

No. 16289

**UNITED STATES OF AMERICA
and
EGYPT**

Grant Agreement—*Water use and management project (with annex). Signed at Cairo on 30 June 1976*

Authentic text: English.

Registered by the United States of America on 27 January 1978.

**ÉTATS-UNIS D'AMÉRIQUE
et
ÉGYPTE**

Accord de don — *Projet concernant l'utilisation et la gestion des eaux (avec annexe). Signé au Caire le 30 juin 1976*

Texte authentique : anglais.

Enregistré par les États-Unis d'Amérique le 27 janvier 1978.

GRANT AGREEMENT¹ BETWEEN THE UNITED STATES OF AMERICA AND THE ARAB REPUBLIC OF EGYPT WATER USE AND MANAGEMENT PROJECT

Date: June 30, 1976

A.I.D. Grant No. 263-11-120-017

GRANT AGREEMENT, dated June 30, 1976, between the ARAB REPUBLIC OF EGYPT (“Grantee”) and the UNITED STATES OF AMERICA, acting through the AGENCY FOR INTERNATIONAL DEVELOPMENT (“A.I.D.”).

Article I. THE GRANT

Section 1.01. GRANT. Upon the terms and conditions stated herein A.I.D. agrees to grant to the Grantee the sum of One Million Five Hundred Thousand United States Dollars (\$1,500,000) (the “Grant”) to finance the foreign exchange costs required to carry out the project as described in Section 2.01 (“Project”). Goods and services authorized to be financed hereunder are hereinafter referred to as “Eligible Items”.

Article II. THE PROJECT

Section 2.01. THE PROJECT. The Project consists of the development and implementation of an applied research and demonstration program for the improvement of management of irrigation water. Project activities will be conducted at a central office in Cairo and in three pilot agro-climatological zones of Egypt. The project will develop and test optimal management and production practices. Those practices that prove effective will become the basis for regional or national programs to improve agricultural production, improve the efficient use of water and reduce drainage and waterlogging problems. Funds from the Grant will be used by the Grantee to finance the foreign exchange costs of U.S. technicians resident in Egypt, short-term consultants, training of Egyptian technicians, and required equipment and commodities for the first year of operation of an expected five year project. The Project is more fully described in Annex 1, attached hereto, which Annex may be modified in writing by the parties designated in Section 8.02 hereof.

Article III. CONDITIONS PRECEDENT

Section 3.01. CONDITIONS PRECEDENT TO DISBURSEMENT. Except as A.I.D. may otherwise agree in writing, prior to the initial disbursement hereunder, the Grantee shall furnish in form and substance satisfactory to A.I.D.:

- (a) an opinion of the Ministry of Justice of the Arab Republic of Egypt or of other counsel acceptable to A.I.D.: that this Agreement has been duly authorized and/or ratified by and executed on behalf of the Grantee and constitutes a valid and legally binding obligation of the Grantee in accordance with all of its terms;

¹ Came into force on 30 June 1976 by signature, in accordance with section 8.04.

- (b) a statement of the name(s) of the person(s) authorized to represent the Grantee as specified in Section 8.02, and a specimen signature of each person;
- (c) evidence of the budgetary allocation of Grantee's contribution to the Project for its first fiscal year;
- (d) a time-phased implementation plan for carrying out the Project;
- (e) evidence of the establishment of a Project Advisory Committee in the Ministry of Agriculture and Irrigation to provide advice, to approve Project work plans and to assure coordination and compliance with Grantee and A.I.D. policies;
- (f) evidence of the assignment of a qualified Egyptian Project Director; and
- (g) such other information or documents as A.I.D. may request.

Section 3.02. CONDITIONS PRECEDENT TO DISBURSEMENT FOR ON-FARM PILOT PROGRAMS. Prior to any disbursement or to the issuance of any Letter of Commitment under the Grant for any goods and services for on-farm pilot programs, the Grantee shall, except as A.I.D. may otherwise agree in writing, furnish to A.I.D. in form and substance satisfactory to A.I.D., a description of the pilot programs proposed to be undertaken.

Section 3.03. ADDITIONAL CONDITION PRECEDENT. Prior to any disbursement or to the issuance of any Letter of Commitment under the Grant for any specific goods or services, the Grantee shall, except as A.I.D. may otherwise agree in writing, furnish to A.I.D. in form and substance satisfactory to A.I.D., an executed contract for such goods and services acceptable to A.I.D. with a person or firm acceptable to A.I.D.

Section 3.04. TERMINAL DATES FOR MEETING CONDITIONS PRECEDENT TO DISBURSEMENT. If all the conditions specified in Section 3.01 shall not have been met within ninety (90) days from the date of this Agreement, or such later date as A.I.D. may agree in writing, A.I.D., at its option, may terminate this Agreement by giving written notice to the Grantee. Upon giving of such notice, this Agreement and all obligations of the parties hereunder shall terminate.

Section 3.05. NOTIFICATION OF MEETING OF CONDITIONS PRECEDENT TO DISBURSEMENT. A.I.D. shall notify the Grantee upon determination by A.I.D. that the conditions precedent to disbursement specified in Sections 3.01, 3.02, and 3.03 have been met.

Article IV. GENERAL COVENANTS AND WARRANTIES

Section 4.01. EXECUTION OF THE PROJECT. (a) The Grantee shall carry out the Project with due diligence and efficiency, and in conformity with sound engineering, construction, financial, and administrative practices.

(b) The Grantee shall cause the Project to be carried out in conformity with all of the plans, specifications, contracts, schedules, and other arrangements, and with all modifications therein, approved by A.I.D. pursuant to this Agreement.

Section 4.02. FUNDS AND OTHER RESOURCES TO BE PROVIDED BY GRANTEE. (a) The Grantee shall provide promptly as needed all funds, in addition to the Grant, and all other resources required for the punctual and effective carrying out, maintenance, repair, and operation of the Project.

(b) Without limiting the scope of Section 4.02 (a), the Grantee shall provide:

- (1) for the assignment of necessary professional and support staff to the project;
- (2) necessary office and laboratory space and land for research activities; and
- (3) necessary budget funds for consultant services, equipment, office rent and utilities, vehicle and equipment operation, per diem costs in Egypt for U.S. contract and Egyptian Project personnel and other operating expenses as detailed in Annex 1.

Section 4.03. CONTINUING CONSULTATION. The Grantee and A.I.D. shall cooperate fully to assure that the purpose of the Grant will be accomplished. To this end, the Grantee and A.I.D. shall from time to time, at the request of either party, exchange views through their representatives with regard to progress of the Project, the performance by the Grantee of its obligations under this Agreement, the performance of the consultants, contractors and suppliers and other matters relating to the Grant.

Section 4.05. TAXATION. This Agreement and the Grant shall be free from any taxation or fees imposed under the laws in effect within the country of the Grantee. To the extent that (a) any contractor, including any consulting firm, any personnel of such contractor financed hereunder, and any property or transactions relating to such contracts, and (b) any commodity procurement transaction financed hereunder, are not exempt from identifiable taxes, tariffs, duties, and other levies imposed under laws in effect in the country of the Grantee, the Grantee shall pay or reimburse the same under Section 4.02 of this Agreement with funds other than those provided under the Grant.

Section 4.06. UTILIZATION OF GOODS AND SERVICES. (a) Goods and services financed under the Grant shall be used exclusively for the Project, except as A.I.D. may otherwise agree in writing. Upon completion of the Project, or at such other time as goods financed under the Grant can no longer usefully be employed for the Project, the Grantee may use or dispose of such goods in such manner as A.I.D. may agree to in writing prior to such use or disposition.

(b) Except as A.I.D. may otherwise agree in writing, no goods or services financed under the Grant shall be used to promote or assist any foreign aid project or activity associated with or financed by any country not included in Code 935 of the *A.I.D. Geographic Code Book* as in effect at the time of such use.

Section 4.07. DISCLOSURE OF MATERIAL FACTS AND CIRCUMSTANCES. The Grantee represents and warrants that all facts and circumstances that it has disclosed or caused to be disclosed to A.I.D. in the course of obtaining the Grant are accurate and complete, and that it has disclosed to A.I.D., accurately and completely, all facts and circumstances that might materially affect the Project and the discharge of its obligations under this Agreement. The Grantee shall promptly inform A.I.D. of any facts and circumstances that may hereafter arise that might materially affect, or that it is reasonable to believe might materially affect, the Project or the discharge of its obligations under this Agreement.

Section 4.08. COMMISSIONS, FEES, AND OTHER PAYMENTS. Grantee warrants and covenants that in connection with obtaining the Grant, or taking any action under or with respect to this Agreement, it has not paid, and will not pay or agree to pay, nor to the best of its knowledge has there been paid or will there be paid or

agreed to be paid by any other person or entity, commissions, fees, or other payments of any kind, except as regular compensation to the Grantee's full time officers and employees or as compensation for bona fide professional, technical or comparable services. The Grantee shall promptly report to A.I.D. any payment or agreement to pay for such bona fide professional, technical, or comparable services to which it is a party or of which it has knowledge (indicating whether such payment has been made or is to be made on a contingent basis), and if the amount of any such payment is deemed unreasonable by A.I.D., the same shall be adjusted in a manner satisfactory to A.I.D.

Section 4.09. MAINTENANCE AND AUDIT OF RECORDS. The Grantee shall maintain, or cause to be maintained, in accordance with sound accounting principles and practices consistently applied, books and records relating both to the Project and to this Agreement. Such books and records shall, without limitation, be adequate to show:

- (a) the receipt and use made of goods and services acquired with funds disbursed pursuant to this Agreement;
- (b) the nature and extent of solicitations of prospective suppliers of goods and services acquired;
- (c) the basis of the award of contracts and orders to successful bidders; and
- (d) the progress of the Project.

Such books and records shall be regularly audited, in accordance with sound auditing standards, for such period and at such intervals as A.I.D. may require, and shall be maintained for five years after the date of the last disbursement by A.I.D. or until all sums due A.I.D. under this Agreement have been paid, whichever date shall first occur.

Section 4.10. REPORTS. The Grantee and A.I.D. shall furnish each other such information and reports relating to the Grant and to the services and commodities financed hereunder as either party may reasonably request.

Section 4.11. INSPECTIONS. The authorized representatives of A.I.D. shall have the right at all reasonable times to inspect the Project, the utilization of all goods and services financed under the Grant, and the Grantee's books, records and other documents relating to the Project and the Grant. The Grantee shall cooperate with A.I.D. to facilitate such inspections and shall permit representatives of A.I.D. to visit any part of the country of the Grantee for any purpose relating to the Grant.

Article V. PROCUREMENT

Section 5.01. PROCUREMENT FROM THE UNITED STATES. Except as A.I.D. may otherwise agree in writing, disbursements made pursuant to Section 6.01 shall be used exclusively to finance the procurement for the Project of Eligible Items including ocean shipping and marine insurance having both their source and origin in the United States of America.

Section 5.02. ELIGIBILITY DATE. Except as A.I.D. may otherwise agree in writing, no goods or services may be financed under the Grant which are procured pursuant to orders or contracts firmly placed or entered into prior to the date of this Agreement.

Section 5.03. IMPLEMENTATION OF PROCUREMENT REQUIREMENTS. The definitions applicable to the eligibility requirements of Section 5.01 will be set forth in detail in Implementation Letters.

Section 5.04. PLANS, SPECIFICATIONS, AND CONTRACTS. (a) Except as A.I.D. may otherwise agree in writing, the Grantee shall furnish to A.I.D. promptly upon preparation and prior to implementation, issuance, or execution, all plans, specifications, schedules, bid documents, and contracts relating to the Project, and any modifications therein, whether or not the goods and services to which they relate are financed under the Grant.

(b) Except as A.I.D. may otherwise agree in writing, all of the plans, specifications, and schedules furnished pursuant to sub-section (a) above shall be approved by A.I.D. in writing.

(c) All bid documents and documents related to the solicitation of proposals relating to goods and services financed under the Grant shall be approved by A.I.D. in writing prior to their issuance. All plans, specifications, and other documents relating to goods and services financed under the Grant shall be in terms of United States standards and measurements, except as A.I.D. may otherwise agree in writing.

(d) All contracts financed under the Grant shall be approved by A.I.D. in writing prior to their execution. A.I.D. shall also approve in writing the selection of the contractor and such contractor personnel as A.I.D. may specify. Material modifications in any of such contracts and changes in any of such personnel shall also be approved by A.I.D. in writing prior to their becoming effective.

Section 5.05. REASONABLE PRICE. No more than reasonable prices shall be paid for any goods or services financed, in whole or in part, under the Grant, as more fully described in Implementation Letters. Such items shall be procured on a fair and, except for professional services, on a competitive basis in accordance with procedures therefor prescribed in Implementation Letters.

Section 5.06. SHIPPING AND INSURANCE. (a) Goods financed under the Grant shall be transported to the country of the Grantee only on flag carriers of a country included in Code 935 of the *A.I.D. Geographic Code Book* as in effect at the time of shipment.

(b) Unless A.I.D. shall determine that privately owned United States-flag commercial vessels are not available at fair and reasonable rates for such vessels, (i) at least fifty percent (50%) of the gross tonnage of all goods (computed separately for dry bulk carriers, dry cargo liners and tankers) financed under the Grant which may be transported on ocean vessels shall be transported on privately owned United States-flag commercial vessels, and (ii) at least fifty percent (50%) of the gross freight revenue generated by all shipments financed under the Grant and transported to Egypt on dry cargo liners shall be paid to or for the benefit of privately owned United States-flag commercial vessels. Compliance with the requirements of (i) and (ii) above must be achieved with respect to both cargo transported from U.S. ports and cargo transported from non-U.S. ports, computed separately.

(c) Marine insurance on United States goods may be financed under the Grant with disbursements made pursuant to Section 6.01, provided (i) such insurance is

placed at the lowest available competitive rate, and (ii) claims thereunder are payable in the currency in which such goods were financed or in any freely convertible currency. If the government of the Grantee, by statute, decree, rule, regulation, or practice discriminates with respect to A.I.D.-financed procurement against any marine insurance company authorized to do business in any State of the United States, then all goods shipped to the cooperating country financed under the Grant shall be insured against marine risks and such insurance shall be placed in the United States with a company or companies authorized to do a marine insurance business in a State of the United States.

(d) The Grantee shall insure, or cause to be insured, all goods financed under the Grant against risks incident to their transit to the point of their use in the Project. Such insurance shall be issued upon terms and conditions consistent with sound commercial practice and shall insure the full value of the goods. Any indemnification received by the Grantee under such insurance shall be used to replace or repair any material damage or any loss of the goods insured or shall be used to reimburse the Grantee for the replacement or repair of such goods. Any such replacements shall have their source and origin in the United States of America and shall be otherwise subject to the provisions of this Agreement.

Section 5.07. NOTIFICATION TO POTENTIAL SUPPLIERS. In order that all United States firms shall have the opportunity to participate in furnishing goods and services to be financed under the Grant, the Grantee shall furnish to A.I.D. such information with regard thereto, and at such times, as A.I.D. may request in Implementation Letters.

Section 5.08. INFORMATION AND MARKING. Grantee shall give publicity to the Grant and the Project as a program of United States aid, identify the Project site, and mark goods financed under the Grant, as prescribed in Implementation Letters.

Article VI. DISBURSEMENTS

Section 6.01. DISBURSEMENT FOR UNITED STATES DOLLAR COSTS — LETTERS OF COMMITMENT TO UNITED STATES BANKS. Upon satisfaction of conditions precedent, the Grantee may, from time to time, request A.I.D. to issue Letters of Commitment for specified amounts to one or more United States banks, satisfactory to A.I.D., committing A.I.D. to reimburse such bank or banks for payments made by them to contractors or suppliers, through the use of Letters of Credit or otherwise, for Dollar Costs of goods and services procured for the Project in accordance with the terms and conditions of this Agreement. Payment by a bank to a contractor or supplier will be made by the bank upon presentation of such supporting documentation as A.I.D. may prescribe in Letters of Commitment and Implementation Letters. Banking charges incurred in connection with Letters of Commitment and Letters of Credit shall be for the account of the Grantee and may be financed under the Grant.

Section 6.02. DISBURSEMENTS — PROJECT IMPLEMENTATION ORDERS. Upon satisfaction of conditions precedent, the Grantee may, from time to time, request A.I.D. to issue Project Implementation Orders (“PIO’s”) for activities hereunder in accordance with A.I.D. procedures. A.I.D. will, as provided in such PIO’s, make

funds available from this Grant to pay the costs of furnishing technical services, training and commodities in connection with the Program.

Section 6.03. OTHER FORMS OF DISBURSEMENT. Disbursement of the Grant may also be made through such other means and by such other procedures as the Grantee and A.I.D. may agree in writing.

Section 6.04. DATE OF DISBURSEMENT. Disbursements by A.I.D. shall be deemed to occur, (a) in the case of disbursements pursuant to Section 6.01, on the date on which A.I.D. makes a disbursement to the Grantee, to its designee, or to a banking institution pursuant to a Letter of Commitment. In the event of a disbursement under Sections 6.02 or 6.03 hereof, the date of disbursement shall be designated in the documentation by which the parties agree to such disbursement, provided, in the absence of such designation, the date of disbursement shall be the date upon which A.I.D. makes payment with respect to goods or services or delivers property into the control of the Grantee or its designee.

Section 6.05. TERMINAL DATE FOR REQUESTS FOR LETTERS OF COMMITMENT OR PIO DOCUMENTS. Except as A.I.D. may otherwise agree in writing, no Letter of Commitment pursuant to Section 6.01, no PIO's pursuant to Section 6.02 or other commitment document which may be called for by another form of disbursement under Section 6.03, or amendment thereto, shall be issued in response to requests received by A.I.D. after December 31, 1977.

Section 6.06. TERMINAL DATE FOR DISBURSEMENT. Except as A.I.D. and the Government may otherwise agree in writing, no disbursements shall be made against documentation received by A.I.D. or any bank described in Section 6.01 after June 30, 1978. A.I.D., at its option, may at any time or times after June 30, 1978, reduce the Grant by all or any part thereof for which documentation was not received by such date.

Article VII. TERMINATIONS AND REMEDIES OF A.I.D.

Section 7.01. TERMINATION. Either party may terminate its respective obligations under this Grant by giving written notice to the other party not less than sixty (60) days prior to the date specified for termination, provided, that in the event A.I.D. exercises its right hereunder, such termination shall not be effective as to payments which it is committed to make pursuant to non-cancellable commitments with respect to third party contracts.

Section 7.02. TERMINATION OF DISBURSEMENTS. In the event that at any time:

- (a) the Grantee shall fail to comply with any provision contained herein, or
 - (b) an event has occurred which A.I.D. determines to be an extraordinary situation which makes it improbable that the purposes of the Grant will be attained or that the Grantee will be able to perform its obligations hereunder; or
 - (c) any disbursement would be inconsistent with the legislation governing A.I.D.;
- or

(d) a default shall have occurred under any other agreement between the Grantee or any of its agencies and the United States or any of its agencies, then A.I.D. may at its option:

- (i) suspend or cancel outstanding commitment documents to the extent that they have not been utilized through the issuance of irrevocable Letters of Credit or through bank payments made other than under irrevocable Letters of Credit, in which event A.I.D. shall give notice to the Grantee promptly thereafter;
- (ii) decline to make disbursements other than under outstanding commitment documents;
- (iii) decline to issue additional commitment documents;
- (iv) at A.I.D.'s expense, direct that title to goods financed under the Grant shall be transferred to A.I.D. if the goods are from a source outside the country of the Grantee, are in a deliverable state and have not been offloaded in ports of entry of the country of the Grantee.

Section 7.03. CANCELLATION BY A.I.D. Following any termination of disbursements pursuant to Section 7.02, if the cause or causes for such termination of disbursements shall not have been eliminated or corrected within sixty (60) days from the date of such termination, A.I.D. may, at its option, at any time or times thereafter, cancel all or any part of the Grant that is not then either disbursed or subject to irrevocable Letters of Credit.

Section 7.04. REFUNDS. (a) In the case of any disbursement not supported by valid documentation in accordance with the terms of this Agreement, or of any disbursement not made or used in accordance with the terms of this Agreement, A.I.D., notwithstanding the availability or exercise of any of the other remedies provided for under this Agreement, may require the Grantee to refund such amount in United States dollars to A.I.D. within thirty days after receipt of a request therefor. Such amount shall be made available first for the cost of goods and services procured for the Project hereunder, to the extent justified; the remainder, if any, shall be applied to reduce the amount of the Grant. Notwithstanding any other provision in this Agreement, A.I.D.'s right to require a refund with respect to any disbursement under the Grant shall continue for five years following the date of such disbursement.

(b) In the event that A.I.D. receives a refund from any contractor, supplier, or banking institution, or from any other third party connected with the Loan, with respect to goods or services financed under the Grant, and such refund relates to an unreasonable price for goods or services, or to goods that did not conform to specifications, or to services that were inadequate, A.I.D. shall first make such refund available for the cost of goods and services procured for the Project hereunder, to the extent justified, the remainder to be applied to reduce the amount of the Grant.

Section 7.05. NON-WAIVER OF REMEDIES. No delay in exercising, or omission to exercise, any right, power, or remedy accruing to A.I.D. under this Agreement shall be construed as a waiver of such right, power, or remedy or any other right, power, or remedy hereunder.

Article VIII. MISCELLANEOUS

Section 8.01. COMMUNICATIONS. Any notice, requests, documents or other communication given, made or sent by the Grantee to A.I.D. pursuant to this Agreement shall be in writing or by telegram, cable or radiogram and shall be deemed to have been duly given, made or sent to the party to which it is addressed when it shall be delivered to such party by hand or by mail, telegram, cable or radiogram at the following addresses:

To Grantee:

Mail Address: Ministry of Agriculture
Dokki Giza
Cairo, Egypt

Cable Address: Dokki Giza

To A.I.D.:

Mail Address: A.I.D. Office
c/o U.S. Embassy
Cairo, Egypt

Cable Address: A.I.D.
U.S. Embassy
Cairo, Egypt

Other addresses may be substituted for the above upon the giving of notice. All notices, requests, communications and documents submitted to A.I.D. hereunder shall be in English, except as A.I.D. may otherwise agree in writing.

Section 8.02 REPRESENTATIVES. For all purposes relative to this Agreement, the Grantee will be represented by the individual holding or acting in the office of the Minister of Agriculture and Irrigation and A.I.D. will be represented by the individual holding or acting in the office of the Director, USAID, Cairo, Egypt. Such individuals shall have the authority to designate by written notice additional representatives. In the event of any replacement or other designation of a representative hereunder, the Grantee shall submit a statement of the representative's name and specimen signature in form and substance satisfactory to A.I.D. Until receipt by A.I.D. of written notice of revocation of the authority of any of the fully authorized representatives of the Grantee designated pursuant to this Section, it may accept the signature of any such representative or representatives on any instrument as conclusive evidence that any action effected by such instrument is duly authorized.

Section 8.03. IMPLEMENTATION. A.I.D. shall from time to time issue instructions that will prescribe the procedures applicable hereunder in connection with the implementation of this Agreement.

Section 8.04 ENTRY INTO FORCE. This Agreement and Grant shall enter into force when signed by both parties hereto.

IN WITNESS WHEREOF, the Government and the United States of America, each acting through its respective duly authorized representative, have caused this Agreement to be signed in their names and delivered as of the day and year first above written.

Arab Republic of Egypt:

By: [Signed]

Name: A. A. ATTA

*Title: Minister of Agriculture
and Irrigation*

United States of America:

By: [Signed]

Name: WILBERT R. TEMPLETON

Title: Director, USAID/Egypt

ANNEX I

DESCRIPTION OF PROJECT

I. *Project Objectives*

The general objective of the Project is to improve the social and economic conditions of the small farmer in Egypt through development and use of improved irrigation water management and associated practices which will increase agricultural production, develop efficient water use practices and decrease drainage problems. The Project is also designed to increase the institutional capacity of the Ministries of Agriculture and Irrigation to develop and implement improved on-farm water management programs. The final product of the Project will be an action program, tested and proven as to technical applicability, farmer acceptability and organizational replicability, that would be expanded to regional and/or national programs.

During a five-year period, the Project would conduct an applied research and extension program with small farmers in three representative pilot areas. The Project is expected to:

1. identify the major constraints to improved on-farm water management and optimal water delivery stem operations;
2. determine and establish the use of optimal irrigation practices at the farm level in representative pilot areas;
3. establish improved water control practices for the water delivery and drainage systems in the project areas;
4. develop plans for organization and implementation of expanded future programs based on results in the Project areas;
5. develop and/or train qualified scientists and technicians for the conduct of Project activities.

II. *Implementation*

A. *General*

During the expected five-year duration of the Project, activities will be conducted by a Project team composed of personnel assigned by the Ministries of Agriculture and Irrigation as well as U.S. contract technicians provided under the terms of this and subsequent

Agreements. The Project team will be directed by an Egyptian Project Director assisted by a U.S. scientist serving as Technical Project Director. The Project Director will report to the Minister of Agriculture and Irrigation or his appointed representative and will be advised by a Project Advisory Committee. This Committee will include the Director of the Water Delivery Research Institute of the Ministry of Irrigation, the Soil and Water Research Institute and the Agricultural Economics Research Institute, both of the Ministry of Agriculture, other members who may be appointed by the Minister of Agriculture and Irrigation, and the AID Agricultural Officer or another qualified USAID representative to be appointed by the AID Mission Director.

The Project team at the main office is expected to have a staff of nine Egyptian and five U.S. professionals. The Egyptian personnel would include two Agronomists, two Irrigation Engineers, an Agricultural Engineer, an Agricultural Economist, a Soil Scientist, a Chemist and a Sociologist. The U.S. staff would include an Agronomist, two Agricultural/Irrigation Engineers, a Rural Sociologist/Extension Specialist and an Agricultural Economist. The main office will also require an Egyptian support staff of administrative assistants, technician, driver, translator and secretaries, to be provided by the Grantee.

The Project team will operate from a central office located in Cairo, in quarters to be made available in the Ministry of Agriculture. Project personnel in the Abu Korkas and Sakha areas will be provided with office and laboratory space and logistical support by the Agriculture Experiment Stations and Irrigation Departments in Menya and Kafr El Sheikh Governorates respectively.

Activities will be conducted in three pilot areas, each representative of a particular cropping pattern and unique water management problems. Taken as a group, these areas represent nearly the entire range of crop and agro-climatological conditions encountered in the "old lands".

The El Minya area in the Upper Nile is typical of areas with loamy soils, fragmented holdings, drainage problems, a gravity-fed irrigation system and cropping pattern centered on sugar cane, cotton, maize and sorghum. The Mansouriah area near Cairo typifies lighter sandy alluvial soils, lesser drainage problems, a lift irrigation system, fragmented holdings and a cropping system largely of citrus, fruits and vegetables. The Sakha area in the north central Delta contains heavy clay loam soils, somewhat larger holdings, major drainage and salinity problems, a lift irrigation system and major crops of paddy rice, cotton and wheat.

In each of the pilot areas, Project activities will be implemented in three overlapping and interrelated components. The first component involves a number of on-farm surveys designed to improve the data base concerning existing farm production and to determine the type of additional research required. Information gained would serve as the basis for design of applied research programs with farmers and eventually for the design of production/demonstration programs in the pilot areas.

The second component of the Project will develop and improve a similar data base concerning quantity and quality of water entering and leaving each irrigation district. This data will be used for management decisions for water delivery and drainage on a district basis. Activities in the first two components would be undertaken in the earliest stages of the Project to provide a basis for applied research and demonstration programs to be conducted as the third component and would continue throughout the Project as a source of feedback information for continual improvement of water management practices.

The third component will have two major stages in which the first stage will involve on-farm research programs based on information developed in the first two project components and on results already obtained from experiment station trials. The on-farm testing may vary from a few farmers and a few feddans to several hundred farmers and their holdings depending on the type of research involved. Included in this first stage of the third

component are studies of delivery systems improvements which will, by necessity, require relatively large blocks of land determined by delivery canal configuration. These studies will include evaluation of water delivery on a demand basis as well as studies of water delivery on a gravity basis at various rates of flow. Outlet design and a continuous evaluation of the delivery system will also be major aspects of the program.

A second aspect of the first stage of on-farm research will be that of improvement of farm application systems. Studies will be conducted to develop optimum combinations of such factors as flow rate, field configuration, slope, infiltration rates and field leveling, all leading to higher application efficiencies. Studies will also be conducted related to replenishment of soil water deficit and control of waterlogging and soil salinity.

Other aspects of the first stage of on-farm research include salinity balance experiments, particularly in Kafr El Sheikh district, and correlation between soil tests and fertility experiments. The latter will depend on results from a soil test program undertaken as part of the first components and will be directed toward optimization of fertilizer inputs for small farmers.

As a result of the above research activities and based on data developed by the on-farm surveys, optimal management systems will be designed for on-farm use. Research programs will be conducted with farmers to determine their feasibility of adoption and acceptability. Management factors will include irrigation methods, field cultural practices, seed and fertilizer application and pest control. Experiment station research will also be continued where basic data are not available and where new problems surface from applied research programs.

The second stage of the on-farm research program will be the design and implementation of pilot programs in each of the three areas, incorporating high benefit technologies developed in the first stage. These programs will test the acceptability and rate of adoption by farmers of improved management practices. Of equal or greater importance will be the determination of the most efficient organizational approach or approaches, the technical competence of personnel required and the costs and benefits involved for the successful conduct of such programs.

During the first six months following the arrival of the U.S. contract personnel, the Project team will concentrate on the development of a detailed work plan as well as the initiation of surveys for which the need is already determined. This work plan, subject to approval by the Ministries of Agriculture and Irrigation and by AID/Cairo, will determine the activities to be conducted during the first half of the Project. The program described by this work plan will be subject to review and up-dating at least annually or as requested by the Project Advisory Committee.

Farm surveys and collection of water delivery data will be undertaken prior to the completion of a detailed work plan, subject to approval of the Project Advisory Committee. The Project will also involve evaluation of ongoing research on water delivery in Mansouriah district being conducted by the Water Delivery Research Institute subject to the above approval.

At the end of approximately two and a half years, when adaptive research is expected to be substantially completed, a major review will be conducted to determine the elements and organizational arrangements required for the pilot demonstration/production activities to be conducted in the second half of the Project.

The emphasis during the pilot demonstration/production phase will be on the development of a program or programs which farmers will accept and adopt and which can be reasonably replicated for production programs at the regional or national levels. During the last year of project activities, the pilot programs will be evaluated continuously with special emphasis on replicability and organizational requirements for the development of such action programs.

The program will be planned and implemented by an inter-disciplinary team of Egyptian and U.S. professional staff. General supervision and training will be handled from the main office in Cairo with field office personnel in each pilot location executing day-to-day programs. Each project site is expected to have a team of five Egyptians with training in the MS level in the specialties of Irrigation Engineering, Agronomy, Agricultural Engineering and Agricultural Economy. Each area team would also include a U.S. specialist broadly trained in agricultural engineering or agronomy. The area teams would each be supported by a staff of nine Egyptian technicians for data collection and field supervision of trials and Project operation.

Training is an essential element of this Project and will be coordinated and supervised by the main office staff in Cairo. In-service training will be given throughout the course of the Project with particular emphasis during initiation of activities in each Project site. Short courses of one to four months duration of applied training in various specialties will be designed and conducted periodically in the U.S. and in Egypt. Training tours to other countries may also be organized as appropriate and as required. Approximately 24 months of training per year outside of Egypt has been budgeted for the Project.

Funds have been budgeted for the purchase from the U.S. of required irrigation, farming, laboratory and office equipment as well as vehicles for project transportation. Similar equipment available in Egypt will be funded from the Egyptian Government budget as well as office rent and utilities, operating expenses for the office and field operations, per diem costs in Egypt for Egyptian and U.S. personnel and all other local costs.

Total cost of the Project over the planned five-year period is estimated at \$5,950,000 in foreign exchange costs and LE 3,320,000 in local costs. Annual budget requirements will be developed by the Project staff and approved by the Project Advisory Committee for preparation of annual agreements for the continuation of this Project. Subsequent Grant Agreements will be subject to the availability of funds and the obtaining of necessary AID approvals.

B. *Fiscal Year Implementation*

The services of the U.S. resident specialists for this Project, services of short-term consultants, backstopping and support services in the U.S. as well as training of Egyptian personnel will be provided under a contract with a U.S. organization well grounded in irrigation practices and problems prevailing in arid environments. Under the terms of this Agreement, a contract will be negotiated with that U.S. organization to provide the services of a Technical Project Director, an Agronomist, two Agricultural/Irrigation Engineers and a Rural Sociologist for the first year of operation. They will be supported in the U.S. at the contractor's base of operation by technical backstopping and secretarial services and in the field by short-term consultant services.

The Ministries of Agriculture and Irrigation will appoint the Egyptian Project director within 90 days and will appoint other personnel for the main office and for two of the three field locations and will provide the necessary office and laboratory space and administrative support within six months. Funds for equipment and materials, operating costs and per diem will be provided from the Grantee's FY 1977 (1 Jan. 1977-31 Dec. 1977) budget funds according to the Project budget listed below. Procedures for implementation of Project activities will be established through additional documentation according to the provisions of this Agreement.

The funds committed by this Agreement, totalling \$1,500,000 from AID and LE 306,000 from the Government, will be used to obtain the following estimated amounts of services, equipment, materials and all other local currency operating expenses (cost estimates are subject to variation within the total of \$1,500,000 and LE 306,000):

1. *U.S. Contribution*

a) Up to 108 man-months of services of in-resident U.S. specialists	\$502,500
b) Up to 80 man-months of short-term advisors, plus home office and administrative support	\$250,200
c) Project vehicles and spare parts	\$199,800
d) Irrigation, laboratory, office and farm equipment	\$345,500
e) Training — estimated 24 man-months	\$ 63,000
f) Miscellaneous	\$139,000
	<u>\$1,500,000</u>

2. *Government Contribution*

a) Up to 1,464 man-months of services of Egyptian professional and support personnel	LE 140,000
b) Short-term consultant services	6,000
c) International travel of participants	4,500
d) Farm and office equipment	35,500
e) Per diem in Egypt for Egyptian and U.S. Project personnel	30,000
f) Operating expenses including project vehicles	22,000
g) Office rent, utilities, telephone and other office expenses	25,000
h) International travel and housing costs for U.S. technicians	48,000
	<u>LE 306,000</u>