
A. The Present Telecommunications Network	7
B. The Condition of Existing Equipment and Facilities	12
C. Problems with Structure of Telecommunications Sector	13
D. Past Financial Performance of Telecommunications Sector	16
III. The Project	18
A. Replacement of Rotary Exchanges	18
B. Procurement of Other Telecommunications and Related Equipment	20
1. Air-conditioners	20
2. Standby Electric Generators	21
3. Other Equipment	22
C. Technical Assistance	23
IV. Management and Labor	25
A. ARETO Present Organization	25
B. Senior Management	25
C. Composition and Performance of ARETO Work Force	27
D. Planned Organization for the Telecommunications Sector of the A.R.E.	33
V. Technical Analysis	36
A. Engineering of a Telecommunications Project	36
B. The FY 1979 A.I.D. Project - Replacement of Rotary Exchanges with ESS, Air-conditioners, Standby Power Generators, Other Telecommunications Equipment	38
C. Procurement Options	41
D. Exchanges	43
E. Technical Assistance	45
F. Cost Estimate	47

VI. Market Analysis 49

A. Need for Improved Telecommunications System 49
B. Reason for Past and Present Telecommunication System in Egypt 50
C. Telecommunications Demand Forecast 51
1. Methodology for Demand Forecast 51
a. Domestic Demand 52
b. International Forecast 53
c. Sub-sector Needs 53
d. Comments on Methodology 54
Exhibit VI-1 - Summary of Telecommunications Forecast 56

VII. Financial Analysis 57

A. Historical Financial Performance of ARETO 57
1. Balance Sheet 57
2. Income Statement 57
3. Comments on Past Financial Performance 59
B. Project Financing Plan 60
C. Project Profitability 62
D. ARETO's Debt Service Capability 66
E. Egypt's Debt Service Capability 67

VIII. Economic Analysis 68

IX. Environmental Considerations 72

X. Social Analysis 76

XI. Implementation Plan 80

A. Schedule 80
B. Contracting Procedure/Procurement 81
C. A.I.D. Financing Procedures 83
D. Monitoring and Reporting 83
E. Evaluation 84
F. Eligibility Date 85
G. Terminal Dates 85
(i) Conditions Precedent 85
(ii) Letters of Commitment and Disbursement 85

XII. Recommendation, Conditions and Covenants 87

A. Recommendation 87
B. Conditions Precedent to Disbursement for Technical Services 87
C. Conditions Precedent to Disbursement for Equipment 88
D. Covenants 89

ANNEXES

A. GOE Grant Application

B. Statutory Checklist

C. Draft Grant Authorization

D. Summary of Current ARETO Contracts and Projects

E. Cairo Exchanges

F. Present Manual Exchanges

G. A Review of the Condition of ARETO Equipment, Facilities and Services in the Cairo Area

H. Present ARETO Organization Chart

I. Planned ARETO Organization Chart

J. Current and Proposed Domestic Tariff Structure

K. ARETO Balance Sheets

L. ARETO Income Statements

M. Projected Statement of Fund Flow - 1980 to 1999

N. 611(e) Certification

O. Scope of Work

P. Equipment List

Q. Initial Environmental Assessment

R. Analysis on Questions of Wages, Allowances and Incentives and Job Satisfaction

S. Possible Types of Training Programs by "Occupational Category"

T. Logical Framework

U. List of Air-conditioning and Standby Power Requirements in Cairo and Alexandria

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CURRENCY CONVERSIONS, DEFINITIONS, ACRONYMS AND ABBREVIATIONS

CURRENCY EQUIVALENTS

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 II PROJECT

SUMMARY AND RECOMMENDATION

1. Borrower: The Government of Egypt (GOE)

2. Executing Entity: Arab Republic of Egypt Telecommunications Organization (ARETO)*

3. Amount of Grant: $80,000,000

4. Terms:

   To the GOE: Grant of $80,000,000

   To ARETO: Grant of $80,000,000 passed through to ARETO in FY 1979.

5. Description of the Project:

The purpose of this project is to improve the present telecommunications system in Egypt by: 1) replacing three rotary exchanges in ~~Cairo~~ Alexandria with Electronic Switching Systems (ESS) and related outside plant (mainly cable); providing additional technical assistance to ARETO to strengthen its managerial and operating capability (in such areas as planning, procurement, maintenance,

---

* 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.

training, accounting, financial and personnel management, equipment maintenance, etc.); providing other telecommunications and related equipment needed by ARETO (principally air-conditioners and stand-by power generators for exchanges in [redacted] Alexandria).

This project is consistent with the Telecommunications Sector Study Report (see para 1.05) which stated that the present telecommunications system is in very poor condition and that to improve the system primary emphasis should be placed on strengthening ARETO's managerial and operating capability and replacing old and obsolete telecommunications and other equipment.

a. Technical Assistance - The complete scope of services to be performed by the U.S. Consultant to strengthen ARETO in the above-mentioned areas is shown in Annex D. The same Consultant selected to perform services under A.I.D. Loan 263-K-047 will perform services under Telecom II Project and this proposed Telecom III Project. ~~this project~~. The U.S. Consultant will also assist ARETO to prepare IFB's, evaluate bid responses, make awards and negotiate contracts for telecommunications equipment which is financed by A.I.D.'s FY 1978 $40 million telecommunications loan number 263-K-047 (a listing of the equipment to be procured is presented in Exhibit V-1 of the Technical Analysis Section of this Paper). Additionally, the U.S. Consultant will provide procurement assistance to ARETO under FY 79 & 80 Telecommunications Project and under this FY 79 $80 million telecommunications III project. These procurement items are: a) three ESS for the ~~Cairo~~ Alexandria area; b) associated outside plant (e.g., cable)

~~For two of the three~~ ESS ~~(outside plant for one of the ESS is being provided by Telefunken)~~; and c) air-conditioners, stand-by electric power generators and other equipment.

Technical Assistance provided by the FY 1978 A.I.D. loan to strengthen the institution of ARETO provides funding for this purpose for two years. Institution building funds provided by the FY 1979 Telecom II A.I.D. grant will permit these services to continue to be provided to ARETO for an additional two years and the FY 1979 Telecom III grant will permit these services to continue for an additional year.

b. Telecommunications Equipment - The Ministry of Communications has requested A.I.D. to finance the replacement of three old and obsolete rotary exchanges in Cairo and three in Alexandria with ESS. Also, because the underground cable network in Cairo and Alexandria is in poor condition, A.I.D. has been requested to finance outside plant for two exchanges in Cairo and three in Alexandria. The ~~This~~ FY 1979 Telecom II project will ~~only~~ finance ESS and outside plant for Cairo. The Telecom III ~~A separate A.I.D.~~ project also proposed in FY 1979 ~~1980~~ could finance these same items for Alexandria.

Telephone exchanges should be dust-free, temperature and humidity controlled because telecommunications switching system equipment is very sensitive. Consequently, this project will provide air-conditioners and electric power generators which ARETO seriously lacks for exchanges in Cairo and Alexandria. The installation of

these new air-conditioners and generators will insure that the necessary temperature and humidity levels will, in fact, be maintained and switching equipment can work uninterruptedly even though electric power from the national grid cuts out, as has frequently been the case in the past.

c. Result - This FY 1979 A.I.D. project will provide an additional ~~two~~ one year of continued assistance to ARETO in order that its staff can more effectively design, schedule and implement modern management and operating systems, procedures and training. The U.S. Consultant will also assist ARETO for an additional year to oversee the installation of ESS, outside plant, air-conditioners, stand-by generators, and other equipment. The provision of ESS' and outside plant, together with air-conditioners and generators, will provide maximum service at those exchanges in Cairo. The combination of Technical Assistance and telecommunications and other equipment will improve the efficiency of the ARETO organization and a portion of the present telecommunications network in Cairo.

6. Grant 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 GOE application).

7. Mission View: USAID/Cairo strongly endorses the proposed grant.

8. Source of U.S. Funds: Fiscal Year 1979 Economic Support Fund

9. Statutory Checklist: Satisfied. See Statutory Checklist, Annex B.

10. Recommendation: That a grant in the amount of $80,000,000 in FY 1979 be authorized on terms and conditions set forth in the Draft Grant Authorization, Annex C.

I. Introduction

1.01 In early 1979 the Government of the Arab Republic of Egypt (GOE) requested assistance from A.I.D. to finance the dollar costs of goods and services required for replacing some of the existing telecommunications rotary exchange system in Egypt, with particular emphasis on Cairo and Alexandria (See Exhibit III-1). 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 grant-finance the entire foreign exchange portion of the FY 1979 project, which was estimated at $80,000,000. This would finance the replacement of three rotary exchanges with ESS in Cairo and related outside plant in two of the three exchanges. A ~~probable~~ This proposed FY ~~1980~~ 1979 $80 million A.I.D. Grant is for the Telecom III project which will be for the replacement of three rotary exchanges with ESS and related outside plant in Alexandria. Exhibit III-1 in the Project section of the Paper gives details of the rotary exchange replacement program in Cairo and Alexandria. It was further agreed that ARETO, in turn, would receive the FY 1979 Telecom III amount ($80,000,000)as a grant. Due to the substantial investment requirements of ARETO in both the near and long term, as shown in the Sector Study Report (see para 1.05), this grant to equity will enable ARETO to incur approximately $186,600,000 in additional debt to satisfy a portion of the investment in plant and equipment so urgently required.

Telecom II

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. The first order beneficiaries of this project include primary government offices, business agencies and members of the middle class. Second order direct beneficiaries are those who, while not living or working in a unit with a telephone line, have access to either the formal or informal public telephone system. It is estimated that second order direct beneficiaries are substantial (see Section X of this Paper for a complete discussion).

1.03 The project is 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. Reliable telecommunications is a necessary ingredient of economic development.

1.04 The project is aimed at assisting ARETO in improving the present telecommunications system, so 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 old rotary exchanges and outside plant and the procurement of various training, maintenance, business and telecommunications replacement equipment, as well as related training and technical management assistance program.

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.in 1977. 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 for meeting the telecommunications needs of the GOE for the near-term, five year (1980-1984), and the longer twenty year periods (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.

1.07 This will be the United States' ~~second~~ third capital project directed to Egypt's telecommunications sector since the resumption of aid to Egypt. The first assistance was a FY 1978 $40.0 million A.I.D. Loan No. 263-K-047 (see Exhibit V-1 in the Technical Analysis section

of this PP for items to be financed by the FY 1978 A.I.D. loan). The U.S. Consultant financed under Loan No. 263-K-047 should begin work in Egypt sometime in September 1979 and the scope of work for the U.S. Consultant (see Annex D) will include the technical specifications for seven ESS. One ESS is to be in Cairo, financed under FY 1978 AID loan No. 263-K-047; three ESS in Cairo by ~~this proposed~~ the FY 1979 Telecom II project; and three ESS in Alexandria by ~~a possible~~ this proposed FY ~~1980~~ 1979 A.I.D. Telecom III project Grant. Under this FY 1979 project it is anticipated that procurement of ESS and related outside plant will be on a turnkey basis.

1.08 Other A.I.D. assistance to the telecommunications sector has been furnished under the FY 1977 and FY 1978 Commodity Import Loans at a level of $34.3 million, of which the majority portion is related to the installation of a microwave system for the Greater Cairo area. A summary of other assistance being channeled to ARETO is presented in Annex D.

1.09 In May 1978 U.S.A.I.D. learned that a consortium of three U.S. Companies (AMERITECH)[1/] prepared and submitted a proposal to provide telecommunications goods and services to the Minister of

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

Communications (approximately $2.5 billion through 1984). In February 1979, AMERITECH submitted a revised proposal for approximately $1.4 billion through 1984. We understand also that others have submitted proposals (e.g., International Telephone and Telegraph Corp. (ITT), Philips, L.M. Ericsson, Japanese and German companies, etc.) The Prime Minister of Egypt has made it known in April 1979 that the GOE policy would be to encourage competition to the maximum extent possible. Consequently it appears that the above unsolicited proposals will not be considered by the GOE in the short run because they are not competitive proposals submitted in response to a tender document.

1.10 U.S.A.I.D. representatives met in March 1979 with the Minister of Communications to discuss two $80.0 million A.I.D. Telecommunications Projects proposed for FY 1979 ~~and 1980~~ funding. The Minister stated that A.I.D. should move forward in processing the grants ($80 million each in FY 1979 ~~and 1980~~) requested by the Ministry of Economy and Economic Cooperation as this funding is important to Egypt and the items to be financed with A.I.D. monies would not conflict with succeeding programs. While the Prime Minister has indicated that the GOE intends to foster international competition to the maximum extent possible when ARETO undertakes its expansion program, the Minister advised, however, that the GOE had decided

that U.S. ESS technology would be most appropriate for the replacement of rotary exchanges in Cairo and Alexandria.

1.11 U.S.A.I.D. is in agreement with the position of the GOE in moving forward with the A.I.D. FY 1979 Telecommunications projects. We feel that it is important for Egypt. 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 now to improve its organization and by replacing old exchanges with those utilizing modern technology, will make the present system more financially viable, dependable and should provide a firmer institutional and operational base on which the implementation of any of the long-run proposals can build.

1.12 This Paper will provide a detailed description of the proposed investments under the project and relate these investments to Egypt's sectoral goals in telecommunications.

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 interoffice 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 by 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 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. 38,000 lines of rotary equipment under this Project will be replaced by 70,000 lines of ESS to permit expansion. Not included in the foregoing is a 20,000 line rotary exchange in Zamalek which will be replaced by a 20,000 line ESS and which is being financed under A.I.D. Loan 263-K-047. The remaining 44,000 of rotary lines are being replaced by crossbar. 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 940 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 LMR ARF 102 provide the remaining 21,000 lines. The 40,000 BRM rotary lines may be replaced under an A.I.D. FY 1980 project with 70,000 lines of ESS. 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 and other 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 standard earth station, which has recently been completed ~~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 opened 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, tested, and inspected the existing telecommunication equipment and facilities. For convenience, CTC categorized their work 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 Conduit

vi) Buildings

vii) Vehicles and Equipment

viii) Traffic in Long Distance Network

ix) Telex Traffic

x) Network Control

2.13 Generally, a negative theme is threaded throughout all the above categories. The listing of faults are 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 switch-boards 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, Communications and Maritime 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 services.

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 revenues for services that should rightly be provided by ARETO.

2.18 In all fairness to ARETO a number of constraints to effective operations is 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's income statement was analyzed by CTC for the five years ending in 1977. The reported net income for those years is presented below:

(LE millions)

	1973	1974	1975	1976	1977
Operating Revenues	22.3	23.7	26.0	30.0	36.6
Operating Expenses	17.6	19.1	21.4	23.2	26.6
Operating Income	4.7	4.6	4.6	6.8	10.0
Miscellaneous Income/Deductions	.8	.9	1.2	1.1	2.7
Net Income	3.9	3.7	3.4	5.7	7.3

2.22 Based on the CTC analysis: 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 made by ARETO in its 1976 and 1977 statements for depreciation and interest expenses:

(LE millions)

	1973	1974	1975	1976	1977
Net Income	3.9	3.7	3.4	5.7	7.3
Less: Depreciation Adjustment	(7.7)	(8.1)	(8.6)	(7.4)	(7.3)
: Interest Adjustment	(1.2)	(1.1)	(1.6)	(3.3)	(6.4)
Adjusted Net Income (Loss)	(6.6)	(6.7)	(6.8)	(5.0)	(6.4)

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

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

III. The Project

3.01 The purpose of this project is to assist ARETO to: 1) replace a number of old and obsolete rotary exchanges with ESS, as well as related outside plant, in a number of locations in Cairo; (see Exhibit III-1 below); 2) provide the necessary U.S. technical assistance to continue support for institutional improvements and also to design, procure and install the above; and 3) procure other telecommunications replacement equipment (mainly air-conditioner and generators for the exchange buildings) urgently required by ARETO. The effect of this AID assistance will be to improve a part of the telecommunications network in Cairo and strengthening ARETO's ability to effectively operate its telephone organization.

A. Replacement of Rotary Exchanges

Exhibit III-1

Rotary Exchange Replacement Program*

1980-1983

Exchange	Existing Capacity	Proposed Initial Capacity	Proposed Outside Plant
Telecom Project II (FY1979)			
A. Cairo			
1. Heliopolis II and III	20,000	30,000 ESS	36,000
2. Maadi	4,000	20,000 ESS	24,000 1/
3. Bab El Louk	14,000	20,000 ESS	24,000

Telecom Project III (also proposed for FY79)

B. Alexandria

4.	Alexandria I and II	20,000	30,000 ESS	[illegible]
5.	Ibrahimia	10,000	20,000 ESS	
6.	Gelem	10,000	20,000 ESS	

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* Does not include the Zamalek rotary exchange which will be replaced by a 20,000 line ESS and for which financing is provided by the FY [illegible] A.I.D. Telecommunications Loan (263-K-047).

1/AEG Telefunken is replacing and installing the 24,000 lines of underground cable per a contract with ARETO.

3.02 The replacement of four rotary exchanges in Cairo which are old and obsolete with ESS (three ~~under~~ financed by ~~this project~~ Telecom II Grant and one ~~to~~ financed by A.I.D. Loan 263-K-047) is consistent with the recommendations of the Sector Study Report, as accepted by the Ministry of Communications and ARETO. The outside plant (OSP) related with three out of four of these exchanges will also be A.I.D.-financed as the existing OSP in Cairo is old and deteriorating and incurs frequent breakdowns. Consequently, this A.I.D.-financed replacement program, together with the provision of the technical assistance, air-conditioners and standby power generators (of which more will be said below), will introduce a substantially higher level of dependability and efficiency to a portion of the existing Egyptian

telecommunications system in Cairo and will strengthen ARETO's management and operating capability. The above Exhibit III-1 shows the exchanges both in Cairo and in Alexandria to be replaced by ESS, which are to be financed by ~~this~~ the A.I.D project, and Section XI of this Paper shows the implementation schedule. The replacement of the three rotary exchanges in Alexandria will improve telecommunications capability, service and dependability in that city

B. Procurement of Other Telecommunications and Related Equipment

3.03 ARETO estimates it requires approximately ~~$3.3~~ 1.0 million for air-conditioners and ~~$1.7~~ $1.5 for standby electric power generators, ~~and $2.0 million for other~~ for the Alexandria telecommunications ~~equipment~~ improvements (see project cost estimate in Exhibit V-1 in the Technical Analsysis Section of this Paper).

(i) Air-Conditioners

3.04 The Telecommunications Sector Study Report states that exchange equipment (switching systems) are very sensitive and, consequently, it is most important that the exchanges be maintained dust-free with the temperature and humidity controlled. The air-conditioners financed by this A.I.D. grant will be installed in ~~those~~ exchanges in Alexandria, ~~which will use A.I.D.~~ [redacted]. Annex U presents ARETO's listing of air-conditioning requirements by exchange,

giving size requirements and corresponding estimated costs. As will be seen from the Technical Analysis of this Paper and Annex U, ~~this~~ The FY 79 Telecom II Project ~~will~~ financed air-conditioning and standby generators beyond those exchanges included in ~~this~~ the A.I.D.-financed rotary replacement program. Air-conditioning and standby generators are necessary to achieve maximal utilization of switching systems, whether old or brand new and is an important element in increasing the efficiency of the present telecommunications network in Cairo. Approximately $2.1 million in air-conditioning and standby generators ~~are being~~ were also provided by the Telecom II ~~this~~ project for Alexandria for the reasons stated above. These items will be installed in exchanges in Alexandria, including all those rotary exchanges which ~~may~~ are be replaced by ESS ~~which may be~~ financed by ~~a possible FY 1980~~ the proposed FY 1979 Telecom III A.I.D. Grant.

(ii) Standby Electric Generators

3.05 Without standby electric power, it is highly unlikely that exchanges in Cairo and Alexandria will be able to provide continuous and consistent temperature and humidity control. This is simply because the national electric power grid is not dependable and periodic outages are, unfortunately, the rule rather than the exception. Standby generators are needed to cut over when power outages occur to insure

a controlled environment for sensitive switching equipment and to insure that exchange equipment functions uninterruptedly. ARETO's listing of standby electric power generator requirements, by exchange in Cairo and Alexandria, including corresponding KVA and cost estimates is presented in Annex U. The U.S. Consultant working with ARETO will review and confirm the air-conditioner and standby power generator requirements of ARETO and, if appropriate, suggest modifications or changes to the listings.

(iii) Other Equipment

3.06 The Telecommunications Sector Study Report has confirmed that the telecommunication replacement needs of ARETO are substantial. ARETO has developed a sample listing of telecommunications and related equipment that, according to ARETO, has the highest priority. This equipment list, with corresponding cost estimates, is presented in Annex P in order of ARETO priority. The U.S. Consultant will work with ARETO to verify the priorities and determine which equipment is most appropriate for A.I.D. financing.

C. Technical Assistance

3.07 Technical assistance to be financed from the FY 1978 A.I.D. Loan No. 263-K-047 lay a modest groundwork on which to strengthen the Egyptian telecommunications institution-ARETO. The institutional development aspects of the technical assistance is directed toward a number of functional areas; namely, planning, training, maintenance, procurement, accounting, financial and personnel. The A.I.D. loan would finance this technical assistance for a period of two years, commencing from the time the U.S. Consultant began to work for ARETO. The A.I.D. loan also provided for an additional year of technical assistance (beyond the two year institution building segment) to ARETO to oversee the installation of telecommunications equipment. (See Exhibit V-I, Technical Analysis Section, for a list of the telecommunications equipment to be financed under the FY 1978 A.I.D. loan).

3.08 It is generallly recognized, and the Sector Study Report solidly confirms, that the technical assistance requirements of ARETO are substantial and will be necessary over an extended period of time. Consequently, the Minister of Communications has requested that technical assistance be provided to ARETO for a period of four years in the same areas mentioned in para 3.07 and to continue the oversee function of the U.S. Consultant for equipment installation for an additional year, for a total of five years. Details of the institution building tasks, procurement and oversee responsibilities which the U.S. Consultant will carry out are provided in the Scope of Work

which is presented in Annex O. The Scope of Work shown in Annex O was developed by ARETO on the basis of information contained in the Telecommunications Sector Study Report and is consistent with the recommendations contained in that report. The U.S. Consultant selected to perform services financed under A.I.D. Loan 263-K-047 will also perform the continued and expanded services under this FY 1979 Telecom III A.I.D. project.

3.09 ~~Additionally, the Minister of Communications has requested some~~ Advisors-separate from the U.S. consulting services described above-to assist the Ministry improve its capabilities to perform a number of functions; such as, planning, the evaluation of studies and proposals, etc. During the implementation of this project, U.S.A.I.D. will work with the Ministry to develop a Scope of Work for a few select Advisors to assist the Ministry and these services ~~will be acquired following normal A.I.D. Handbook 11 procedures.~~

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 Communication. 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 chairman 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 workforce 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 Purchases 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 the constraints confronting ARETO senior management were described in paras 2.18-2.20. More will be said about eliminating or at least decreasing 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/

	1961		1969		1977	
Occupational Category	No.	%	No.	%	No.	%
Top Management	6	.03	13	04	82	.15
Administrators	79	.40	607	1.70	950	1.80

1/ Budgeted Work Force

Engineers	292	1.60	734	2.00	1224	1.80
Technicians	1721	9.40	3639	10.20	7235	13.50
Operators	5006	27.20	9390	26.18	11484	21.40
Clerks	1258	6.80	2961	8.30	5406	10.10
Skilled Laborers	6004	2/ 32.64	10169	28.38	16624	31.00
Unskilled Laborers	4020	21.93	8305	23.20	10683	19.90
Total	18386	100.00	35818	100.00	53688	100.00

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

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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 Dept.

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

Occupational Categories	Imposed GOE Hires: From Manpower	Imposed GOE Hires: From Military	Total Hires
Administrators	147	--	147
Engineers	488	--	488
Technicians	1264	3	1267
Operators	1645	175	1880
Clerks	682	471	1153
Skilled Laborer	--	914	914
Unskilled Laborer	--	4370	4370
Total	4226	5933	10159

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 work load 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

Year	Number of Employees 1/	Number of Main Stations 2/	Employees Per 1000 Main Stations
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 Dept.

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 according to CTC 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 of ARETO, CTC expects 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 these 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 1980-81) as scheduled. As explained earlier, addressing these basic problems is one of the major thrusts of this proposed project.

D. Planned Organization for the Telecommunications Sector of the A.R.E. 2.18-2.20

4.15 Paras 218-220 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 CTC recommends that ARETO be re-constituted under its own special charter as an autonomous entity not subject to normal governmental or public sector regulation. The objective of this action is to provide the management of ARETO with the flexibility it needs to improve telecommunications service within Egypt.

4.17 CTC 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 rate 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 obligation 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 A number of the problems with the present ARETO will be dealt with in the Recommendation, Conditions, and Covenants section of this Paper. 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. Engineering of a Telecommunications Project

5.01 The engineering of a complex telecommunications normally occurs in four stages:

Stage 1 consists of the preliminary engineering study which identifies the system components in enough detail to provide a reasonably firm cost estimate of the system, including the cost of detailed design and construction supervision.

Stage 2 involves the preparation of detailed functional specifications for all major equipments and specifications for materials such as switches, cables, wire and accessory hardware. However, since major equipments such as automatic exchanges, microwave relays and terminals and certain radio components and antennas vary in their detailed design, arrangement of sub-equipments, size, mechanical layout and power requirements depending on their suppliers, no detailed design of these units or the buildings to house them can be made by the consultant project engineer. The consultant, therefore, prepares only the detailed functional specifications for such portions of the system.

In Stage 3, the bidders are required to provide details of how they plan to meet the functional specifications and to include sufficient information to permit their proposals to be evaluated for responsiveness to the specifications.

Stage 4 occurs after the contract award. At this time, the successful contractor provides detailed designs of his equipment including space and prime power requirements for approval of the consultant project engineer. After approval and acceptance by the buyer, these become the design criteria for execution of the construction contract and the engineer can plan in detail the design of new buildings and revisions to existing buildings to house the system components.

5.02 The Telecommunications Sector Study completed in April 1978 by Continenta Telephone International for ARETO has identified the system components required by Stage I of the engineering design and has provided a reasonably firm estimate of project cost to meet the requirements of 611(a) of the Foreign Assistance Act of 1961 as amended. The Mission and ARETO have reviewed the plans and cost estimates and find them reasonable and accurate.

Telecom III

B. The FY 1979 A.I.D. Project-Replacement of Rotary Exchanges with Electronic Switching Systems (ESS), Air-Conditioners, Stand-by Power Generators and other Telecommunications Equipment

5.03 ARETO has selected three old and obsolete rotary switching type exchanges in the ~~Cairo~~ Alexandria area for replacement by electronic switching systems (ESS). The three telephone exchanges are ~~Maadi~~ Alexandria I & II, ~~Bab El Louk~~ Ibrahima and ~~Heliopolis II and III~~ Gelem. ~~These three exchanges are in addition to the Zamalek rotary exchange which is to be replaced by ESS under AID loan 263-K-047~~. ESS equipment is and has been in use in telephone exchanges worldwide for over two years. Its primary advantage over older mechanical switching equipment is its stored program control (SPC) which automatically controls the operation of the exchange but also permits easy introduction of changes by changes in the software program (SPC) instead of time consuming wiring and hardware changes. The ESS is transistorized, operates faster, and requires less floor space than the older equipments. The development of technical specifications should be a routine matter for the U.S. consultant working with the ARETO engineer. There are a number of U.S. suppliers of ESS equipment.

5.04 Associated with each ESS Exchange equipment is the outside plant system. The outside plant consists of the connections from one exchange to another accomplished by multiple wire cable which is buried in the

earth connecting the exchanges; by underground cable placed in buried ducts with access thru manholes; by aerial cable which is wire strung on poles and in some cases by microwave radio connecting exchanges by means of antennas mounted on towers. Each outside plant system is engineered for the specific requirements of the exchange. The existing outside plant junction cable is old and deteriorating and incurs frequent breakdowns. Some new sections of outside plant have recently been installed and those portions after examination and testing which prove to be reliable will be retained.

5.05 Transmission equipment is also a part of the system which enables the messages to be transmitted from the switch thru the associated outside plant to the next exchange. Specific equipment depends upon the system design but usually consists of multiplex, carrier equipment, loading coils, amplifiers,repeaters, etc.

5.06 Air conditioning is a requirement for the modern ESS exchanges in order to maintain continuous and reliable operation. The consultant along with ARETO engineers will examine and review the priorities of air-conditioning for the telephone exchanges, reviewing the adequacy of the existing distribution system and ducting, the provision for

redundant capacity so that temperature control can be maintained in the event of partial equipment failure. The consultant will prepare the bid specifications for the individual exchange requirements and working with ARETO engineers develop an installation plan. It is anticipated that ARETO's work force will install the equipment, but should this not be possible, the installation will be contracted out to a local experienced Egyptian contracting firm. Annex U outlines ARETO's air-conditioning requirements.

5.07 Standby power generators are also necessary for the continuous and reliable operation of the telephone plant. Annex U lists the priority stationary standby diesel alternator generator sets for the Cairo and Alexandria Exchanges. The Annex also lists a number of mobile generator sets. All of these sets are to provide output power at 380/220 volts, 3 phase, 4 wire and at 50 Hertz. The stationary standby equipment will provide protection in the event of commercial power interruption and the mobile equipment will provide temporary power to those exchanges that might experience a fire or other disaster causing loss of normal and standby power. The consultant is to verify the recommended capacity of the generators taking into account the

power requirements of the new exchanges and the air-conditioning systems. In addition, necessary civil works must be determined to house the new generators and schedules developed to coordinate timely installation. These power units are essentially "off-the-shelf" and the technical bid documents are relatively simple for the consultant to prepare.

5.08 Other equipment for the telephone system is listed in Annex P and will be addressed by the Consultant with ARETO and implemented insofar as funds are available. A priority item is spare parts and tools. Since these are normal stock items procurement is relatively simple.

C. Procurement Options

5.09 ARETO has expressed a desire to have both the ESS Exchange equipment and the Outside Equipment performed by a turnkey operator. There are a number of options to be considered:

I. Turnkey contractor for both the exchange and OSP system combined. There is merit in having both the exchange and associated OSP provided

by the same contractor. The interface problems are minimized and readily resolved when the firm is contractually responsible for the performance and operability of both systems. There are 4 or 5 U.S. suppliers of ESS systems all of whom are interested in the Egyptian market. However, there are many firms capable of providing and installing the OSP. These firms would be locked out of the opportunity to participate in the project if a total turnkey package were to go to one firm.

II. Turnkey contractor for ESS and turnkey contractor for OSP. This option would provide maximum opportunity and competition for U.S. suppliers. It would also require the Consultant to provide overall contract management, to resolve interface questions and to assure that civil works and beneficial occupancy dates (BOD) were met.

III. Turnkey contractor for ESS with the Consultant providing detailed specifications and drawings for the OSP effort. The role of the OSP contractor would then be somewhat lessened and the role of the Consultant increased. The Consultant's contract management role would also be increased.

5.10 It will be noted from above that a turnkey contractor for the ESS is listed with all options. Based upon discussions with U.S. suppliers, ARETO and the Mission, the consensus favors a turnkey contractor because of the complexity of the equipment. However, both ARETO and the Mission will look toward the consultant for his evaluation and

recommendation as to the best method of procurement and installation of the equipment. ARETO and U.S.A.I.D. will review and approve the consultant's evaluation and recommendations for ESS and OSP, as well as other procurement that is A.I.D.-financed. Prior to the disbursement of A.I.D. funds for the procurement of equipment, U.S.A.I.D. will approve a procurement plan developed by the consultant and ARETO. Such U.S.A.I.D. approval will be a Condition Precedent to disbursement for equipment.

D. Exchanges

5.11 The following lists the major effort and costs at the ~~Cairo~~ Alexandria Exchanges scheduled for ESS equipment. It is expected that at the completion of installation of ESS, the rotary exchange subscribers will be transferred into the ESS switch and the rotary switch dismantled and serviceable parts made available for other rotary exchange which will be scheduled for replacement at a later date and the balance of the equipment to salvage.

5.12 ~~Zamalek~~ Alexandria I & II Exchange

	AID ($000)	GOE (LE 000)
ESS ~~20,000~~ 30,000 lines	~~12,000~~ 11,500 ~~7,000~~	~~2,750~~ 1,500
OSP ~~17,000~~ 36,000	~~12,000~~ 18,000	5,400
Air-Conditioning	~~200~~ 300	
Standby Generator	500	
	30,300	6,900

~~Standby Generator~~	~~143~~	
	~~19,943~~	~~3,750~~

~~* ESS and OSP financed under Loan 263-K-047. ESS includes appropriate transmission equipment.~~

5.13 Ibrahima ~~Mamb~~ Exchange

	AID ($000)	GOE ($000)
ESS 20,000	6,500 ~~8,000~~	1,000
OSP 24,000	11,000	3,000
Air Conditioning	200	—
Standby Generator	143	—
	~~9,843~~ 17,843	4,000

~~* OSP under contract to AEG Telefunken~~

5.14 Gelim Exchange ~~Bab El Louk Exchange~~

ESS 20,000 lines	6,500 ~~8,000~~	1,000
OSP 24,000 lines	11,000 ~~12,000~~	3,000
Air Conditioning	200 ~~150~~	—
Standby Generator	143	
	17,843	4,000

	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]
5.15	[redacted]	(Not used)	
		[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]
	OSP 36,000	18,000	[redacted]
	[redacted]	[redacted]	
	[redacted]	[redacted]	[redacted]
		30,[redacted]3	[redacted]

[redacted]

E. Technical Assistance

5.16 ARETO is negotiating a contract with a U.S. Consulting firm to perform the scope of work which appears in Annex O. These services to be financed by A.I.D. Loan 263-K-047 were initially designed to cover a two year period for the institutional aspects and are aimed at a beginning to strengthen ARETO's managing and operating abilities. Functional areas which the services will cover are planning, procurement, maintenance, accounting, financial, personnel assistance. An additional year of technical assistance was provided by the FY 1978 A.I.D. loan to assist ARETO to oversee the installation of equipment financed thereunder.

5.17 ~~This~~ The FY 1979 Telecom II grant provided funding to continue those same institution building services detailed in Annex O for an additional two years. The Scope of Work shown in Annex O was developed by ARETO on the basis of and is consistent with the Telecommunications Sector Study Report. The services will be performed under Telecom II and this Telecom III Project by the same U.S. Consultant selected under A.I.D. Loan 263-K-047. The Sector Study Report recommends, and ARETO concurs, that substantial and wide ranging technical assistance will be required for an extended time before ARETO's performance is comparable to the operating standard of telephone operating companies in the developed world. The Scope of Work also makes provision for services to be provided for the design, procurement and installation of ESS and related outside plant in Cairo and Alexandria ~~if necessary~~.

5.18 The U.S. Consultant who will work with ARETO will have either as a joint-venture partner or as a sub-contractor one or more U.S. operating telephone companies involved in the project. Additionally, the U.S. Consultant has pertinent and similar experience overseas in developing countries. It is, therefore, expected that the U.S. Consultant

will provide satisfactory or better service to ARETO in gaining the objectives of this project.

F. Cost Estimate

5.19 The capital cost of the project has been estimated by ARETO and reviewed by U.S.A.I.D. Equipment cost estimates were based on market prices in effect in January 1979.

5.20 The total capital cost of the FY 1979 Telecom II project and the ~~possible~~ proposed FY ~~1980~~ 1979 Telecom III A.I.D. project, expressed in dollars at the parallel market rate (L.E. 1.00 = U.S. $1.43), is $200.0 million, of which the equivalent of $40,0 million is the Egyptian pound cost and $160.0 million is foreign exchange cost. The capital cost of the FY 1979 Telecom II project alone is exactly one-half of amounts shown above. The aforementioned Egyptian pound cost does not include the salary costs of ARETO personnel assigned to this project. Of the FY 1979 and 1980 U.S. dollar costs, technical assistance accounts for 7.81% ($12.5 million) of total projects costs; equipment and equipment-related activities, including shipping, accounts for 82.19% ($131.5 million); and a contingency and escalation factor of 10% ($16.0 million) has been included. For FY Telecom II 1979 alone, technical assistance accounts for 9.37% ($7.5 million), equipment for 80.63% and a contingency and escalation factor of 10% ($8.0 million) has been included.

Exhibit V-1
Estimated Cost Summary
for FY's 1978 & 1979
(in 000s LE & $)

Category	FY 1978			FY 1979		
		$ A.I.D.	LE G.O.E.		$ A.I.D.	LE G.O.E.
Technical Assistance and Training		$ 7,500	LE 1,500		$ 7,500	LE 1,875
Planning						
Training						
Procurement						
Accounting, Financial and Personnel						
STP						
Equipment and Equipment Related		28,500	3,750		64,500	16,125
a. Replacement of 20,000 Line Zamalek Rotary Exchange:						
(i) Exchange Equipment	$ 7,000					
(ii) Outside Plant	12,000					
b. Replacement of 3 Rotary Exchanges in Cairo:						
(i) Exchange Equipment				$24,500		
(ii) Outside Plant				30,000		
c. Replacement of 3 Rotary Exchanges in Alexandria:						
(i) Exchange Equipment						
(ii) Outside Plant						
d. PABX Exchange - 3,000 Lines	2,000					
e. Microwave Links	1,000					
f. Mobile Exchange Station Vans	1,500					
g. Relief Equipment for Customers Using Rotary Exchanges	2,500					
h. Test Equipment and Vehicles	1,000					
i. Air Conditioning	1,500			3,300		
j. Standby Power	--			4,700		
k. Other Equipment				2,000		
Contingency and Escalation		4,000	750		8,000	2,000
TOTALS		$40,000	LE 6,000		$80,000	LE 20,000

EXHIBIT V-1 (Cont'd.)

ESTMATED COST SUMMARY

FY '79 TELECOMMUNICATIONS III

CATEGORY	FY 1979 (000) $ A.I.D.	L.E. ($ EQUIV) G.O.E.
TECHNICAL ASSISTANCE & TN'G.	5,000	2,000
PLANNING, TRAINING, PROCUREMENT ACCOUNTING, FINANCIAL, PERSONNEL		
EQUIPMENT & EQUIPMENT RELATED	67,000	16,000
REPLACEMENT OF THREE ROTARY EXCHANGES IN ALEXANDRIA		
(i) EXCHANGE EQUIPMENT	24,500	
(ii) OUTSIDE PLANT	40,000	
(iii) EQUIPMENT AIRCONDITIONING	1,000	
(iv) STANDBY GENERATORS	1,500	
CONTINGENCY & ESCALATION	8,000	2,000
TOTALS	80,000	20,000

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 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.

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

C. Telecommunications Demand Forecasts

6.03 One of the principal purposes of the FY 1978 A.I.D. Loan and the ~~proposed~~ FY 1979 Telecom II and 1980 A.I.D. Grants is to assist ARETO to improve the efficiency and effectiveness of the present telecommunication system and to develop and install proposed Telecom III a program to improve ARETO's management and operations (see paras 2.01-2.11). Indeed even if no expansion in demand was contemplated, the validity and integrity of this project would remain intact. Nevertheless, an ambitious expansion program is a necessary ingredient of Egypt's economic development plan 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.

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.

Dependent Variable	Independent Variable
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

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

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 [illegible]sed 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 messages. CTC states that numerous telecommunications planning studies have demonstrated that this is a suitable and effective basis for an international demand forecast.

c. Sub-sector Needs

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 CTC admits that developing long-term telecommunications demand forecasts is a difficult matter. Consequently, the demand forecasts which will be presented further on should not be considered as "set in concrete". Planning is a continuous process. A forecast, especially of a twenty year range, must be periodically revised, and revisions are a normal part of planning. Revisions in forecasts can be made necessary by a number of unexpected events which planners cannot be expected to foresee. Frequently unforeseen domestic or foreign developments outdate the assumptions on which a forecast is based.

6.11 CTC did consider other methodologies and those methodologies (e.g., the trend method) were rejected for various reasons. U.S.A.I.D. considers the methodology used by CTC (see para 6.04) as being reasonable under the circumstances; especially since CTC's methodology is confirmed by examinations of individual exchange areas (see para 6.01). It presents a reasonable model and this model is susceptible of sensitivity analysis. That is, ARETO 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. CTC has set forth the method and procedures and ARETO could easily postulate different assumptions and the calculations carried out as described in CTC's final report to see how specified change would alter the final outcome.

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

	1980	1981	1982	1983	1984	1989	1994	1999
Domestic								
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
International								
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 Minutes (Thousands)	121,152	129,713	138,881	148,698	162,878	229,176	330,731	474,857

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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 total LE 235.7 million, of which approximately LE 66.1 million were classified as current, liabilities totaled approximately LE 180.5 million, of which LE 149.4 were long term, and equity was approximately LE 55.2 million. ARETO's current ratio was 2.1:1.0 and its long term debt to equity ratio was 2.7:1.0, 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 LE 000,000)

	Actuals				
	1/ 1973	1/ 1974	1/ 1975	2/ 1976	2/ 1977
Cash and Receivables	12.0	15.5	18.4	22.6	24.9
Total Current Assets	28.5	35.0	44.5	59.0	66.1
Total Assets	76.1	87.6	111.4	179.5	235.7
Current Liabilities	17.8	21.7	31.5	32.5	31.1
Total Liabilities	47.4	57.3	81.0	130.0	180.5
Total Equity	28.7	30.3	30.4	49.5	55.2
Current Ratio	1.6	1.6	1.4	1.8	2.1
Long term Debt/Equity Ratio	1.0	1.2	1.6	2.0	2.7

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.

1/ Does not reflect any revaluation of asset accounts.

2/ Reflects revaluation of fixed and current asset accounts by ARETO. However, most of the increase in the value of these assets is shown on the right hand side of the Balance Sheet as an increase in long-term debt to the GOE and not as an increase in equity.

Note: The 1977 Balance Sheet shows Long Term Debt as being LE 149.4 million. Of this amount, LE 91.4 million is owed to the GOE.

Historical Income Statements

(in LE 000,000)

	Actuals				
	1973	1974	1975	1976	1977
Operating Revenue	22.4	23.8	26.0	30.0	36.6
Operating Expenses	17.7	19.2	21.4	23.2	26.6
Operating Income	4.7	4.6	4.6	6.8	10.0
Other Income (net)	.4	.6	.7	1.5	.8
Other Expense (int. & comm.)	1.2	1.5	1.9	2.5	3.5
Net Income	3.9	3.7	3.4	5.7	7.3

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

Operating Ratio-%	79	80	82	78	73
Operating Profit-%	21	19	18	23	27
Net Profit-%	17	15	13	19	20

3. Comments on Past Financial Performance

7.04 ARETO's past financial performance has been mixed. The IBRD in its appraisal report (no. 1756-EGT) showed that 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 1973-76 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 4.09, Exhibit IV-2). It is estimated that the cost of the excess staff over the 1973-76 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 the entire $80.0 million of this project be financed as a grant to the GOE who, in turn, will re-grant to ARETO $80.0 million. Before a possible $80.0 million FY ~~1980~~ 1979 Telecom III grant is

authorized, the U.S. Consultant and U.S.A.I.D. will review ARETO's financial statements as of December 31, 1979 to determine the most appropriate terms to ARETO for the $80.0 million FY ~~1980~~ 1979 Telecom III A.I.D. funds. As can be seen from para 7.12, the investment requirements projected by CTC through 1984 are substantial. A covenant will be included in the Grant Agreement stating that the GOE and ARETO will, within one year of the signing of the Agreement, maintain a debt to equity ratio of 70:30. U.S.A.I.D. recommends that the funds re-granted to ARETO be entered on ARETO's books as equity. At the end of 1977, the last year that ARETO financial statements are available, a 77:23 debt to equity ratio existed. If LE 20.0 million of ARETO debt is transferred to equity, the debt to equity ratio will be 68:32. Consequently a re-grant to ARETO of A.I.D. funds will permit ARETO to borrow an additional $186.7 million for its expansion program.

7.07 In 1979 ARETO revalued its asset accounts and increased the value of its assets upward by LE 38.4 million and amended its 1976 and 1977 financial statements. A corresponding increase of LE 26.3 and LE 12.0 million was made to the debt and equity accounts respectively. We are unclear as to why the entire amount of the increased asset accounts (LE 38.4 million) was not applied solely to an increase to the equity accountant. The U.S. Consultant will delve into this matter thoroughly when it begins its work in Egypt sometime in August 1979.

September

7.08 Total project costs are $100,000,000, of which $80,000,000 are foreign exchange costs and $20,000,000 are local currency costs.* The A.I.D. grant will finance all of the foreign exchange cost of the project and the local currency cost 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 grant, 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

7.09 The FY 1978 A.I.D. Loan project is one directed mainly at infrastructure building; in this instance the telecommunications sector. The telecommunications equipment to be financed by this A.I.D. Grant will be replacement equipment of the type required to maintain and improve the present telecommunications network in Egypt. The technical assistance portion of this project will support the infrastructure building aspect of the FY 1978 loan as well as the design, procurement and installation of ~~four~~ three ESS and related outside plant for ~~Cairo~~ Alexandria.

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

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

7.11 Indirectly, however, it is expected that at the completion of the FY 1978, 1979 Telecom II and proposed ~~1980~~ 1979 Telecom III A.I.D. program, ARETO will be operating at a higher level of efficiency and, consequently, there should be some operating cost savings.

7.12 ARETO sees itself on the threshold of an ambitious expansion program where by 1989 ARETO will be able to effectively satisfy domestic demand. It has been estimated by CTC that this undertaking will require an investment program on the order of $2.7 billion by 1984 and in excess of $20.0 billion by the year 2000.

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 had requested A.I.D. in FY 1978 to assist ARETO in strengthening its management, planning and operating capacity. It is further understood by the GOE that the FY 1978, 1979 Telecom II and proposed ~~1980~~ 1979 Telecom III A.I.D. projects can only establish a footing on which to improve 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.

7.13 In this initial stage, project profitability is in a very real sense meaningless. First, it is practically impossible to quantify the incremental benefits and costs to determine the financial internal rate of return. Second, and most important, is that what is imperative is, assist ARETO take the first steps to lay down the above-described institutional foundation and to improve the present telecommunications network by replacing old, obsolete rotary exchanges with modern, dependable ESS. The latter is consistent with the recommendation of the Sector Study Report. It would be senseless to invest in a revenue generating expansionary program at this time when the present telecommunications institution is having serious difficulties coping with the current telecommunications system.

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

	1/ 1978	1/ 1979	2/ 1980
Operating Revenues-LE millions	51	72	93
Operating Expenses-LE millions	31	43	50
Operating Income-LE millions	20	29	43
Operating Ratio-percentage	61	60	54
Debt/Equity Ratio	3.0	2.5	2.4
Interest Coverage-times	3.0	2.8	2.3

1/ Figures taken from CTC Advisory Report No. 1 This report presents the interim financial statements used in developing projections for the master plan period 1980-1999.

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

7.15 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.

7.16 Earning capacity in relation to currently-valued assets is not certain because ARETO has recently revalued its assets and amended its 1976 and 1977 financial statements. The U.S. Consultant will review the revaluation of assets undertaken by ARETO to determine their reasonableness. 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) ARETO should be reconstituted under its own special charter as an autonomous entity, which will permit it to establish tariff structures; 2) limit staff growth; and 3) that LE 20.0 million of the total debt of ARETO to the GOE be capitalized (the amount of this debt at the end of 1977 was in excess of LE 90 million). The reason for such a large debt is explained in para 2.19 and has been exacerbated by the recent revaluation of assets in which most of the revalued assets were offset by an increase in long-term debt and not by an increase in equity). ARETO has recently revalued its assets accounts and

adjusted those assets which were entered at a cost of less than fair market value and the U.S. Consultant will determine the reasonableness of this exercise. The Recommendation, Conditions and Covenants Section of this Paper addresses the above points.

D. ARETO's Debt Service Capability

7.17 The Projected Statement of Fund Flow for the period 1980-1999 is presented in Annex M. As mentioned in an earlier section, these projections should be viewed as to what is possible and not as "set in concrete". It is interesting that earnings from operations in the 1980-84 period could finance approximately 20% of a very substantial investment plan; from 1985 onward earnings from operations finance more than 50% of the investment plan.

7.18 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 all indications are that ARETO will be able to service debt as long as it maintains a 70:30 or better debt/equity ratio. During grant negotiations A.I.D. will seek an undertaking from the GOE and ARETO that at least a 70:30 debt/equity ratio will be maintained by ARETO. Additionally, A.I.D. will attempt to have LE 20.0 million of debt-

ARETO to the 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

7.19 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 Europe 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 GODE which was used to substantially reduce its current short-term debt problem.

7.20 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 last 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 percent of export and service earnings.

VIII. Economic Analysis.

8.01 The economic analysis of the Telecommunication Project is an incremental cost-benefit analysis. That is, it does not analyze ARETO as a whole but only the additional costs and benefits attributable to this project and directly related activities. The economic analysis is focussed on the rotary exchanges that are to be replaced and the air-conditioning and standby power that are being installed in other exchanges. All costs necessary to achieve project benefits have been included. Thus the investment costs of the outside plant in Maadi (Telefunken) are included although they are not being financed by AID. Similarly, future additional exchange expansion has been included to the extent that it will be needed to realize the benefits of the additional outside plant investments being financed by AID.

8.02 The main economic benefits to the economy of this project and related investments are:

- service improvement as a result of replacing 98,000 existing rotary exchange and outside plant lines;
- greater access to telephone services through the addition of 62,000 new exchange lines and 91,000 new outside lines;

- improved service through the other exchanges that will be air-conditioned and provided with standby power;
- significantly reduced maintenance costs as a result of all of the above investments.

8.03 As is the case with most public utilities, assigning a quantitative value to their serivces is extraordinarily difficult. It is clear that existing telecommunication services in Egypt are very poor. As a result the value of these services is lower than in countries with better services. It is also a fact that actual telecommunication revenues per subscriber line are only $137 in Egypt ($99 of which is for telephone services) versus $210 - $250 in such countries as Ghana, Pakistan, Ethiopia, and India.

8.04 We have taken two approaches in estimating the value of improved telephone serivces that will result from this project. In the first case we assumed that the value of existing telephone serivces is equal to current revenues ($99 per line). We then used the consultants estimate that the call completion rate will increase 50% for both the new exchanges and the old exchanges that are air-conditioned. The benefits of the project in this case become $49.50/line for replacement lines and $148,50 for new lines. In

estimating an additional benefit we used the consultants estimate that maintenance costs for the old rotary exchanges would increase to a level equal to current revenues per line if they are not replaced. To be conservative we have assumed that the increased operating costs of air-conditioning the other existing exchanges will offset the reduced maintenance costs that will result -- although in fact maintenance cost reductions will be significantly greater. The internal economic rate of return for the project using this first approach is 10.2%.

8.05 As a second approach, we estimated that the value of telephone services after the rotary exchanges are replaced and other exchanges are air-conditioned will approximate actual revenues currently received in other developing countries -- about $225/line. We also assumed that current revenues are equivalent to actual benefits of existing unimproved services. Using this approach, the value of the benefits from new lines is $225/line and from replacement lines is $126/line ($225-$99). As was the case in the first instance, cost savings from reduced maintenance expenses of replaced rotary exchanges were also included as a project benefit. The internal economic rate of return using this second approach is 19.4%.

8.06 The above two calculations show an IRR range of 10.2% to 19.4%. However, since in reality the value of existing telephone service in Egypt is almost certainly greater than current revenues per line, the first estimate is too low and the second too high. In any event, an IRR of 10% would be considered adequate for basic public utility investments where actual benefits are difficult or impossible to quantify.

IX. Environmental Considerations

9.01 During May 1979, A.I.D./W provided the Mission with the services of an Environmental Officer to perform an initial environmental examination of the FY 1979 Telecom II and Telecom III ~~Telecommunications~~ projects. The Environmental Officer reached a negative determination as to the need for an environmental assessment for this project. His written conclusions are presented in the following paragraphs.

9.02 The Telecommunications Project consists of four types of modernization of the telephone system (1) replacement of older types of switching systems in three exchanges with electronic switching equipment, (2) replacement of 2 outside plants with updated line equipment, (3) provision of emergency power generators and airconditioning equipment in selected exchanges to provide controlled environment for switching equipment, and (4) improved management and operating capability mainly through training and education of personnel.

9.03 Physical activity will include reconstruction of some existing buildings and some outside work mainly involving excavation in streets and, after completion of the modernization program, restoration of the sites to use by traffic. There will be some trucking of purchased equipment from shipping ports. Dust and noise will increase during reconstruction. In the modernized plant, when power outages occur, there will be noise from the new generators.

Performance by contractors in the past in the Cairo area working on utilities requiring ditching and excavating in the streets has led to public criticism because of unsafe practices such as open ditches with no barriers or warning lights to protect pedestrians and the operation of vehicles. In addition, long delays of many months were incurred before resurfacing of streets and sidewalks were accomplished. Contractor guidance on this project should include instructions to correct and mitigate these concerns.

9.04 One goal of the project is to provide humidity, dust and temperature control for better operation of the equipment. This will result in provision of a healthier environment for the employees as a beneficial aspect. Because noise from the generators would interfere with best equipment operation, the placement of generators is likely to be such that they do not disturb employees. The completion of the project will result in better personnel communications, thus having the potential for reduction of automobile traffic by permitting more business to be conducted by telephone, rather than by messenger.

9.05 Since the equipment will continue to be partially operational during the construction period it is likely that normal procedures will be followed to minimize dust dispersion through wetting exposed areas and covering from wind. The contractor guidance should include directions that noise, dust, humidity, and temperature should be

controlled as much as possible. Construction on the streets is generally by hand excavation and is likely to produce disturbance and redirection of traffic to less open corridors. Here the desire for contractor profit is likely to result in minimal time disruption.

9.06 Contractor operation and purchase specifications could include requirements for less polluting vehicles (trucks, buses, autos, shipping vehicles) for use in the project. Driver training could result in more efficient operation of vehicles with less noise and better fuel-air ratios as well as other less polluting maintenance of company equipment.

9.07 The most serious pollution in Egyptian factories and office buildings is due to very poor housekeeping procedures. A part of the training program could well attempt to instill pride in a clean, pleasant environment. Landscaping of grounds and effective use of plantings can sometimes give motivation for clean housekeeping. Provision should be made at the sites for trash disposal including trash bins and containers and trucks or a trucking service for removal to offsite disposal.

9.08 Detailed plans should make provision for sewage disposal within the new sewer system. Contingency plans will be needed for clean-up of spills from the fuel storage tanks and for maintenance of piping

for fuel to generators. In planning for the duties of maintenance persons at each site, adequate provision should be made for maintenance of buildings and grounds in an attractive manner.

9.09 Although the net effect of this discussion is a negative determination as to the need for an environmental assessment, attention should be paid throughout the project to minimizing negative effects and particularly to the taking of positive housekeeping actions in the final product.

X. Social Analysis

10.01 It is generally accepted that with improved communications there will be an increase in commercial activity; general economic performance will increase and there will be more goods and services available and benefits will accrue to the population as a whole.

10.02 In both rich and poor countries, the benefits of commercial and industrial activity do not flow in equal proportions to individuals and groups within the system. However, quality of life does seem to improve for the general population in terms of distribution and flow of goods and services which affect all dimensions of life. Important social interaction and performance is now contingent on a minimally effective communications network in Cairo. With regularity efforts or functions of human need fail because of the incapacity of the network, e.g. residential and commercial property burns because there is no dial tone; the health clinic referral system or emergency medical system cannot be coordinated; the school does not have a telephone and their request for a telephone line has been on file for 11 years. Everyone in some way must gain from a modernized network. There are no losers.

10.03 Conventionally, the social analysis of AID projects identifies direct and indirect beneficiaries.

(a) First order beneficiaries: A simplistic reduction of this formula might argue that there are 30,000 directly benefitting individuals or entities and various levels of indirect beneficiaries extending out from that inner core. It would be more accurate to distinguish among levels of direct benefit. Assuredly, the present subscribers benefitting from the improved service include primarily government offices, business agencies and members of the middle class. Equally assuredly, the next increment of a subscriber mix might be classified as first-order direct beneficiaries. However, allowing for a household size of five and a business/government office size of 10, first-order beneficiaries probably number between 600,000 and 800,000 individuals or no more than ten percent of the population of Cairo.

(b) Second-order direct beneficiaries are those who, while not living or working in a unit with a telephone line, have reasonable access to either the formal or informal public telephone system. While assigning a user rate to these telephones in a speculative enterprise, it is reasonable to propose that at least 75% of the remaining city population either lives or works near a publically accessible phone and makes some use of some facility. While the number of official public telephones (at PTT offices) is quite limited, the number of unofficial public telephones operated in street kiosks and stores and charging a small fee per call is

very considerable. There are few areas of the city without an informal public phone on almost every city block and the hook-ups are admittedly thinner in low income areas. An improvement in both the number of these telephones and more importantly in the reliability of service which they provide will probably place some five to six million people in the second-order direct beneficiary range.

(c) Indirect Beneficiaries. Among the very poor it is arguable that the project will have little direct effect. This element of the population will either have no access to even an expanded telephone service or no way of making productive use of such access as they may have. Even these people, however, lead lives conditioned in part by the state of communications in Cairo. Employment, the prices of staple commodities in the market and public welfare services are all contingent, in part, upon a minimal level of communication efficiency. This group of between 1.5 and 2 million are in the ranks of first-order indirect beneficiaries. Without carrying the process out indefinitely, there are also real indirect benefits for some subsection of the remaining population of Egypt whose livelihood and welfare is determined in Cairo.

10.04 Schematically the beneficiary incidence of the project can be laid out along these lines:

Direct Beneficiaries		Indirect Beneficiaries	
1st subscribers	600,000	1st Cairo "non access"	2,000,000
2nd "access"	6,000,000	2nd Non-Cairo business, gov't middle class	4,000,000

The numbers are of course, only indicative orders of magnitude. The scale could be expanded and the values are arguable. However, the underlying analysis stands with or without these specific numbers. In the context of Cairo in 1979, a project which makes qualitative and quantitative improvements in the city's telecommunications system has an extensive positive social impact and few, if any, social costs. It is, therefore, the determination of the mission sectoral and social analysis division that this project is socially sound.

10.05 Similarly, it can be shown for Alexandria:

Direct Beneficiaries		Indirect Beneficiaries	
1st subscribers	250,000	1st Alexandria "non access"	600,000
2nd "access"	1,875,000	2nd Non-Alexandria business, Gov't. middle class	1,200,000

XI. Implementation Plan

A. Schedule

11.01 A firm project schedule will be available once the U.S. Consultant financed under the FY 1978 A.I.D. Loan commences work (U.S.A.I.D. estimates that this will be sometime in ~~August~~ September 1979). The Implementation Plan presented below is ARETO's and it has been reviewed by U.S.A.I.D. In U.S.A.I.D.'s best judgement it is a reasonable schedule; however, as mentioned above, the U.S. Consultant will review the Plan and make appropriate adjustments if necessary.

11.02 The Scope of Work for the FY 1978 A.I.D. Loan (see Annex O) contains provision for the U.S. Consultant to, if required, develop specifications for the replacement of all rotary exchanges which are financed by this FY 1979 A.I.D. project. U.S.A.I.D. expects that the U.S. Consultant following A.I.D. Handbook 11 Procurement Procedures will develop an IFB encompassing all seven (7) rotary exchanges and related outside plant (which includes 3 ESS and outside plant for Alexandria) and the award will probably be made to a U.S. firm to undertake the work on a turnkey basis.

11.03

Grant Approved	September ~~August~~ 1979
Grant Agreement Signed	September ~~August~~ 1979
Conditions Precedent Met	December 1979
Consultant's Contract Amended	January 1980
Preparation of IFB's for A/C, Generator & Other	January-March 1980
Preparation of IFB's for ESS and OSP	February-June 1980
Award of Contracts for A/C, Standby Gen. & Other	June 1980
Project Evaluation	October 1980

Award of Contracts for ESS & OSP	December 1980
Final Date for Opening L/C	June 1981
Project Evaluation	October 1981
Project Evaluation	October 1982
All A/C, Standby Gen. & Other installed	October 1982*
All OSP installed	August 1983*
All ESS installed	December 1983*
Project Assistance Completion	March 1984
Final Evaluation	June 1984
Terminal Disbursement Date	September 1984

B. Contracting Procedure/Procurement

11.04 ARETO is in the process of ~~selecting and contracting for one~~ negotiating with a U.S. Consultant firm to perform services under the FY 1978 A.I.D. Loan, ~~and this~~ the FY 1979 Telecom II and this FY 1979 Telecom III project. A.I.D. project. In selecting this firm ARETO is adhering to Handbook 11 (Country Contracting-Procurement of Professional Services). The U.S. Consultants 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., the replacement of rotary exchanges in Cairo and Alexandria) will most likely be bid out on a turnkey basis. The U.S. Consultants will oversee ARETO to insure that the procurement of equipment to 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.

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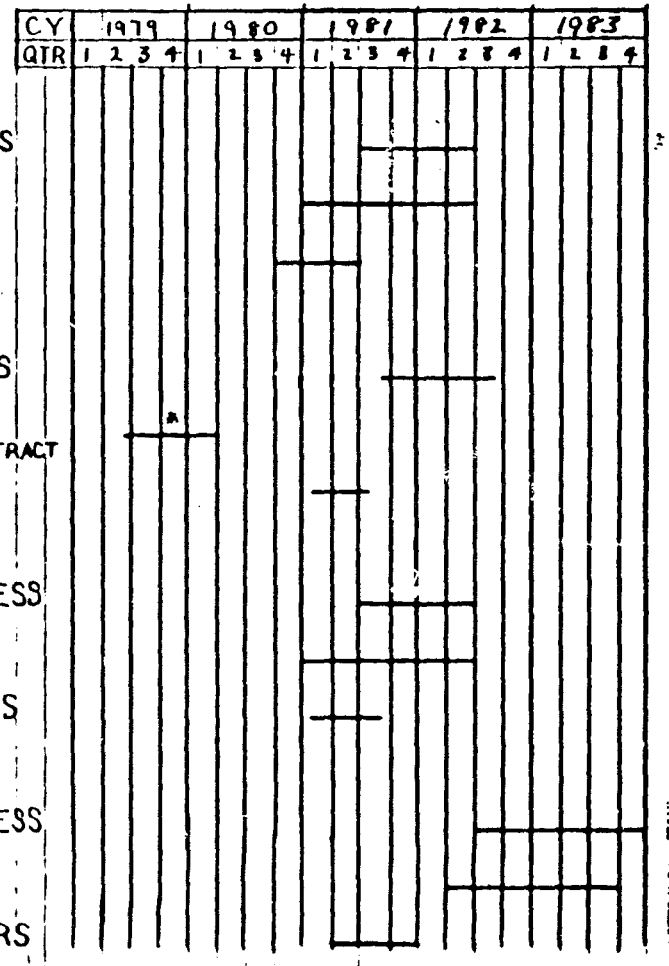
* See the following page for bar chart of the schedule of replacements of Rotary Exchanges with ESS, related outside plant, air conditioners and standby generators.

ROTARY REPLACEMENT PROGRAM - CAIRO



1) ZAMALEK:

- EXCHANGE EQUIPMENT - INSTALL 20,000 ESS
- OUTSIDE PLANT - PROVIDE 24,000 LINES
- AIR CONDITIONING & STANDBY GENERATORS

2) MAADI:

- EXCHANGE EQUIPMENT - INSTALL 20,000 ESS
- OUTSIDE PLANT - PROVIDE 24,000 LINES
- AIR CONDITIONING & STANDBY GENERATORS

* ARETO/TELEFUNKEN CONTRACT

2) BAB EL-LOUK:

- EXCHANGE EQUIPMENT - INSTALL 20,000 ESS
- OUTSIDE PLANT - PROVIDE 24,000 LINES
- AIR CONDITIONING & STANDBY GENERATORS

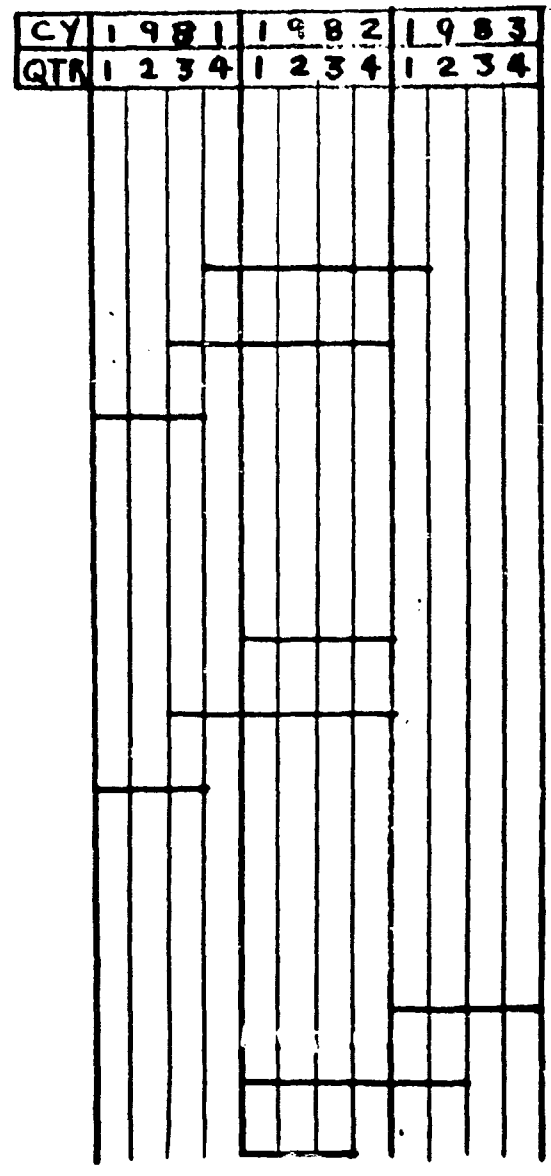
2) HELIOPOLIS II/III:

- EXCHANGE EQUIPMENT - INSTALL 30,000 ESS
- OUTSIDE PLANT - PROVIDE 36,000 LINES
- AIR CONDITIONING & STANDBY GENERATORS

1) FINANCED BY LOAN 263-K-047 (TELECOM I), 2) FINANCED BY FY '79 GRANT (TELECOM II)

NOTE: All other Air Conditioning & Standby Generators for Exchanges shown in Annex U are scheduled for installation in the period Jan.-Dec. 1982.

ROTARY REPLACEMENT PROGRAM-ALEXANDRIA



ALEXANDRIA I & II

EXCHANGE EQUIPMENT - INSTALL 30,000 ESS
OUTSIDE PLANT - PROVIDE 36,000 LINES
AIR CONDITIONING & STANDBY GENERATORS

IBRAHIMA

EXCHANGE EQUIPMENT - INSTALL 20,000 ESS
OUTSIDE PLANT - PROVIDE 24,000 LINES
AIR CONDITIONING & STANDBY GENERATORS

GELEM

EXCHANGE EQUIPMENT - INSTALL 20,000 ESS
OUTSIDE PLANT - PROVIDE 24,000 LINES
AIR CONDITIONING & STANDBY GENERATORS

ALL ABOVE FINANCED BY FY 1979 GRANT (TELECOM III)

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

C. A.I.D. Financing Procedures

11.06 All procurement financed by this grant will be financed by Letters of Commitment (L/Comm), as will the cost of services performed by U.S. Consultants. As mutually agreed by ARETO and U.S.A.I.D., 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 grant 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 Grant 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 Consultants 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 Upon receipt of a firm project schedule, U.S.A.I.D. will revise, if necessary, the Logical Framework to be used as a basis for evaluating project progress. The Logical Framework is shown in Annex T. Monthly progress reports submitted to U.S.A.I.D. will indicate the level or degree of implementation of the technical assistance portion of the grant, as well as the progress achieved in the procurement, receipt and utilization of telecommunications equipment and materials.

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

(a) the delivery of project inputs is on schedule;

(b) the assumptions made are still valid; and

(c) the project outputs can be completed as originally scheduled.

11.10 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. These annual evaluations will be conducted by a committee with representation from the Mission, AID/W, the contractors and ARETO.

11.11 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. An estimate of funding required for this evaluation will be prepared and and budgeted for under the Tech Services and Feasibility Studies project.

F. Eligibility Date

11.12 The eligibility date for financing any bona fide U.S. dollar project cost will be October 1, 1979, at which time the Grant and Sub-grant Agreements will be signed 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

11.13 (i) Conditions Precedent

The terminal date for meeting initial Conditions Precedent will be 120 days from the date of Grant Agreement signing; the date by which funds will be needed to finance the services of the U.S. Consultants.

11.14 (ii) Letters of Commitment and Disbursement

The terminal date for opening Letters of Commitment will be June 30, 1982, the date by which all orders will be placed; and

the terminal date for disbursement will be September 30, 1984, one year after all equipment has been received to permit time for testing and allow for final payments. The Project Assistance Completion Date (PACD) is March 31, 1984.

XII. Recommendation, Conditions and Covenants

A. Recommendation

12.01 Subject to the conditions and covenants listed below, we recommend that A.I.D. authorize a grant to the Government of Egypt in the amount of $80 million (eighty million dollars) for FY 1979 Telecom III which together with the $40.0 million FY 1978 A.I.D. loan and the FY 1979 Telecom Grant will provide 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 procurement and installation of telecommunications and related equipment. We further recommend that the FY 1979 Telecom III $80.0 million grant to the GOE be regranted to ARETO in the form of equity.

B. Conditions Precedent to Disbursement for Technical Services

12.02 Prior to the first disbursement or to the issuance of the first Letter of Commitment under the grant for technical services, the GOE shall furnish to A.I.D. in form and substance satisfactory to A.I.D. :

a) An opinion of the Egyptian Ministry of Justice or other legal counsel satisfactory to A.I.D. that the grant agreement and the corresponding sub-grant agreement have been duly authorized and/or ratified by, and

executed on behalf of, the GOE and ARETO and that they constitute a valid and legally binding obligations in accordance with all of their terms.

b) The names of the persons who will act as the representatives of the GOE and ARETO, together with evidence of their authority and the specimen signature of each.

c) A regrant agreement satisfactory to A.I.D. for the project between the GOE and ARETO under which the GOE will regrant to ARETO all grant funds, except, if A.I.D. so agrees, that amount of grant funds required to finance the cost of technical assistance to the Ministry of Communications.

C. Conditions Precedent to Disbursement for Equipment

12.03 Prior to any disbursement under this Grant, or to the issuance by A.I.D. of documentation pursuant to which disbursement will be made, for equipment, the Grantee 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 Consultant funded under A.I.D. Loan 263-K-047 and the Grant, for all procurement planned by ARETO through the end of calender year 1983, showing specifications, quantities, estimated prices and timing of such procurement.

The above mentioned conditions shall be included in the grant authorization.

D. Covenants

12.04 The GOE and ARETO will be required to covenant:

a) Execution of the Project

(i) To carry out the project with due diligence and efficiency, and in conformity with sound engineering, construction, financial and administrative practices.

(ii) To cause the project to be carried out in conformance with all the plans, specifications, contracts, schedules, and other arrangements, and with all modifications therein approved by A.I.D. pursuant to this agreement.

(iii) To submit for A.I.D. approval prior to implementation, issuance, or execution, all plans, specification, construction schedules, bid documents, documents concerning solicitation of proposals relating to eligible items, contracts, and all modifications to these documents.

b) Funds and Other Resources to be Provided

To make available on a timely basis any Egyptian currency and any foreign currency in addition to the grant, for the punctual and effective carrying out of construction, maintenance, repair and operation of the project.

c) Operation and Maintenance

To operate, maintain and repair the project in conformity with sound engineering, financial and administrative practices and in such manner as to insure the continuing and successful achievement of the purposes of the project.

d) Management

To provide qualified and experienced management for the project and to train such staff as may be appropriate for the maintenance and operation of the project.

e) Continuing Consultant

To cooperate fully with A.I.D. to assure that the purpose of the grant will be accomplished. To this end, the GOE, ARETO and A.I.D. shall from time to time, at the request of any party, exchange views through their representatives with regard to the progress of the project, the performance of the GOE and ARETO of its obligations under the grant agreement, the performance of consultants,contractors and suppliers engaged on the project, and other matters relating to the project.

f) Other

A.I.D. will seek during grant agreement negotiations to have included in the Agreement the same undertakings from

the GOE and ARETO which were included in the FY 1978 A.I.D. loan project Agreement (263-K-047).

These include covenants dealing with Securing Payment for Telecommunication Services, Tariff rate structures, ARETO Reorganization, Staffing, Transfer to Equity and Debt/Equity Ratio, assuring ARETO performance of Grant obligations and the implementation of a service improvement Plan.

It was anticipated at the time of the Loan Agreement that these covenants would have been successfully accomplished by August 31, 1979. They have not been accomplished due to the inordinate time required to acquire the services of a U.S. Consultant. Since the U.S. Consultant is expected to begin work in ~~August~~ September 1979, these items, which were included in the FY 1978 A.I.D. Loan 263-K-047 Authorization are to be extended one year to August 31, 1980,

the date by which it can reasonably be expected that they can be successfully accomplished.

g) Coordination

In addition, the Grantee and ARETO shall investigate the need for the creation and implementation of a Utilities Coordination Board which would coordinate and notify all agencies of government of any construction efforts involving blasting and/or excavation by utility organizations and by private contractors to minimize interruption of services, damage, repair costs and inconvenience to the public.

ACTION TO IIDPS DZ/DD
ACTION TAKEN Due DATE 3/6
AN X INIT. LS
3447

Mr. Donald S. Brown,
Director,
Agency for International Development
5, Latin America Street
C A I R O

Annex A-U of
2630117004201

Cairo Feb., 1979

Dear Mr. Brown,

Attached hereto is a letter from the Ministry of Communications to the Ministry of Economy and Economic Co-operation which requests financial assistance for Egypt's Telecommunications sector. The Ministry of Economy and Economic Cooperation considers improvement of the Telecommunications sector as a high priority within Egypt's economic development plans and supports the request for assistance.

It would be appreciated if U.S.A.I.D. would review and discuss the Ministry of Communication's proposal and seek agreement on the scope and level of assistance that A.I.D. could provide in 1979 and future years.

Sincerely yours,

ABDEL AZIZ [illegible]
Under Secretary of State
For Economic Cooperation

BEST AVAILABLE COPY

ATT: IIDPS

CAPITAL DEVELOPMENT	
MAJOR	Egypt - Telecom II
SUB	General Documents

SUBJECT: USAID'S Proposal for Providing a Grant to the Telecommunications Authority in 1979

Dr. Hamed Abdel Latif El Sayeh

Minister of Economy and Foreign Trade

Dear Sir,

I hereby enclose a copy of the letter sent to the Telecommunications Authority from the Director of USAID, dated 12/12/78 in which he proposed providing a grant ranging between $ 50 and $ 60 million to the Telecommunications Authority in 1979. USAID requires a request for assistance from the Ministry of Economy as soon as possible clarifying the project needs which will be financed from this grant in order to get the approval of the AID Headquarters in Washington and the approval of the American Congress.

The rotary type centrals in Cairo and Alexandria have a limited capacity of approximately 100 thousand lines. This is considered one of the main reasons for having the telephone services in Alexandria and Cairo at a low level of performance and necessitates immediate action in replacing the centrals of a rotary type with other new ones as soon as possible. The necessity of replacing these centrals with other new ones was supported by what was stated in the feasibility studies presented by the American experts.

Therefore, the Telecommunications Authority finds it necessary to replace the centrals of the rotary type in both Cairo and Alexandria with others of the electronic type.

Since the offer presented by USAID will not bear the Telecommunications Authority's budget any financial burdens, therefore, the Telecommunications Authority suggests the following:

1- Request a grant for the Telecommunications Authority from USAID, according to what was mentioned in the USAID's attached letter.

2- The Authority will allocate this grant to replace the rotary central in Cairo and Alexandria which are 100 thousand lines with another electronic produced by the companies producing such centrals in the US. This would be through a competitive bid between these companies.

Please request USAID reply as soon as possible so that we could get the offered grant as we are in great need of it in order to develop the telecommunications utility.

Thank you,

BEST AVAILABLE COPY

Minister of Communications
Engineer Ali Fahmy Al-Sanes

Replacement of Rotary Exchanges In Cairo & Alexandria Areas.

Name of Exchange	Existing Capt.	New Capacity
I- CAIRO AREA:		
a - Heliopolis II & III	20000	30000
b - Zamalek	20000	20000
c - Bab El Louk	I4000	20000
d - Maadi	4000	20000
Sub Total I	58000	90000
II - ALEXANDRIA AREA:		
a - Auto I & II	20000	30000
b - Ibrahimia	I0000	20000
c - Gelim	I0000	20000
Sub Total II	40000	70000
GRAND TOTAL	98000	I60000

M. A. Sidky

CHAIRMAN OF ARETO

ENG. M. ATTA SIDKY

I2.2.I979

5C(2) - PROJECT CHECKLIST

Listed below are statutory criteria applicable generally to projects with FAA funds and project criteria applicable to individual fund sources: Development Assistance (with a subcategory for criteria applicable only to loans); and Economic Support Fund.

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

A. GENERAL CRITERIA FOR PROJECT.

1. FY 79 App. Act Unnumbered; FAA Sec. 653(b); Sec. 634A.

(a) Describe how Committees on Appropriations of Senate and House have been or will be notified concerning the project;	(a) A Congressional Notification on this project will be sent to the Congress.
(b) is assistance within (Operational Year Budget) country or international organization allocation reported to Congress (or not more than $1 million over that figure)?	(b) Yes
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.

4. FAA Sec. 611(b); FY 79 App. Act Sec. 101. If for water or water-related land resource construction, has project met the standards and criteria as per the Principles and Standards for Planning Water and Related Land Resources dated October 25, 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 and Regional Assistance Administrator taken into consideration the country's capability effectively to maintain and utilize the project?	Yes.See Annex N.
6. FAA Sec. 209. Is project susceptible of execution as part of regional or multilateral project? If so why is project not so executed? Information and conclusion whether assistance will encourage regional development programs.	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). 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.	(e) 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 telecommunicatio 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 grant 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 servi	The grant agreement will so provide. All local currency required will be provided by ARETO and/or GOE.
10. FAA Sec. 612(d). Does the U.S. own excess foreign currency of the country and, if so, what arrangements have been made for its release?	Yes. Release by the GOE is not a problem at present.
11. FAA Sec. 601(e). Will the project utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise?	Yes.
12. FY 79 App. Act Sec. 608. If assistance is for the production of any commodity for export, is the commodity likely to be in surplus on world markets at the time the resulting productive capacity becomes operative, and is such assistance likely to cause substantial injury to U.S. producers of the same, similar or competing commodity?	N.A.

FUNDING CRITERIA FOR PROJECT

1. Development Assistance Project Criteria

a. FAA Sec. 102(b); 111; 113; 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 and the use of appropriate technology, spreading investment out from cities to small towns and rural areas, and insuring wide participation of the poor in the benefits of development on a sustained basis, using the appropriate U.S. institutions; (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; (c) support the self-help efforts of developing countries; (d) promote the participation of women in the national economies of developing countries and the improvement of women's status; and (e) utilize and encourage regional cooperation by developing countries?

N.A.

b. FAA Sec. 103, 103A, 104, 105, 106, 107. Is assistance being made available: (include only applicable paragraph which corresponds to source of funds used. If more than one fund source is used for project, include relevant paragraph for each fund source.)

N.A.

B1

(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 under Sec. 104(c); if so, extent to which activity emphasizes low-cost, integrated delivery systems for health, nutrition and family planning for the poorest people, with particular attention to the needs of mothers and young children, using paramedical and auxiliary medical personnel, clinics and health posts, commercial distribution systems and other modes of community research;	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.

B1

(4) [106] for technical assistance, energy, research, reconstruction, and selected development problems; if so, extent activity is:	N.A.
(i) technical cooperation and development, especially with U.S. private and voluntary, or regional and international development, organizations;	N.A.
(ii) to help alleviate energy problems;	N.A.
(iii) research into, and evaluation of, economic development processes and techniques;	N.A.
(iv) reconstruction after natural or manmade disaster;	N.A.
(v) for special development problem, and to enable proper utilization of earlier U.S. infrastructure, etc., assistance;	N.A.
(vi) 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.
c. [107] Is appropriate effort placed on use of appropriate technology?	N.A.

B1

d. FAA Sec. 110(a). Will the recipient country 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.
e. 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, or is the recipient country "relatively least developed"?	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 civil education and training in skills required for effective participation in governmental and political processes essential to self-government.	N.A.
g. FAA Sec. 122(b). 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?	N.A.

2. Development Assistance Project Criteria (Loans Only)

a. FAA Sec. 122(b). Information and conclusion on capacity of the country to repay the loan, including reasonableness of repayment prospects.	N.A.
b. 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 Economic Support Fund

a. FAA Sec. 531(a). Will this assistance support promote economic or political stability?	Yes
To the extent possible, does it reflect the policy directions of Section 102?	Yes
b. FAA Sec. 533. Will assistance under this chapter be used for military, or paramilitary activities?	NO.

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 imposing limits on certain uses of funds.

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. FAA Sec. 603. (a) Compliance with requirement in Section 901(b) of the Merchant Marine Act of 1936, as amended, 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 practicabl as goods and professional and other services from private enterprise on a contract basis? If the facilities of other Federal agencies will be utilized, are they particularly suitable, not competitive with private enterprise, and made available without undue interference with domestic programs?	Yes. It is anticipated that only the U.S. private sector will provide services under this grant.
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

A.

9. FY 79 App. Act Sec. 105. Does the contract for procurement contain a provision authorizing the termination of such contract for the convenience of the United States?	N.A.

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. 122(e). If development loan, is interest rate at least 2% per annum during grace period and at least 3% per annum thereafter?	N.A.
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
5. Will arrangements preclude use of financing:	
a. FAA Sec. 104(f). To pay for performance of abortions or to motivate or coerce persons to practice abortions, to pay for performance of involuntary sterilization, or to coerce or provide financial incentive to any person to undergo sterilization?	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. FY 79 App. Act Sec. 104. To pay pensions, etc., for military personnel?	N.A.

f. FY 79 App. Act Sec. 106. To pay U.N. assessments?	N.A.
g. FY 79 App. Act Sec. 107. To carry out provisions of FAA sections 209(d) and 251(h)? (Transfer of FAA funds to multilateral organizations for lending.)	N.A.
h. FY 79 App. Act. Sec. 112. To finance the export of nuclear equipment, fuel, or technology or to train foreign nations in nuclear fields?	N.A.
i. FY 79 App. Act Sec. 601. To be used for publicity on propaganda purposes within U.S. not authorized by Congress?	N.A.

PROJECT AUTHORIZATION
AND REQUEST FOR ALLOTMENT OF FUNDS

PART II

Name of Country: Arab Republic of Egypt Name of Project: Telecommunications II

Project No: 263-

Pursuant to Part II, Chapter 4, Section 531 of the Foreign Assistance Act of 1961, as amended (Economic Support Fund), I hereby authorize a Grant to the Arab Republic of Egypt ("Cooperating Country") of not to exceed Eighty Million United States Dollars ($80,000,000) to assist in financing the foreign exchange costs of goods and services required for the Project as described in the following paragraph:

The Project will provide for technical assistance for improvement of the present telecommunications system and strengthen the management, operations, planning, training and financial functions of ARETO; and for the procurement and installation of telecommunications and related equipment. Except as provided in paragraph b(1)c below the $80.0 million grant will be regranted to ARETO in the form of equity. 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 terms, together with such other terms and conditions as A.I.D. may deem appropriate:

a. 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. appropriated funding shall have their source and origin in the United States.

b. Conditions Precedent to Disbursement

(1) Initial Disbursement

Prior to any disbursement or to the issuance by A.I.D. of documentation pursuant to which disbursement will be made, the Grantee shall, except as the parties may agree otherwise in writing, furnish to A.I.D. in form and substance satisfactory to A.I.D.:

(a) A statement of the names and title with specimen signatures of the person or persons who will act as the representatives of the Grantee and ARETO.

(b) An opinion of the Egyptian Ministry of Justice or other legal counsel satisfactory to A.I.D. that the grant agreement and the corresponding sub-grant agreement have been duly authorized and/or ratified by, and executed on behalf of, the Grantee and ARETO and that they constitute valid and legally binding obligations in accordance with all of their terms.

(c) A regrant agreement satisfactory to A.I.D. for the project between the Grantee and ARETO under which the Grantee will re-grant to ARETO all grant funds, except, if A.I.D. so agrees, the amount of grant funds required to finance the cost of technical assistance to the Ministry of Communications; and

(d) Such other information and documents as A.I.D. may reasonably require.

(2) Disbursement for Equipment

Prior to any disbursement or to the issuance by A.I.D. of documentation pursuant to which disbursement will be made for equipment, the Grantee shall, 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 Consultant funded under A.I.D. Loan 263-K-047 and the Grant, for all procurement planned by ARETO through the end of calendar year 1983, showing specifications, quantities, estimated prices and timing of such procurement.

c. Covenants

(1) Execution of the Project

The Grantee shall:

(a) Carry out the project with due diligence and efficiency, and in conformity with sound engineering, construction, financial and administrative practices.

(b) Cause the project to be carried out in conformance with all the plans, specifications, contracts, schedules, and other arrangements, and with all modifications therein approved by A.I.D. pursuant to this agreement.

(c) Submit for A.I.D. approval prior to implementation, issuance, or execution, all plans, specifications, construction schedules, bid documents, documents concerning solicitation of proposals relating to eligible items, contracts, and all modifications to these documents.

(2) Funds and Other Resources to be Provided

The Grantee shall make available on a timely basis any Egyptian currency and any foreign currency in addition to the grant, for

the punctual and effective carrying out of construction, maintenance, repair and operation of the project.

(3) Operation and Maintenance

The Grantee shall operate, maintain and repair the project in conformity with sound engineering, financial and administrative practices and in such manner as to insure the continuing and successful achievement of the purposes of the project.

(4) Management

The Grantee shall provide qualified and experienced management for the project and to train such staff as may be appropriate for the maintenance and operation of the project.

(5) Continuing Consultation

The Grantee shall cooperate fully with A.I.D. to assure that the purpose of the grant will be accomplished. To this end, the Grantee, ARETO and A.I.D. shall from time to time, at the request of any party, exchange views through their representatives with regard to the progress of the project, the performance of the Grantee and ARETO of its obligations under the grant agreement, the performance of consultants, contractors and suppliers engaged on the project, and other matters relating to the project.

_____
Acting Administrator

_____
Date

SUMMARY OF CURRENT ARETO CONTRACTS AND PROJECTS

REF NO.	ARETO PROJECT TITLE	SUPPLIER	CONTRACT DATE	SERVICE DATE	PROJECT DESCRIPTION
1	Canal Zone Coaxial Network	S.T.C. (England)	12/5/77	6/80	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	12/80	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	1979/1980	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 lines; 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 Tele-printers 310	Siemens (Germany)	6/77	N/A	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	N/A	Supply 310 each, Arabic character and 610 each Latin character teleprinters for new customers in Cairo, Alexandria, Port Said, Ismailia and Suez.
7	Latin Tele-printers 610	OKI (Japan)	6/77	N/A	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	1979/1980	Provides 6 containerized mobile exchanges of 2000 lines each for temporary relief at Maadi, Heliopolis, and Zamalek in Cairo; Mansoura and Tanta in the provinces; and El-Max 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	Completed	Complete the installation of Quena-Aswan section of Cairo - Aswan coaxial cable network previously acquired. Network is 4 tube, 4 MHz having a capacity of 960 channels each.

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SUMMARY OF CURRENT ARETO CONTRACTS AND PROJECTS

EF NO	ARETO PROJECT TITLE	SUPPLIER	CONTRACT DATE	SERVICE DATE	PROJECT DESCRIPTION
0	Coaxial cables between ABC stations	Siemens (Germany)	20/11/76	12/80	A coaxial cable network (2 tube, 4 MHz) between Qussair-Marsa Alam-Idfu-Ranish. Will ultimately extend to Saudi Arabia via submarine cable across Red Sea
1	Cairo Junction Microwave	Raytheon (USA)	18/8/77	6/79	Provides M/W junctions between existing and proposed exchanges in Cairo Systems are II GHz, 4 phase PSK radio modulation with ITT T324 PCM channel banks (24 channels each). Each system capacity is 1344 channels (28 TI lines per multiplexer x 2 per system x 24 channels each TI line).
		Phase II	N/A	12/80	
2	Canal Zone exchanges	C-ETOH (Japan)	10/8/77	1982	New Trunk & Local exchanges for: Port Said, 10,000 lines, Ismailia 4000 L; Suez, 4000 L. New local exchanges for: Port Tewfil, 1000 lines, Quantara, 600 L; Fayed, 400 L; 9 Hardaka, 600 L; El-Tel El-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. Port Said installation in progress, others await building completion.
13	Ramsis-Dokki Ramsis-Shoubra Microwave	Collins (USA)	18/8/77	Completed	Provides supply, installation and operation of 2 microwave systems for 240 channels each in Ramsis-Shoubra junction routes. Equipment to be FDM, 6 Mz.
14	Ramsis outside Plant	Tele-funken (Germany)	25/3/77	Completed	Provides replacement of cable and conduit for lines and junctions in Auto 1, Auto, Gezira exchanges (collectively called Ramsis). Primarily replacement of defective plant with 33% increase in capacity.
15	Installation of Ramsis Exchange	Ericsson (Sweden)	18/8/77	6/79	For supply and installation of 20,000 initial X-bar lines to partially replace Auto 1, Auto II, and Gezira for Phase II (another 20,000 lines). Contract provides for training for ARETO personnel during installation.

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SUMMARY OF CURRENT ARETO CONTRACTS AND PROJECTS

REF NO	ARETO PROJECT TITLE	SUPPLIER	CONTRACT DATE	SERVICE DATE	PROJECT DESCRIPTION
16	Coaxial cable Port Said - Alexandria	Tender	N/A	1982	A 4 tube, 960 channel, 4 MHz coaxial system to provide trunk service between Alexandria and Port Said. Requests for tender recently announced.
17	PCM Mobile Microwave	Siemens (Germany)	20/8/77	12/79	Supply 2-30 PCM channel mobile microwave systems, plus one repeater
18	PCM fixed Microwave	NEC (Japan)	20/8/77	12/79	Supply 6-30 PCM Channel fixed microwave systems. To be used for un-designated junction relief.
19	500 subscribers carrier systems	Siemens (Germany)	21/8/77	6/79	Supply 500 systems of ZII (1+1) subscriber carrier. To be used for relief in congested Cairo cables.
20	Rural exchanges	North Elec. & CIT Alcatel	24/9/77	11/80	EF & I PCM digital exchanges in the following sizes & locations. Toll centers: Shebin El-Kom, 5000 lines; Toukh 1000 L; Tala, 1000 L; El-Badrashein, 1000 L. Local exchanges: Minuf, 2000 lines; Mit kinana, 200 L; Raha, 200 L; Digwa, 100 L; El-Amar, 100 L; Toukh Dalaka, 100 L; Kafr Rabee, 600 L; El-Aiyat, 1000 L; Kafr Ammar, 200 L; Atfih, 200 L; El-Saff, 600 L; El-Ikhsas, 200 L; Mazghuna, 600 L; El-Hawamdiya, 400L; El-Shobak, 600L; Quena 1000 L, El-Bargour 800 L; Ashmoun 1000 L. Total 17,900 lines 22 exchanges.
21	Supply 43000 Local lines - X-Bar	Local Manufacturer	28/10/77	1980	Provides for delivery of equipment for extension of the following existing exchanges; shoubra 4000 lines; Opera 5000 L; Pyramid, 3000 L; Barrage, 1200 L; Qaliub, 1200 L; Benha, 2000 L; Mit Ghamr, 3000 L; Kafr El-Sheikh 1800 L; Damanhour, 4000 L; Kafr El-Dawar, 1200 L; Dessouk, 1800 L; Marsa Matrouh, 1000 L, Beni-Suef, 1500 L; Fayoum, 1000 L, Assiut, 4000 L; Souhag, 1500L; Quena, 1200 L; Luxor, 1400 L; Aswan, 1200 L; Minia, 200 Lines.

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SUMMARY OF CURRENT ARETO CONTRACTS AND PROJECTS

REF NO	ARETO PROJECT TITLE	SUPPLIER	CONTRACT DATE	SERVICE DATE	PROJECT DESCRIPTION
22	Ramsis III, IV Extension of Cairo Intl. & 17 new trunk exchanges	Ericsson (Sweden)	27/10/77	1980/81	Provides delivery of the following ARE & ARM X-Bar equipment: 20,000 lines of ARE for Ramsis III & IV. Extension of Cairo International ARE 13 according to Ericsson proposal 189738. New ARM 20 trunk switches at Assiut Beni-Suef, Luxor, Souhag, Minia, Quena, Aswan and Fayoum in Upper Egypt; Kafr El-Dawar, Kafr El-Zayat, Kafr El-Sheikh, Dessouk, Mit Ghamr, Tacous, Mansoura, Tanta, Damanhour and Mehalla in Lower Egypt.
23	15 Mobile exchanges	NEC (Japan)	Under Negotiation	N/A	Provides 15 containerized exchanges type ND 205 SPC-ESS at the following locations: Sembellaween 4000 L; Bala 2000 L; Belkat, 2000 L; Samanud, 2000 L; Kum-Hamada, 2000 L; Abu Hommis, 2000 L; Rashid, 2000 L; Sherbin, 2000 L; Dekerness, 2000 L; Zifta, 2000 L; High Aswan Dam 2000 L; Ekhmim, 2000 L; Fewa, 2000 L; Talkha, 2000L; Abu Kebir, 2000 L; 15 exchanges 32,000 Lines
24	Computer controlled message retransmission telegraph center	N/A	Planned Project	1982	Provides major retransmission center in Cairo to handle both domestic and international telegraph traffic.
25	Alexandria Microwave links	N/A	Planned Project	1982	Replace inter-exchange cable by microwave links for improved network performance
26	Coaxial cables for lower and Upper Egypt	N/A	Planned Project	1982	Improved network performance on inter exchange traffic in Lower and Upper Egypt
27	Coaxial cables and Microwave for Sinai	N/A	Planned Project	1982	Establish links between the Sinai and the rest of Egypt

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SUMMARY OF CURRENT ARETO CONTRACTS AND PROJECTS

EF NO	ARETO PROJECT TITLE	SUPPLIER	CONTRACT DATE	SERVICE DATE	PROJECT DESCRIPTION
8	Maadi Outside Plant	A.E.G - Telefunken	N/A	1979	Provides replacement of cable and conduit for local network in Maadi (Work in Progress)
9	Giza Outside Plant	GOE/AEG - Telefunken	N/A	1980	Provides replacement of cable and conduit for local network in Giza (24000 lines)
0	Almaza Outside Plant	GOE/AEG - Telefunken	N/A	1983	Provide replacement of cable and conduit for local network in Almaza (24000 lines)
1	Qubba Outside Plant	GOE/AEG - Telefunken	N/A	1983	Provides new local newtowrk for proposed new exchange at Qubba (24000 lines)
2	Rotary Exchange Replacement	Tender	N/A	1983	Replacement of 9800 lines of existing rotary equipment by SPC-ESS and providing an additional 62000 lines for growth. The exchanges are Zamalek 20000L; Heliopolis II/III 30000 L; Maadi 20000 L; Bab El-Louk 20000 L; Alexandria I/II 30000 L; Ibrahimia 20000 L; Gelem 20000 Lines.
3	Rotary Exchange Local Network Replacement	Tender	N/A	1983	Provides for replacement of local networks coincident with replacement of rotary exchange equipment. Involves 173000 lines.
4	Installation of Sidi Gaber Exchange	C.I.T.-Alcatel (France)	N/A	1979	Provides for installation of 5000 lines of PCM digital F10 equipment at Sidi Gaber with 3000 line concentrator at Ramla and 2000 line concentrator at Gelem

Issue: May 16, 1979

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CAIRO EXCHANGE EQUIPMENT

Exchange	Capacity Total	Capacity In Service	Date of Operation	Type of Exchange	Working Lines
Auto I, II	20,000	(16.600	Oct. 1931	Rotary)	15,124
		(3,400	May 1940	")	
** Current project #16 changes out to X-Bar (Ramsis I & II)					
Heliopolis I	7,000	(3,000	Jan. 1934	Rotary)	
Extension		(1,000	Jan. 1941	")	6,986
"		(2,000	Feb. 1949	")	
"		(1,000	May 1953	")	
Heliopolis II	10,000	10,000	April 1957	Rotary	9,982
Giza	5,000	(1,000	Jan. 1936	Rotary)	
Extension		(1,000	July 1938	")	
		(2,000	April 1949	")	4,710
		(1,000	Jan. 1958	6 digit)	
		(	& Changed	)	
Gezira	10,000	(4,000	Dec. 1948	Rotary)	
		(1,600	May 1951	")	
		(2,400	Aug. 1961	")	7,731
		(2,000	Oct. 1961	")	
** Current project #22 changes out to 20.000 X-Bar lines in 1979					
Bab-El-Louk I, II	14,000	(10,000	July 1952	Rotary)	
Extension		(2,000	Oct. 1955	")	
		(1,000	Aug. 1956	")	13,553
		(1,000	Oct. 1956	")	
* Maadi	4,000	(1,400	July 1952	Rotary)	
Extension		(600	May 1955	")	4,014
		200	16/4/65	")	
		(1,800	15/1/66	")	
** Satellite	2,000	2,000	-- 79	ND-20S	
Helwan	2,000	(1,000	July 1952	Rotary)	
		1,000	May 1955	")	871

* A 120 line TASX installed.
In the Maadi C.O. also serves exchange customers.
** Current projects and plans.

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CAIRO EXCHANGE EQUIPMENT

Exchange	Capacity Total	Capacity In Service	Date of Operation	Type of Exchange	Working Lines
Zamalek I	10,000	10,000	Feb. 55	Rotary)	
Zamalek 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	")	9,344
		(2,000	23/9/62	")	
		(4,000	6/1/63	")	
Abbassia II	10,000	(1,000	12/3/64	X Bar)	
Extension		(1,000	15/5/64	")	9,459
"		(1,000	1/6/64	")	
"		(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	
Qaliub	800	800	9/12/65	X Bar	682
** Addition		1,200	1979-80		
Barrage	800	800	30/11/65	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

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CAIRO EXCHANGE EQUIPMENT

Exchange	Capacity Total	Capacity In Service	Date of Operation	Type of Exchange	Working Lines
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

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Annex F

Present Manual Exchanges (over 50 lines)

Lower Egypt and the Suez Canal Area

Province	Capacity
Baheira	3,360
Dakahlia	6,460
Gharbiya	1,720
Ismailia	670
Kafr el Sheikh	1,970
Minufiya	2,880
Qaliub	660
Sharqiya	3,520
	21,240

Upper Egypt

Province	Capacity
Assuit	3,700
Beni Suef	1,120
Fayoum	590
Giza	1,050
Minia	2,270
Qena	1,360
Souhag	1,230
Wadi-el-Gidid	480
	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 crossbar 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.

(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.

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.

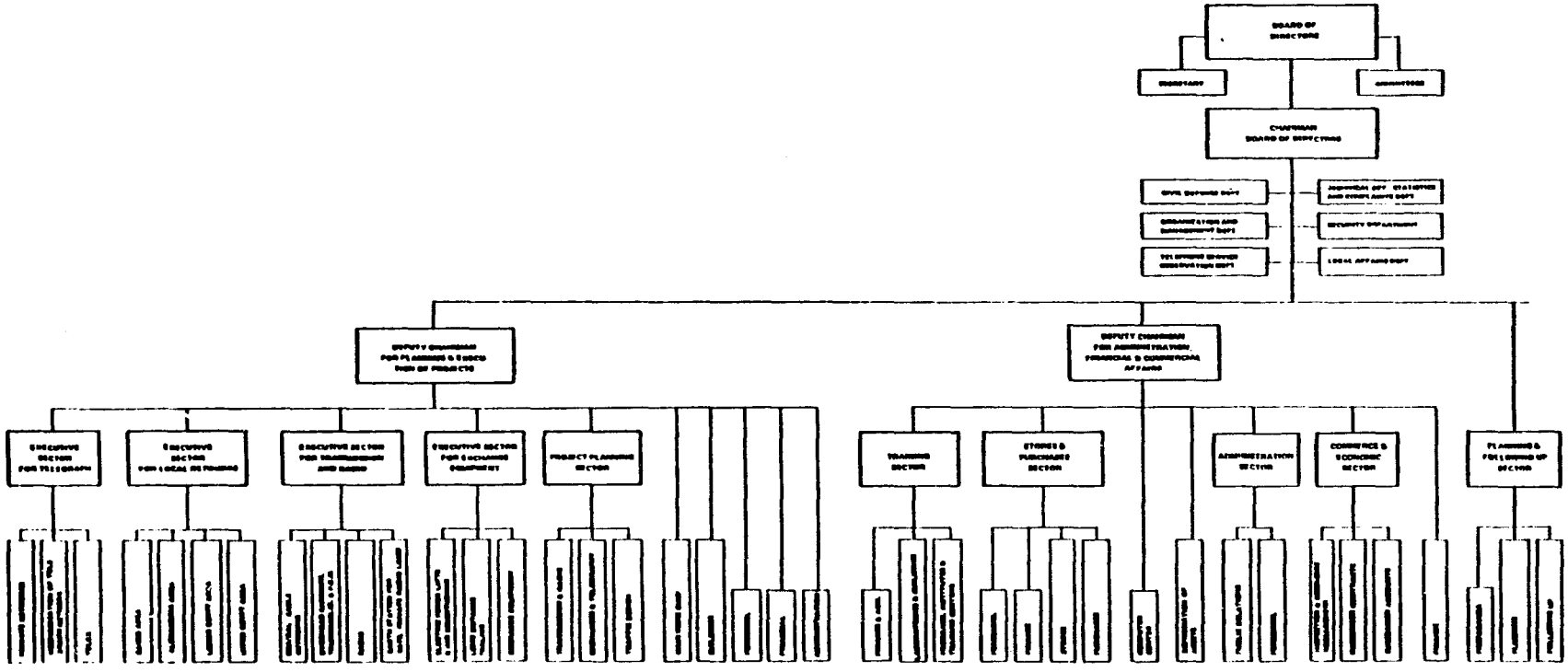
Problems affecting operator performance and productivity include the generally poor working conditions in both exchanges. Noise and lighting are serious defects. The National Exchange is not air conditioned. Traffic management does not have sufficient authority over personnel factors involved in employee 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.

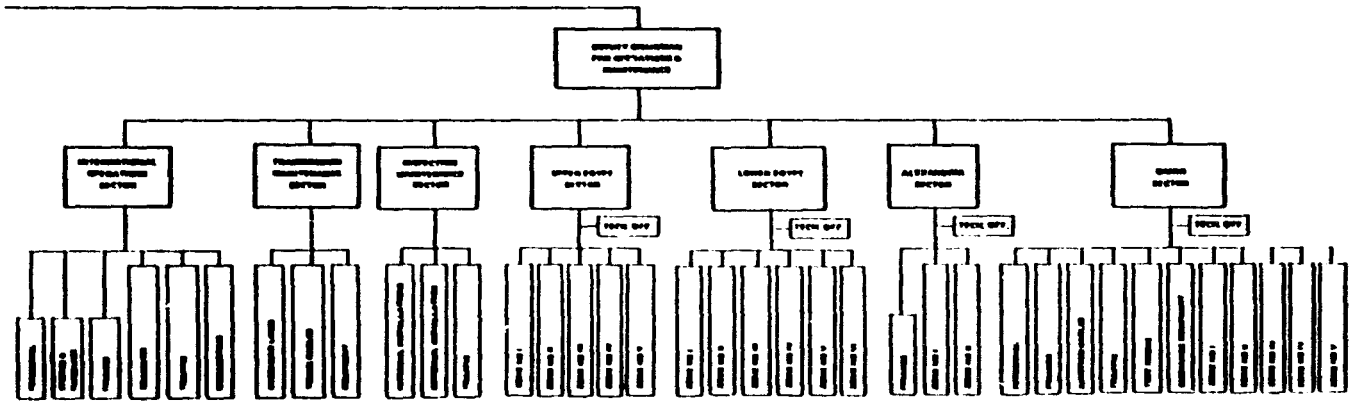
(3) Standard Voice Telephone Service

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.

ARETO
CURRENT OFFICIAL ORGANIZATION

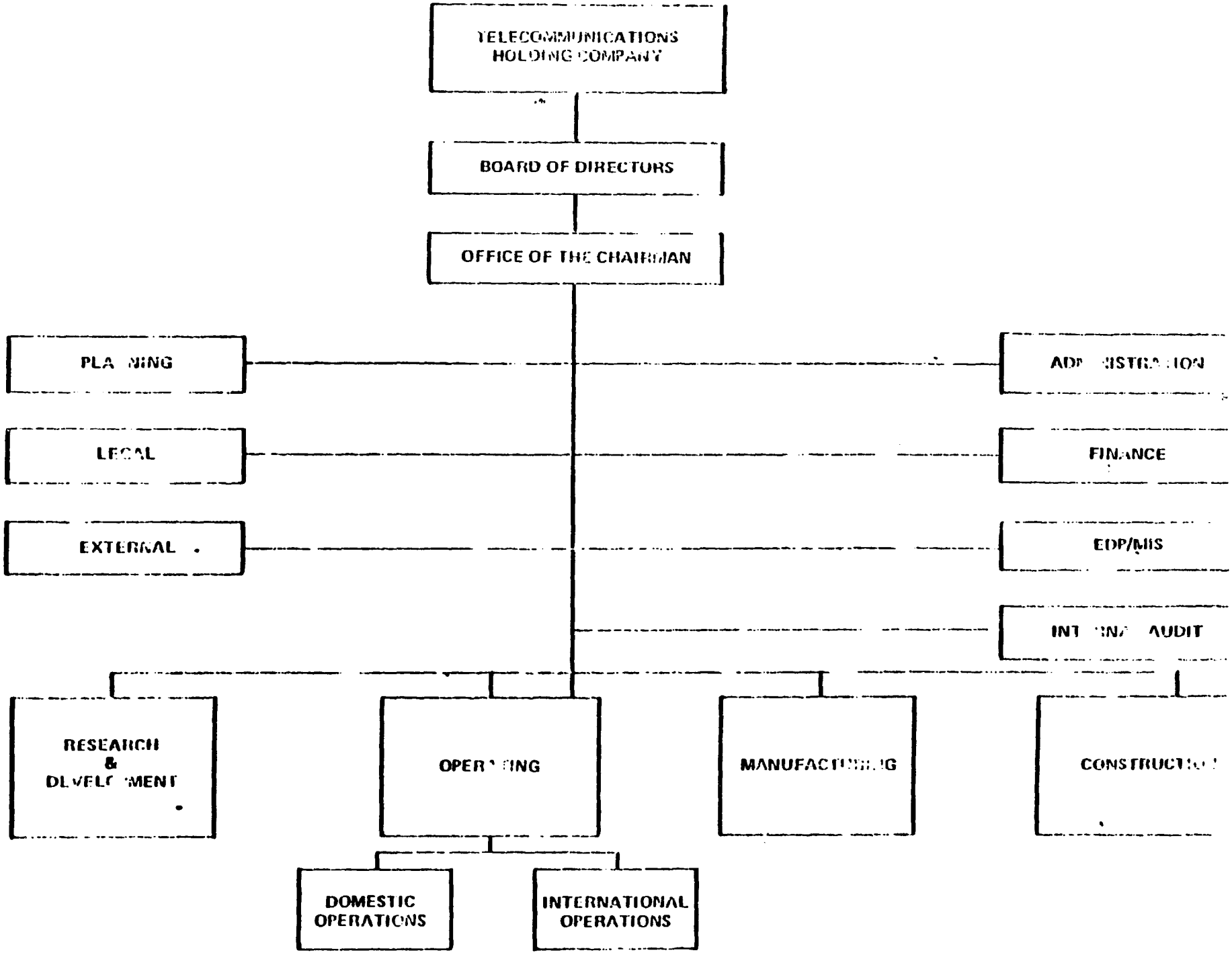


ANNEX H



ANNEX H

AREIO'B Proposed Organizational Structure



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

Revenue Source	Existing 1978	Proposed 1979
Telephone Subscriptions		
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
Installation Charges		
A. Main Line	10.00	20.00
B. Extension Lines	3.00	6.00
Excess Calls 2/		
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.

Revenue Source	Existing 1978	Proposed 1979
Toll Calls 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 /.150
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
Service Stations	.02	.02
Miscellaneous 4/		
A. General	-	-
B. Special Equipment	-	-
Domestic Telegraph		
A. General	.02	.02
B. Miscellaneous	-	-
Domestic Telex		
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.

STATEMENTS OF FINANCIAL POSITION AS OF DECEMBER 31,1976-1980

(LE 000's)

	1976 * ACTUAL	1977 * ACTUAL	1978 PROJECTED	1979 PROJECTED	1980 PROJECTED
ASSETS					
FIXED ASSETS					
Plant in Service	102,892	108,653	127,812	185,271	283,984
Construction in Process	60,538	107,703	93,785	73,216	222,965
Miscellaneous	———	———	6,000	63,619	110,787
Total	163,430	216,356	227,597	322,106	617,736
Less: Acc. Depreciation	42,922	46,798	60,804	67,141	73,712
Net Fixed Assets	120,508	169,558	166,793	254,965	544,024
CURRENT ASSETS	58,977	66,105	48,215	39,207	48,877
Total Assets	179,485	235,663	215,008	294,712	592,901
LIABILITIES AND EQUITY					
LIABILITIES					
Current Liabilities	32,509	31,051	33,252	28,005	24,439
Long Term Debt	114,009	170,976	128,004	182,971	390,591
Total Debt	186,516	202,027	161,256	210,976	415,030
EQUITY	32,967	33,636	53,752	83,196	177,871
Total Liabilities and Equity	179,485	235,663	215,008	294.172	592,901

STATEMENTS OF OPERATING RESULTS FOR THE YEARS ENDING DEC. 31, 1976-1980

(LE 000's)

	1976 ACTUAL	1977 ACTUAL	1978 PROJECTED	1979 PROJECTED	1980 PROJECTED
OPERATING REVENUES					
Domestic	20,974	22,093	23,539	33,253	41,021
International	11,180	15,366	27,833	38,565	51,522
Less: Prior Period Ad	2,151	837	—	—	—
TOTAL	30,003	36,622	51,372	71,818	92,543
OPERATING EXPENSES					
Operations & Maintenance	(1)	(1)	9,860	13,845	15,145
Depreciation	4,800	5,214	5,969	8,041	11,652
Traffic	(1)	(1)	7,698	10,742	10,815
General Office	(1)	(1)	4,129	5,539	6,653
Commercial	(1)	(1)	1,239	1,446	1,668
Training	(1)	(1)	300	500	750
Other	(1)	(1)	2,222	3,207	3,503
TOTAL	23,253	26,657	31,417	43,320	50,186
Operating Income	6,750	9,964	19,955	28,498	42,357
Miscellaneous Income	1,533	824	521	289	200
Interest Deduction	2,542	3,464	4,523	7,553	13,350
Net Income	5,741	7,325	15,953	21,234	29,207

(1) The existing ARETO accounting system does not classify expenses by the categories used in forecasting, with the exception of depreciation expenses.

PROJECTED STATEMENT OF FUND FLOW
LE (000's)

	1980	1981	1982	1983	1984	Total 5 Years 1980-1984	Total 5 Years 1985-1989	Total 5 Years 1990-1994	Total 5 Years 1995-1999	Total 20 Years 1980-1999
FUNDS REQUIRED										
Investment Plan										
Construction Program	253,543	249,849	421,243	392,563	376,107	1,693,305	2,506,963	3,503,733	4,467,459	12,171,460
Priority Program	47,168	39,525	20,813	12,525	4,832	124,863	(28,631)	(54,085)	(73.084)	(30,937)
Total	300,711	289,374	442,056	405,088	380,939	1,818,168	2,478,332	3,449,648	4,394,375	12,140,523
Working Capital	13,236	8,908	13,934	10,912	12,701	59,691	72,205	69,348	75,475	276,719
Investor Payout	--	--	--	--	--	--	168,875	2,056,441	6,132,744	8,358,060
Total	313,947	298,282	455,990	416,000	393,640	1,877,859	2,719,412	5,575,437	10,602,594	20,775,302
FUNDS PROVIDED										
Operations	40,859	55,531	57,279	68,487	99,753	321,909	1,495,366	4,232,095	9,406,439	15,455,809
Long Term Debt	207,620	188,986	284,449	242,932	212,951	1,136,938	1,224,046	1,343,342	1,196,155	4,900,481
Equity	65,468	53,765	114,262	104,581	80,936	419,012	-0-	-0-	-0-	419,012
Total	313,947	298,282	455,990	416,000	393,640	1,877,859	2,719,412	5,575,437	10,602,594	20,775,302

ANNEX M

ANNEX N

UNITED STATES AGENCY for INTERNATIONAL DEVELOPMENT

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

I, Donald S. Brown, 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).

Donald S. Brown
Director

Date

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

SCOPE OF WORK AND INSTRUCTIONS FOR PREPARATION AND SUBMITTAL OF TECHNICAL PROPOSALS

REVISED 11/ 4 /1978

TABLE OF CONTENTS

- Preface

I GENERAL

A. Background

B. The Project

C. Objective of Services

D. Consultant's Performance

II. SCOPE OF SERVICES

A. Management, Operations & Training Programs

B. Service Improvement Programs

C. Program Implementation Tasks

1. Program Planning Review

2. Final Engineering & Desigr

3. Procurement of Commodities

4. Construction/Erection

E. Reporting Requirements

III. TECHNICAL PROPOSALS

A. Content of Technical Proposals

B. Basis for Evaluation of Proposal

C. Conflict of Interest

D. Selection & Negotiation

E. Pre-Proposal Conference

F. Submission of Proposals

TABLE OF CONTENTS (Cont'd)

IV. PROPOSED CONTRACT

V. AMENDMENT NO. 1

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

SCOPE OF WORK AND INSTRUCTIONS FOR PREPARATION AND SUBMITTAL OF TECHNICAL PROPOSALS

The Arab Republic of Egypt Telecommunications Organization (ARETO) is hereby requesting technical proposals from prequalified U.S. consulting firms to provide professional managerial and technical services relative to modernization and expansion of Egypt's telecommunications systems, said services being as described below.

I. GENERAL

A. Background

Present telcommunications 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.

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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 long-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's 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, and provide some of the most urgent new service requirements. In addition they would provide ARETO personnel with training and experience of substantial value.

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The Project

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), or "crash program", and the project will support, in a small way, ARETO's efforts

by providing advisors and some replacement 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 lines rotary exchange in Zamalek (in Cairo) with an electronic exchange, which will serve as a model exchange*.

b) PABX at the Cairo Airport and microwave links and PABX's to improve communications to other important centers.

c) mobile exchanges, which will permit the elimination of a number of old, rotary exchanges systems with newer types of exchange systems;* and

d) various telecommunications replacement equipment.

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C. Objective of Services

The objective of the managerial and technical services is to provide support and assistance to ARETO in the following areas:

a) In the design and implementation of modern management systems and related operating methods, procedures and training aimed at strengthening

b. In the design, specification and implementation of high-priority service improvement programs for the Cairo area; and

c. In the design, specification and implementation of selected telecommunications system expansion and modernization projects.

In addition to the above, two experienced consultants are to be made available to A.R.E.T.O. for the purpose of providing advice and assistance on a broad range of matters relating to telecommunications development in the ARE.

D. The Consultant's Performance

The Consultant shall work in close consultation with ARETO, retaining, however, full responsibility for the performance of all tasks. He will be expected to maximize the participation of ARETO personnel in all activities related to his scope of work

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II. SCOPE OF SERVICES

The Consultant's scope of services shall include, but not be limited to, providing services, support and assistance to ARETO in the performance of the tasks described below. It is anticipated that most managerial and technical tasks will be completed within a two-year period, with the exception of supervision of installation/construction of physical improvement projects. References shown below refer to the ARE Telecommunications Sector Study Final Report.

A. Management, Operations and Training Programs

1. The restructuring of ARETO's internal organization according to the guidelines contained in the sector study. Specifically, assistance shall be provided in the development of text, tables and charts describing 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. The establishment of supervisory and control systems to evaluate the progress and efficiency of the different divisions. (Ref. Vol. 6, Chap. I).

2. The establishment of planning and project control systems to support the implementation of the proposed master plan. The Contractor shall 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 shall be given to both manual and computer assisted planning and control techniques.(Ref. Vol.6, Chap.II

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3. The strengthening of financial management systems including re-organization 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 capabiltity; and improvement of the current financial reporting function. Consideration shall be given to strengthening

the existing financial control capability and the ability of ARETO management to better utilize financial and accounting information in planning and decision making. (Ref. Vol. 6, Chap.II).

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, service contract rules and regulations, customer billing, customer payments, and directory development. Consideration shall be given to matters of organization, practices, procedures, and training. New procedures shall be introduced in a model exchange area to be selected. (Ref. Vol.6, Chaps.II & III: Vol. 8, Chap. II).

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).

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6. The establishment of the organization, procedures and priorities for the standardization of purchased equipment, materials and services. Consideration shall be given to the role of the Telecommunications Research Center (TRC) in the evaluation of available technical products and services, and in an on-going program for the review of the influence and applicability of new technologies.

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 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).

8. The preparation of an Electronic Data Processing (EDP) plan for ARETO and the design of computer-based systems for the TRC. The EDP plan should catalog existing computer equipment and necessary programs,

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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

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. Considerations shall be given to continuing maintenance programs, including such factors as organization, procedures, and training and the availability of necessary tools, materials and spare parts. (Ref. Vol. 6, Chap. II)*.

2. Improvements in the overall administration, maintenance and performance of Cairo local exchange equipment. Manufacturers' personnel are presently engaged in the general overhaul of BKM rotary and LME cross-bar equipment throughout the Cairo area, including the retraining of ARETO maintenance personnel. This

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See [illegible] No. 1.

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 avilability 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 cross-bar 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. III).

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

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 shall be devised in such a manner as to facilitate the possible future employment of mechanized testing and assignment routines. This tasks should be completed at the earliest possible date. (Ref. Vol. 8, Chap. II).

5. The implementation of programs and priorities for the rehabilitation or replacement, as required, of exchange outside plant. Consideration shall be given to the introduction of new technology, methods and procedures. A model exchange, such as Zamalek, shall be chosen and given first priority for improvement and for the training of ARETO personnel. A program shall be established and work initiated, to the maximum extent practicable, toward rehabilitation of exchange outside plant throughout the Cairo area. (Ref. Vol.8, Chap. II).

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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).

7. Implementation of a program to improve subscriber equipment and installations for users of subscriber toll dialing and international telephone service. This program shall include organization training, tools, practices and new material necessary to carry out work in a selected exchange area, such as Zamalek, during the contract time frame. Consideration shall be given to subsequently extending the program to all Cairo telephone users. (Ref. Vol. 5, Chap. III).

8. Goals and objectives shall 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.

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C. System Expansion and Modernization Programs

The following program for expansion and modernization of ARETO networks and services is to be undertaken, under contracts with others, to the extent that ARETO and AID-provided funds are available.

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; in the supervision of implementaion; and in testing inspection and acceptance of completed installations.

The projects presently programmed for implementation are:

1. Exchange cable systems (See Task B-5)

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)

3. Replacement of a rural exchange in a selected area with modern, automatic switching equipment and upgrading of outside as required. (Ref. Vol. 4, Chap. III; Vol. 5, Chap. XI)

4. EPABX systems for selected major or government telephone users, such as the Cairo Airport Authority. (Ref. Vol. 3, Chap. V; Vol. 5, Chap. VII)

5. Microwave radio links to provide improved service to major, high-priority, customers. (Ref. Vol. 3, Chap. V; Vol. 5, Chap. VII)

6. Replacement of the rotary exchange equipment in Zamalek and/or other selected locations. (Ref. Vo. 4, Chap. III; Vol. 5, Chaps VI & VIII)*

Program Implementation Tasks

In assisting ARETO implement the various management, improvement and expansion programs as described in Sections A, B, and C above, the Consultant shall, inter alia, carry out the following tasks, as applicable to each program.

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* See Amendment No. 1.

Program Planning Review

Certain preliminary program and project planning was accomplished under the ARE Telecommunications Sector Study. Implicit in the Consultant's technical proposal and extant contract are certain other schedules for program implementation. In order to consolidate all such preliminary planning and to provide for a comprehensive review, the Consultant, in concert with ARETO, shall review earlier planning, revising and/or amending elements as required, and shall prepare a revised program planning report consisting of the following:-

a) Program/Project Design: This section shall set forth definitive recommendations relative to the programs/projects to be implemented, principle elements and features, resource requirements expected outcomes and results, design parameters, facility and equipment requirements and general project layouts.

b) Implementation Plan and Schedule: This section shall present an overall implementation plan and schedule based on a Critical Path Method (CPM) analysis of all program and project activities-managerial, training, engineering, procurement, construction and erection - required for completion of all program elements. This CPM schedule shall be maintained on a current basis during the life of the project.

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c) Cost Estimate: This section shall set forth a revised cost estimate showing the U.S. dollar and Egyptian pound costs for all required equipment, materials and services; this estimate

Shall constitute a refinement of previously prepared estimates. An expenditure schedule by quarters shall accompany this estimate.

2. Final Engineering and Design

Upon approval of the Program Planning Review Report by ARETO and USAID, the Consultant shall initiate the following activities:

a Engineering Plans and Cost Estimates

The Consultant shall make all investigations, analyses and calculations needed and prepare the final designs and drawings required to tender for all civil construction or rehabilitation works necessary for completion of activities and projects. Final cost estimates shall show U.S. dollar and local currency costs for all equipment, materials, and construction/installation services.

b) Specifications for Equipment

The Consultant shall prepare appropriate specifications and estimates of quantities for telecommunications, mechanical and electrical equipment and all other equipment and materials required for completion of the project. Items to be procured locally by ARETO or by the contruction/erection contractors shall be determined in consultation with ARETO.

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Specifications for the equipment for U.S. procurement by ARETO shall be prepared for incorporation into bid invitations and shall be adequate to provide a sound basis forcompetitive bidding by

qualified U.S. manufacturers and suppliers. Specifications for equipment and material to be procured by the local construction contractor shall be incorporated into the construction bidding documents. In general, procurement specifications will include applicable requirements for performance, reliability, erection supervision (as necessary), guaranties and/or warranties, and spare parts provisions. Procurement documents for major equipment or facilities shall require the supplier to provide detailed shop and erection drawings for the Consultant's review and approval to ensure conformance with specifications and to provide information for any related civil design and construction.

Procurement of Commodities

a) IFB Preparation

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The Consultant shall prepare complete Invitation for Bid (IFB) documents relative to all telecommunciations, mechanical and electrical equipment required, as well as for other equipment and materials. Procurement of equipment and materials by ARETO shall be in accordance with appropriate sections of A.I.D. Handbook 11 -- Country Contracting -- when A.I.D. funds will be used to finance the procurement.

Each prepared procurement IFB, to the extent applicable, shall include but not be limited to the following:-

- Complete technical specifications.
- Provision for concurrent spare parts, special tools, and operating,

- Provision of ample supply of high-usage expendable parts, provision of appropriate exchange assemblies or components.
- Commercial contract terms and conditions; including, when appropriate, requirements for guaranties, warranties, performance bonds and default procedures, and special A.I.D. provisions.
- Provisions for shop drawings, supervison of installation and operator training, as appropriate.
- Each IFB shall be accompanied by a synopsis of same for advertising purposes and a confidential cost estimate for the equipment and materials included in the IFB.

Upon receipt of ARETO and AID approvals of the IFBs, and in conjunction with IFB advertising by AID, the Consultant shall issue the invitation to prospective suppliers and shall issue such IFB amendments and clarifications to bidders as may be necessary. If prequalification of prospective suppliers is deemed necessary, the Consultant shall assist ARETO in accomplishing such prequalification in accordance with procedures acceptable to AID.

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b) Bid Evaluation, Contract Award, Administration

The Consultant shall assist ARETO in all matters pertaining to procurement contract preparation, negotiation, execution and administration, including the following:

- Upon receipt of bids, make technical and commercial analyses and evaluations of all bids to assure their responsiveness, compliance with all terms and specifications, and reasonableness of price.

Submit bid tabulations, analyses and evaluations, together with recommendations for award of contracts to ARETO (5 copies) with concurrent copies to USAID (3 copies).

Upon receipt of written notice from ARETO of award approval, prepare appropriate Notice of Award and requisite letters to unsuccessful bidders for issuance by ARETO.

Assist and advise ARETO in making shipping arrangements, securing proper insurance coverage, export and import documentation. Certify invoices for progress payments, as necessary, and perform all other administrative work necessary to effect the timely supply of equipment and materials in accordance with project completion requirements.

Review and approve all detailed shop or layout drawings submitted by the suppliers for conformance to design concepts and specifications.

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Ensure the timely manufacture, inspection, testing and delivery of the equipment as necessary to assure compliance with the construction schedule.

Supervise and/or review necessary factory inspection and tests and witness factory performance tests as required to assure compliance with the applicable specifications.

Advise and assist ARETO insecuring all contractual guarantees and warranties and monitor vendors' performance under the contracts.

Recommend necessary actions to ensure compliance by all vendors with all contract provisions.

Advise and assist ARETO to establish and implement proper procedures for documenting and controlling the receipt, storage and issuance of all equipment and materials procured.

- Assist ARETO in processing any claims against suppliers which may arise. Any costs in connection with the processing of such claims will be for the account of ARETO.

4. Construction/Erection

a. Procurement of Construct/Erect Services

The Consultant shall prepare complete IFB documents applicable to all construction and erection services and assist in the evaluation of the bids received. The procurement of such construction and erection services shall be in accordance with appropriate sections of AID Handbooks 11 -- Country Contracting -- when AID funds are to be used for financing, or in accordance with ARETO's procedures when other than AID funds are to be utilized. Relative to the procurement of either construction or erection services, the Consultant shall:-

- Plan and schedule a complete construction and erection program for the project in conformance with the approved project work plan and schedule.

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Prepare and submit to ARETO three (3) copies of a draft IFB and proposed contract, together with complete sets of engineering drawings and specifications of the work.

Assist ARETO to prepare a contractor prequalification questionnaire, evaluate responses and prepare a list of prequalified contractors. Consideration shall be given to the contractors' experience, equipment and financial resources equipment and financial resources in relation to the scope and schedule of required services.

- Assist ARETO to issue IFBs to all prequalified contractors. Prepare tabulations, analyses and evaluations of all bids to assure their responsiveness to the technical and commercial terms of the IFB.
- Submit bid evaluations, together with recommendations for contract award and bid copies, to ARETO, with concurrent copies to USAID.
- Assist ARETO in all matters pertaining to contract preparation, negotiation, execution and administration. Prepare Notice of Award and requisite letters to unsuccessful bidders for issuance by ARETO.

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Supervision of Construction/Erection

The Consultant shall provide a full-time resident construction engineer, together with requisite supporting engineering, technical and administrative staff, to assist ARETO to supervise and inspect all mechanical and electrical erection work and all civil c n-

vision shall include witnessing and/or assisting in the testing of all equipment and preparing recommendations for plant acceptance or other required actions.

The Consultant shall:-

- Act as ARETO's representative to provide engineering supervision and detailed inspection of the performance of al construction/erection work to ensure quality.
- Coordinate site activities of contractors, suppliers and erectors to obtain proper sequence of work and maintenance of approved project work schedule.
- Maintain current all work plans, CPM analyses, schedules and financial schedules. Prepare monthly progress reports and special reports as required by ARETO and A.I.D.
- Monitor and determine construction/erection progress and receipt/installation/testing of equipment, and certify the validity of progress payment invoices submitted to ARETO by all contractors and suppliers.
- Interpret contracts, drawings and specifications, consulting with ARETO, contractors and suppliers to ensure compliance with said documents and timely provision of services, equipment and materials.

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- Review and approve all detailed shop and erection drawings and plans submitted by the Contractors for compliance with design concepts and specifications.

Prepare or review and approve all field design changes and revisions and issue work change or extra work orders as may be required.

Assist ARETO in obtaining appropriate agreements with others relative to the provision of utilities and infrastructures. Monitor and advise ARETO on the progress of such onsite or offsite work by others.

- Review claims and recommend action to ARETO relative to cost reimbursables and contract escalations, if any. Assist ARETO as expert witness in any litigation arising from construction of the project.
- Upon project completion, furnish ARETO with one reproducible set and seven print sets of "as-built" drawings.
- Inspect and test all mechanical and electrical equipment, together with related controls and instrumentation, for proper installation and operation. Perform or witness performance testing of such equipment and prepare recommendations/certificates of acceptance.
- Advise and assist ARETO establish and implement proper procedures for documenting and controlling receipt, storage and issuance of all equipment and materials to be furnished by ARETO to contractors.
- Assist ARETO in performing final inspection/testing of the facilities and in determining final acceptability of the work.

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E. Reporting Requirements

1. All reports shall be prepared in English. All progress reports, semi-annual reports and draft final reports shall be submitted to ARETO in 15 copies. All final reports shall be submitted to ARETO in 20 copies. ARETO will forward 5 copies of all reports to USAID/Cairo for distribution within appropriate AID offices.

2. Progress Reports: The Consultant shall submit a monthly progress report to USAID 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 indicated 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.

   - Progress report on preparation of tendering documents, contracting for procurements, indicating actual and scheduled progress.

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Status of equipment arrivals at port, receipt and installation.

Expenditures, both from loan proceeds and other funding sources, during report period and accumulative.

3. Semi-Annual Reports: The semi-Annual Reports will replace the regular monthly report and will summarize progress and status of the project for the six months period. Successive semi-annual reports will be cumulative in nature.

   The Consultant's semi-annual report shall include but not be limited to the following:

   - A narrative summary of the project history to date, including a list of significant events and related dates.
   - A statistical data presented in tables and graphs of:

     Actual and scheduled work progress

     Status or procurement

     Accrued charges and payments made to the Consultant, suppliers, and contractors.

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.

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5. Quarterly Shipping Reports: The Consultant shall assist the Company to fulfill its reporting obligations relative to the status of meeting AID 50/50 shipping requirements by preparing a quarterly shipping report (i.e., Borrower's Shipping Statement) in the format required by AID. The first report, covering shipments from inception of the Loan through the three-month period following the first disbursement, should be forwarded to AID through ARETO within ninety (90) days from the end of said three-month period. Subsequent reports, covering calendar quarters thereafter, should be forwarded within ninety (90) days of the end of the period reported on.

6. Acceptance Reports: See Section C. The Consultant shall monitor 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 and USAID in 5 copies.

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7. 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.

III. TECHNICAL PROPOSAL

A. Content of Technical Proposal

In general, the technical proposal should demonstrate by the quality of its content the firm's (or joint venture's) knowledge of project requirements and its understanding of the requisite tasks set forth in the Scope of Work. Its contents should include but not be limited to the following:-

1. Project Overview:

Information demonstrating the firm's understanding of the entire project, including actions taken to become familiar with the project, views on the adequacy of the Scope of Work and any suggested modifications and comments on other important project aspects.

2. Work Program

Details of the firm's proposed approach to the planning and implementation of all project elements, describing individual tasks, their sequencing and interrelations. A time schedule in bar chart form indicating start and end dates (from notice to proceed) for such tasks. A Critical Path Method analysis of the project, indicating interdependencies among project elements and tasks.

3. Organization and Level of Effort

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An organization chart showing relationships among professional level personnel assigned to the project and division of duties. A manpower schedule indicating, for professional, technical and clerical positions,

number of people to be assigned, their function relative to project elements, their estimated man-months of effort, period of assignment, and location where work will be performed. Information concerning the workload of the firm and its ability to provide the services proposed.

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.

4. Staffing

Experience resumes and biographic data of every professional and key technical staff member to be assigned, including : nationality, education, professional qualifications and registration, chronological experience record indicating years, job title and description, employer, level of repsonsibility; overseas experience by years and country. It should be noted that significant changes in key personnel by the Proposer during contract negotiations may result in termination of such negotiations by ARETO.

5. Qualifications of Firm

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The firm may resubmit basic information concerning the firm(s) previously submitted as prequalifying information. Any additional information or elaboration of such, fully demonstrating the firm

particular capability to perform the tasks described in the Scope of Work, should be provided.

Full information should be provided concerning any Egyptian firm or associate proposed to perform work under the contract. Further, proposers are not required to have an Egyptian Agent to be eligible for award under this request for technical proposals.

3. Basis for Evaluation of Proposals

- Quality of the proposal as demonstrated by its scope, detailed planning and technical content.
- Understanding of the services to be performed as demonstrated by the proposal content and task coverage.
- Intention and ability to assign experienced, qualified personnel, both technical and managerial, preferably from its own organization or joint venture.
- Intention and ability to perform the work in a realistically timely manner, utilizing appropriate staff levels.

Selection of a firm professional services will not be made on the basis of price. Therefore, prices must not be included in the proposals, except as stated in Item F. 3.

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Conflict of Interest

Those firms submitting proposals are cautioned that neither they nor firms which they propose as associate, joint venturers or subcontractors, nor any firm associated, affiliated or connected in any way with a firm proposed as an associate, joint venturer or subcontractor, shall during the life of this contract be eligible to supply commodities, equipment,

or materials pursuant to planning or procurement actions which arise out of the design work, recommendations, specifications or similar activities resulting from the contract to be awarded pursuant to this request for proposals.

This ineligibility shall apply only with regard to firms and their associates, affiliates or connected firms which have responsibilities, with regard to the contract awarded hereunder, which involve in any way preparation of designs, specifications, the rendering of advice of recommendations for commodities, equipment or material to be procured as a part of the project.

D. Selection and Negotiation

ARETO's evaluation of proposals and selection of the consultant shall be final and not subject to further appeal. ARETO and USAID reserve the right to reject any or all proposals. On completion of the evaluation, the proposing firms will be ranked in order of evaluated capabilitiy to perform the required services. Upon approval by USAID negotiations will be started between the top-ranked firm and ARETO toward establishment of contract provisions and costs. In the event an agreement is not reached, negotiations will be terminated prior to initiation of negotiations with the second-ranked firm.

E. Pre-proposal Conference

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ARETO will hold a preproposal conference for prequalified firms for the purposes of clarifying, as necessary, any matters relative to

the scope of work and submission of technical proposals. The conference will be held in the offices of ARETO on November 4, 1978, with meetings beginning at 10:00 a.m. One copy of the Telecommunications Sector Study will be provided to each firm participating.

Submission of Proposals

1. Technical proposals should be received by the addresses named below not later than January 15, 1979. Proposals shall be forwarded in sealed envelopes marked: "Managerial and Technical Advisory Services".

2. Three copies of the technical proposal should be addressed to : Chairman, Arab Republic of Egypt Telecommunications Organization (ARETO), Ramses Street, Cairo, Arab Republic of Egypt. One information copy of the technical proposal should be addressed to each of the following: (1) NE/PD, Mr. Thomas A. Sterner, Agency for International Development, Department of State, Washington, D.C. 20523; (2) USAID, Attn : Mr. Robert N. Bakley, American Embassy, Box 10, FPO New York 09527.

3. At the same time that the technical proposal is submitted, a separate sealed envelope containing an Analysis of Estimated Costs shall be submitted to NE/PD Attn : Mr. Thomas A. Sterner, Agency for International Development, Department of State, Washington, D.C. 20523. This analysis shall be submitted in one copy only to Mr. Sterner and under no circumstances shall the Analysis or other cost information be submitted to ARETO or USAID/Cairo. The Analysis of Estimated Costs shall be submitted in the

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format set forth in Attachment 1G to AID Handbook 11, Country Contracting, Chapter 1, being attached hereto.

P POSED CONTRACT

The proposed contract between ARETO and the Consultant shall be a cost-plus-fixed fee type and shall conform to the standard type of agreement used by AID in host country contracting. Dollar costs of the contract will be financed by AID; local costs will be paid in Egyptian Pounds by ARETO.

A contractor providing services, or a subcontractor providing services under an AID-financed contract for services, must fit one of the following categories to be eligible for AID financing:

a- An individual who is a legal resident of the United States;

b- A corporation or partnership organized under the laws of the U.S. ~~except that, with respect only to suppliers of services, any such corporation or partnership organized under the laws of a country other than the United States must be more than 50% beneficially owned by citizens of the U.S.~~

c- A controlled foreign corporation; i.e., any foreign corporation a majority of whose total voting stock is owned by United States shareholders, within the meaning of Section 957 et seq. of the Internal Revenue Code;

c- A joint venture or unincorporated association consisting entirely of

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Citizens or firms of any country not included in AID Geographic Code 935 are ineligible as suppliers, contractors, subcontractors, or agents in connection with AID-financed contracts for goods or services.

Execution of the contract is expected by approximately March 1, 1979. It is expected that contract services should begin within fifteen (15) days of contract signing.

V. AMENDMENT TO SCOPE OF WORK

Subsequent to the preparation of this scope of work document, further discussions have taken place between ARETO and USAID. It has been agreed that certain changes in the original scope of the project are required. These changes mainly involve the deletion of the replacement of a single rotary office such as Zamalek, the strengthening of environmental improvements to buildings housing exchange equipment and the provision of additional technical and managerial assistance.

In addition, the Consultant will be required to assist ARETO in determining the most effective way of utilizing an additional $ 55 million budgeted by USAID for Fiscal Year 1979 in the further strengthening and improvement of ARETO telecommunications system. Subject to successful conclusion of an agreement between USAID and the government of Egypt, the Consultant may be requested to enlarge and extend the scope of its work in connection with the implementation of the agreed to additional projects.

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Bidders are required to include in their proposals, in accordance with the instructions provided in Section III, detailed work plans, ~~and~~ schedules and manpower estimates to

demonstrate their capability to assist ARETO in the implementation of items D.5.a. through c of Section II, Supplemental Task of the Scope of Services. Since these projects may not necessarily be undertaken during the contract period, the aforementioned plans and schedules should be presented in a supplement to the main body of the proposal. Within this supplement, bidders are also requested to demonstrate their capability and willingness to undertake such additional work as may be requested to assist ARETO in the implementation of such items as D.5.d. through i., however, detailed plans and schedules for these items are not required.

In the interest of avoiding unnecessary delay, it has been decided to provide the attached Amendment No. 1, rather than rewrite the scope in its entirety. The amendment contains the specific changes required in the original scope of work, as well as a list of the types of projects being considered for inclusion in the possible additional funding.

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MANAGERIAL AND TECHNICAL

ADVISORY SERVICES

TO

THE ARAB REPUBLIC OF EGYPT

TELECOMMUNICATIONS ORGANIZATION

AMENDMENT NO. 1

TO

SCOPE OF WORK

AND INSTRUCTIONS FOR

PREPARATION AND SUBMITTAL OF

TECHNICAL PROPOSALS

MANAGERIAL AND TECHNICAL

ADVISORY SERVICES

TO

THE ARAB REPUBLIC OF EGYPT

TELECOMMUNICATIONS ORGANIZATION

AMENDMENT NO. 1

SCOPE OF WORK

AND INSTRUCTIONS FOR

PREPARATION AND SUBMITTAL OF

TECHNICAL PROPOSALS

The Arab Republic of Egypt Telecommunications organization (ARETO) hereby amends the above cited Scope of Work as follows:

SECTION II, SCOPE OF SERVICES

A. Management, Operations and Training Programs

1) Task 7 (Page 7) is expanded as follows:

"The consultant will assist ARETO in the establishment of an on-going training needs identification system and in the determination of priority needs for training, in addition to those areas already specifically identified in Task 7; also extended to include the selection, development or adaptation as required, of job-specified training curricula for the immediate current training requirements".

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B. Service Improvement Programs

No changes

C. System Expansion and Modernization Programs

1) Delete item C.6 (Page 12) and other references to rotary exchanges on page 3.

2) Insert replacing item C.6 (Page 12) as follows:

"Environmental conditioning equipment, tools, materials and spare parts as required to fully implement Task B-1 (Page 8) for all ARETO equipment and operating spaces in the Cairo area. Also, to the extent that available funds permit, the scope of Task B-1 shall be extended to cover other ARETO exchanges outside of the Cairo area on the basis of their importance and condition."

D. Program Implementation Tasks

Add the following section:

5. Supplement Tasks of the Scope of Services

The Consultant will be required to assist and advise ARETO in selecting projects and establishing priorities for the most effective utilization of additional USAID funding which may be made available to ARETO during the contract period. Consideration is at present being given to a number of additional service and equipment items required by ARETO including the following:

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a- Replacement or expansion of existing electromechanical Cairo Tandem exchanges with fully electronic digital equipment. This project would be expected to improve the overall performance of the Cairo junction network, eliminate the need for additional multiplex equipment at the tandem offices as the digital microwave junction network is expanded, and permit re-use of the existing digital multiplex equipment now at the tandems elsewhere in the network.

b- Replacement of all Cairo rotary exchanges with fully proven electronic switching SPC equipment, in order to eliminate a serious maintenance problem, provide improved service, permit full availability of STD service in these exchanges, defer or eliminate the need for building additions, and minimize future obselescence.

c- Expansion of the program of institutional improvements to include:

The strengthening of existing personnel systems and functions. This project would provide assistance to ARETO in such areas as reorganizing its personnel function, developing a systematic job evaluation program, designing an improved employee classification system and salary structure, developing improved personnel policies and procedures, and in establishing and improved manpower planning system.

- The preparation of standard engineering and operating practices and procedures. These practices would cover but would not necessarily be limited to the following areas: Station installation and

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maintenance, workshop repairs to equipment, test desk operations, cable records, equipment records, cable installation and maintenance, line construction methods and central office maintenance. The Consultant would also assist ARETO in developing a formal system for classifying individual practices and for distributing these practices as necessary.

- The improvement of vehicle maintenance, and operations. The Contractor would be expected to assist ARETO management in improving the processes of selection, procurement, maintenance, replacement, location, storage, and utilization of vehicles and motorized equipment. Consideration would be given to such factors as safety, economic benefit, local working conditions, and the general environment in which such vehicles and equipment can most effectively be employed.

- The implementation of centralized data processing organizations and facilities and a program for their systematic utilization in connection with introduction of new management and operating systems.

- Replacement of the existing tropospheric scatter radio system between Egypt and Sudan. This project would require the evaluation of traffic and growth requirements on this route, the selection of the most appropriate system, and the necessary steps for implementation of the new facilities

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e- Continued rehabilitation of the Cairo exchange network. This project would consist of expanding the work of Task B-5 to other parts of Cairo on the basis of their importance and the condition of existing facilities.

f- Modernization of rural exchanges and associated outside plant. It would be expected that the locations in which such work would be undertaken would be selected to coordinate with other rural development projects being undertaken or considered by the Egyptian government.

g- Improvement of the Alexandria junction network. It would be expected that this work would be part of an overall program to enlarge and improve telephone service in Egypt second largest city.

h- Replacement of Alexandria rotary exchanges (See item b, above).

i- Planning, preparation and the implementation of activities to protect and rearrange Cairo ARETO cable facilities, as required, during the carrying out of other utility projects for the improvement of water, sewer and transportation systems.

SECTION III, TECHNICAL PROPOSALS

C. Conflict of Interest

Add the following paragraph:

Unless specifically approved by the AID official authorized to approve the contract (for example, turnkey jobs or other exceptional circumstances) no firm, including its affiliates and subsidiaries, may perform engineering services and provide commodities or perform construction services on the same project.

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

I. Recorded Announcement Equipment, Traffic Usage Equipment, Tools and Test Gear

II. Operators Headsets, Timing Mechanisms, Operators Chairs, Miscellaneous Tools, Transmission Test Equipment

III. Subscriber PCM Carrier Systems & Station Carrier Systems, Rotary Files & Inventory Tubs, Cable Books, Tools, and Test Gear

IV. Outside Plant Hardware, Cable Drop Wire, Interior Wire, Tools and Test Gear to Carry Out Rehabilitation OJT Program

V. Subscriber Installation Apparatus, Hardware Tools, Test Equipment & Records & Assignment Supplies

VI. Installation of 60 Replacement Switchboards at National Exchange Cairo

VII. Modification of existing plants from manual to automatic operation

VIII. Replacing old plants in Upper and Lower Egypt exchanges

IX. Smoke and fire detection equipment

1/ Value of Equipment listed herein exceeds the $2.0 million shown in Cost Estimate. The order of priority is I to IX.

UNITED STATES GOVERNMENT

memorandum

DATE: August 2, 1978

FROM: I.E. Wallen (TDY), CDE

SUBJECT: Telcommunications Project

TO: Mr. Robert N. Bakley, CDE

On August 1 I looked through the file of the telcommunications 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

OPTIONAL FORM NO. 10
(REV. 7-70)
GSA FPMR (41 CFR) 101-11.6

USAID/C[illegible] [illegible]GYPT
THRESHOLD [illegible] [illegible]
INITIAL ENVIRON[illegible] [illegible]VALUATION

Project Location: Cairo, Egypt

Project Title: Telecommunications [illegible] (3[illegible]-005-[illegible])

Funding (Fiscal Year and Amount): [illegible] $[illegible]0.0 Million

IEE Prepared By: Phi[illegible]ip S. Lewis [illegible]/[illegible]3/78

Environmental Action Recommended: [illegible]ve Determination

Mission Decision:
(Approval/Disapproval of Environmenta[illegible]ion Recommended in the IEE)

[illegible]oved : [signature]

D[illegible]oved : _____

Date : 1/31/78

Clearances:
[illegible]nead Environmental Coordinator: [illegible] [illegible]
[illegible]akley Other Mission Offices [illegible] [illegible]
[illegible] 1/30/78

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INITIAL ENVIRONMENT EXAMINATION
NARRATIVE [illegible] VERSION

1. Project Location: Cairo, Egypt

2. Project Title: Telecommunicati[illegible] No. 263-0054)

3. Funding (Fiscal Year and Amount): [illegible]Y 78, $20.0 Million

4. IEE Prepared By: Philip S. Lewi[illegible] Date: 1/23/78

5. Action Recommended: Negative De[illegible]mination

6. Discussion of Major Environmental [illegible]elationships of Project Relevant to Attached Impact Identificatio[illegible] and Evaluation Form:

This project consists of rehabilit[illegible] repair, and some expansion of major portions of Cairo's existing Telepho[illegible] and Telegraphic communication systems. It will involve, primar[illegible] replacement or installation of additional central office switchin[illegible]ipment, replacement or addition of related cable connections betwee[illegible]nges and to subscribers, and related training of Egyptian staff in opera[illegible] and maintenance skills. Only minor new civil works construction (poss[illegible] exchange office expansions, new cable laying) is involved, such a[illegible]tion involving only the minor environmental annoyances typicall[illegible]ciated with urban civil works. During project implementation, eff[illegible] will be made to minimize fugitive dust, noise, traffic interference. We conclude that project implementation will not have a significan[illegible] on the urban, human environment and that, therefore, a Negative De[illegible]nation is appropriate. (The completed project is environmentall[illegible]ntral.)

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IMPACT IDENTIFICATION AND EVALUATION FORM

Impact Areas and Sub-areas	Impact Identification and Evaluation1/
A. LAND USE	
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. WATER QUALITY	
1. Physical state of water	N
2. Chemical and biological state	N
3. Ecological balance	N
4. Other factors	

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

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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
2. Changes in population N
3. Changes in cultural pattern N
4. Other factors

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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: 1/23/78

Project Location. Cairo, Egypt

Project Title : Telecommunications (No. 263-0054)

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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 fev additional allowances and awards.

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.

Exhibit IX-1

Summary of Findings From Wage Information Survey

Occupational Category	(A) ARETO			(B) Public Sector Companies			(C) Joint Venture Company			(D) Suez Canal Authority		
	Min	Max	No.	Min	Max	No.	Min	Max	No.	Min	Max	No.
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.

(Cont'd)

Exhibit IX-1

Summary of Findings From Wage Information Survey

Occupational Category	Private Sector Companies											
	(E)			(F)			(G)			(H)		
	Min	Max	No.	Min	Max	No.	Min	Max	No.	Min	Max	No.
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

Exhibit IX-2

Comparison of Various Special Allowances and Awards Granted by Companies Surveyed

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

Source: Project Team Surv

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 Practice

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

AID 1020-20 (1-72)

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project
From FY 1979 to FY 1984
Total U.S. Funding $160 million
Date Prepared:

Project Title & Number: Telecommunications II 263-0075

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Program or Sector Goal: The broader objective to which this project contributes: A reasonably efficient telecommunication system capable of supporting Egypt's economic and social growth.	Measures of Goal Achievement: Dissatisfaction of gov't, commercial and private subscribers substantially decreases.	ETO records and statistics and U.S. nsultant survey of sample representation various uses segments.	Assumptions for achieving goal targets: 1. Other financial resources are available to ARETO 2. Telecomm. remains a high GOE priority.
Project Purpose: Support and strengthen ARETO's ability to more efficiently manage and operate the present Egyptian telecommunications system in order to improve service to customers.	Conditions that will indicate purpose has been achieved: End of project status. 1. A reorganized ARETO operating under modern industry standards. 2. Reduction of dial attempt/contact ratio. 3. Decrease of number of private system operating. 4. Greater use of telephones.	Progress reports mtgs., & annual evaluation, esp, end of proj. National dial attempt/contact ratio reduced from present max. 1 to 1.5 to 1 to 8 or better. ARETO reports showing private telephone systems users switching to ARETO services. ARETO records and progress reports.	Assumptions for achieving purpose: 1. Most service bottlenecks are weaknesses in capabilities of many mgmt & oper. personnel; unsatisfactory policies, procedures & records; most telecomm. equipment is old & obsolete; and ARETO is not an autonomous org. and, thus, operates under artificial GOE constraints.
Outputs 1. Planning unit established and functioning in ARETO. 2. New training programs installed. 3. Annual procurement plans developed and implemente 4. Accounting, financial & personnel systems developed and operating. 5. Six rotary exchanges and related outside plant installed. 6. Air cond. training units & generators installed. 7. Other telecomm. equipment being installed.	Magnitude of Outputs: 1. * 2. * 3. Formal annual precurement plans distributed to approp. divisions of ARETO. 4. * 5. Six ESS exchanges operating. 6. All air cond. generators operating. 7. *	Progress reports & periodic mtgs. with U.S. Consultants and ARETO Copies of training curricula, progress reports and visits to trng. center. Receipt of formalized procedures & progress reports. Receipt of formal procedures and policies. Site visits Site visits Site visits	Assumptions for achieving outputs: 1. U.S. Consultant perform of work satisfactorily. 2. ARETO provides personnel & other support to U.S. Consultant. 3. Turn-key contractors will perform per schecule of future contracts.
Inputs: 1. Tech. asst for continued support for strengthening ARETO's mgmt, operating & trng function. 2. ESS equipment for replacement of six (6) rotary exchanges as well as related outside plant (e.g. cable) for five (5) exchanges. 3. Air conditioning equipment and electric power generators. 4. Other misc. equipment.	Implementation Target (Type and Quantity) 1. Completion of technical & trng. serv. prog. in 4 years. 2. Installation of 160,000 lines of ESS and 168,000 lines of outside plant. 3. Installation of $4.8 million of air conditioners & $32 million of standby power generators. 4. Procurement & utilization of approx $2.5 million of other telecomm. equipment. * Precise magnitudes will be determined when U.S. Consultant begins in Egypt.	Progress reports & final by U.S. Consultant. Progress reports and sitevisits. Same as 2. above. Same as 2. above.	Assumptions for providing inputs: 1. U.S. Consultants begin work in Egypt Jul-Aug 1979. 2. Equipment suppliers can make telecomm. equip. available at reasonable prices. 3. GOE meets all CP's promptly.

AIR-CONDITIONING AND STANDBY POWER

SUMMARY OF ESTIMATED COSTS

(US $)

- Standby Power - Cairo	3,593,000
- Standby Power - Alexandria	1,072,500
- Air-Conditioning - Cairo	2,275,000
- Air-Conditioning - Alexandria	1,050,000
	$7,990,500

STATIONARY STANDBY DIESEL ALTERNATER GENERATING SETS FOR CAIRO EXCHANGES

CAPITAL EXPENDITURES IN U.S. $

380/220 V, 3-ph, 4 wire, 50 Hz

EXCHANGE	QTY	KVA	PRICE (IN U.S. $)
Ramsis	2	1200	500,000
Opera	2	800	375,000
Abbassia	1	500	143,000
Shoubra	1	500	143,000
Roda	1	500	143,000
Dokki	1	500	143,000
Nasr City	1	500	143,000
Almaza	1	500	143,000
Heliopolis	1	500	143,000
Zamalek	1	500	143,000
Bab El-Louk	1	500	143,000
Giza	1	500	143,000
Helwan	1	400	143,000
Maadi	1	400	143,000
Tebin	1	400	143,000
Barrage	1	150	71,500
Kaliub	1	150	71,500
			2,878,000
		7 MOBILE SETS	715,000
			3,593,000

STATIONARY STANDBY DIESEL ALTERNATER GENERATING SETS FOR ALEXANDRIA EXCHANGES

CAPITAL EXPENDITURES IN U.S. $

EXCHANGE	QTY	KVA	PRICE (IN U.S. $)
Sidi Gaber	1	500	143,000
Manshia	1	500	143,000
Sidi Bishr	1	500	143,000
Auto	1	500	143,000
Gelem	1	200	143,000
Ibrahimia	1	200	143,000
			858,000
		2 MOBILE SETS	214,500
			$1,072,500

REPLACEMENT OF AIR CONDITIONING

CAPITAL EXPENDITURES IN US $

A. CAIRO ZONE	U.S. $	NOTES
1. Abbassia	300,000	Total replacement of plant (200 TR)*
2. Magnetic Tape Rooms (CAMA Equip. ARM Exchanges)	200,000	Total replacement (20 of 5 TR)
3. Roda	200,000	Partial replacement of plant plus additional units for Roda II (200 TR)
4. Kaliub	75,000	Total replacement of plant (50 TR)
5. Opera	300,000	Partial replacement of plant (450 TR)
6. Shoubra	200,000	Partial replacement of plant (200 TR)
7. Zamalek	200,000	Total replacement of plant (150 TR)
8. Heliopolis II & III	300,000	Total replacement of plant (200 TR)
9. Bab El-Louk	150,000	Partial replacement of plant (200 TR)
10. Coaxial Cable Cairo - (at Ramses Bldg.)	50,000	Partial replacement of plant (150 TR)
11. Dokki	100,000	Partial replacement of plant (150 TR)
12. Maadi	200,000	Total replacement of plant (150 TR)
TOTAL	$2,275,000	

B. ALEXANDRIA		
1. Alexandria	300,000	Total replacement of plant (200 TR)
2. Ibrahimia	200,000	Total replacement of plant (150 TR)
3. Gelem	200,000	Total replacement of plant (150 TR)
4. Sidi Gaber	200,000	Partial replacement of plant plus additional unit (200 TR)
5. Damanhour	150,000	Total replacement of plant (100 TR)
TOTAL	$1,050,000	

* TR means Tonnage Refrigerant One TR = 12,000 BTU