PROJECT PAPER
AMENDMENT NO. 4
PROJECT 664-0304

# AGRICULTURE TECHNOLOGY TRANSFER

TUNISIA

August 1985

ACTION MEMORANDUM

DATE: August 23, 1985

TO : James R. Phippard, Director, USAID/Tunis
THROUGH : F&A, Paul Novick
FROM : Salah Mahjoub, F&A
SUBJECT : The Agricultural Technology Transfer Project (664-0304)

PROBLEM: Delegation of Authority has been granted to the Mission Director (State 226489) to approve the Project Paper amendment and to authorize an extension of the life of the project by 4 years with a new PACD of December 31, 1990. The ATT project has been designed as a $10.8 million project, of which obligations in the amount of $5.8 million (through Amendment 3) constitute Part 1. Obligations under Amendment 4 will constitute Part 2. Under Amendment 4, over the life of project an additional $2.7 million will be added including $1.5 million to be obligated in FY '85 and $1.2 million to be obligated in FY '86. Through Amendment 4, total life of project funding from USAID will be $8.5 million. Counterpart funding will be obtained from the GOT.

During the design of Amendment 4, further activities to be funded at $2.3 million were designed but not included in the project at this time. If later funded, these activities would constitute Part 3 of the ATT. To maximize the resources of the design effort, these Part 3 activities have been conceptualized and are described in an annex to the Project Paper. However, Parts 2 and 3 are independent and Part 2 stands alone, regardless of Part 3 funding. Should Part 3 be funded, no further design activities will be required.

The paragraphs which follow constitute a request for approval of the Project Paper amendment and for approval of the (A) extension of the PACD to December, 1990 and (B) the authorization of additional funding as described.

DISCUSSION: The Agricultural Technology Transfer Project (ATT) has been implemented by the Government of Tunisia (GOT) through the Direction de l'Enseignement, Recherche et de Vulgarisation (DERV) with the assistance of the US contractor Midamerica International Agriculture Consortium (MIAC). The goal of AID assistance to Tunisian agriculture is "to increase agricultural production and rural incomes through more efficient management of production systems and utilization of agricultural resources."

The purpose of the ATT has been "to enable a trained nucleus of the agricultural cadre to identify, select and manage the future agricultural technology of Tunisia, and to introduce appropriate technological innovations which can be applied in the delivery of services and support to the agricultural sector."

Toward this end, the ATT has thus far provided long-term training for 80 advanced degrees, including 38 PHDs and 42 MS degrees. Similar successes have been achieved with respect to short-term training and the staffing and equipping of the soil testing laboratory and the agricultural library. To further develop linkages between US and Tunisian agricultural institutions, cooperative research projects between US and Tunisian scientists have been started, and the exchange of faculty through sabbaticals is being arranged.

The ATT is being effectively implemented and is on schedule per the last evaluation and periodic reviews. The Ministry of Agriculture has indicated a profound interest in extending the work of the ATT, which has thus far "endowed Tunisian agriculture with trained personnel in teaching and research". New emphasis will now be placed on developing a trained cadre of professional managers within the Ministry of Agriculture who are charged with translating the results of research into productive and beneficial agricultural programs (as per draft Projet de Lettre, MOA to Ministry of Plan, Spring 1985).

In the course of this amendment, emphasis will also be placed on providing dollar support to the PL 480 Title I multiyear program. Small infusions of dollars to this large program of the GOT should have a large effect. Previously obstacles have arisen in such host country programs because of foreign currency restrictions on the purchase of small, specialized pieces of equipment, spare parts or training and TA services.

Linkages activities are also a major focus of the extension; this stems from the GOT commitment to preserving the investment made to date to bring DERV teachers and researchers to state-of-the-art in their disciplines.

Specifically, the amended ATT project will undertake activities in five areas:

A. Long-term training. The amendment will fund 20 advanced degree programs, seventeen master's programs for managerial staff of the MOA needing advanced training in technical fields and 3 PhD programs in the areas of farm management and/or livestock.

B. Short-term training. Short-term training of 2 types will be provided under this project. First, training in the U.S. and third countries will be provided. Second, trainer time will be provided for training of MOA personnel in Tunisia. These types of training are envisioned to accomplish complementary purposes. Training in the U.S. or third

countries is appropriate where the need is for quality, individual training, perhaps at a model facility, international conference or International Center. Trainer time is provided for training in Tunisia, where it may be possible to assemble a group of participants needing similar training, to train senior staff who are free to travel, etc.

C. Linkages between Tunisian and U.S. researchers and institutions. Three types of activities will be provided to strengthen linkages between Tunisian and U.S. scientists and institutions. First are cooperative research agreements which will be developed between U.S. former faculty advisors and Tunisian faculty, recently returned from ATT-sponsored degree programs in the U.S. Approximately 10 cooperative agreements will be developed. The second type of activity is that of sabbatical leaves; 2 will be arranged for U.S. faculty in Tunisia and 2 for Tunisian faculty in the U.S.

The third area of activity is the creation of sister-to-sister school agreements. Through these, interdisciplinary teams of U.S. scientists from one U.S. institution and of Tunisian scientists from one of the DERV institutions would work together on an interdisciplinary problem of joint interest (for example, integrated pest management, farming systems, etc). Two such one-year agreements are envisioned.

D. Support to PL 480 Projects. A PL 480 program is being implemented to increase the efficiency of Tunisian agriculture by improving the uptake and efficiency of fertilizer, pesticides, and seeds. While these activities are to be funded through PL 480 local currency proceeds, the ATT project will provide foreign exchange for a small amount of equipment, training, and technical assistance. ATT assistance to the larger Pl 480 umbrella project will serve to give the latter a distinctly service or practical orientation. For example, previously focussed on research, soils analysis laboratories will be oriented to service, to providing test results and recommendations to farmers. A key element of the PL 480 program will be establishment of a PL 480 Project Unit, under a Project Director, within the Office of Cereals to provide management, coordination and implementation of activities in three areas:

-- Strengthening 3 existing soil testing laboratories to perform large-scale analysis of samples and training extension personnel in making fertilizer recommendations to farmers,

-- introducing an integrated approach to weed control, employing improved tillaging methods, and
-- introducing, testing and disseminating varieties of cereals and legumes for higher yields and better disease resistance under Tunisian conditions.

This project will provide complementary funding for these activities.

E. Support of the Training, Linkages and PL 480 Components. Under this component, TA, logistical support and limited commodities will be provided in support of components described above. A long-term resident advisor will be provided for a term of 2 years to assist in participant selection and development of training programs, help coordinate cooperative and sister-to-sister school agreements, coordinate TA, etc. Short-term TA will be provided to quickly respond to problems encountered by the agencies and Offices in the technical implementation of their programs.

Logistical support and commodities will be provided where unavailability of some small commodity has been a significant barrier to effective use of the comparatively large U.S. or Tunisian budgets for project implementation. Examples include small laboratory equipment or field equipment, particularly where compatibility with previously purchased U.S. equipment is essential.

USAID is also interested in extending this Project. The ATT, with its close liaison with Tunisian agricultural teaching institutions, relates closely to two key components of Mission strategy -- promoting technology transfer and strengthening Tunisian institutions which AID has previously assisted. This Project is expected to have a positive impact on GOT policy. The MOA staff members, trained in U.S. agricultural techniques, such as water management or farm management systems, will contribute to agricultural policy formation and influence the adoption of field innovations adapted to Tunisian conditions. This latter will be a vital link in the chain carrying technology to the farmer, through a more effective service delivery system, technology should reach the farmers related to fertilizer use, varieties selections and other production problems typically faced.

Over the life of project, this amendment will require 2.7 million dollars of AID financing for the TA, training and other foreign exchange costs and approximately four million dinars of

local currency to be provided by the GOT.

The Mission plans to continue with the same contractor, MIAC, and we have received a waiver of the requirement of competitive bid for this follow on (Ref attached waiver).

RECOMMENDATION: That you approve this request that:
(1) The PACD of the ATT Project be extended to December 31, 1990, and that

(2) Funds be authorized in the amount of 2.7 million dollars.

Approved: _____

Disapproved: _____

Date: 8.23.85

Attachments: (1) Project Authorization
(2) Cable of Delegation of Authority (State 226489)
(3) Project Paper
(4) Pro Ag Amendment
(5) Cable of Congressional Notification (State 230396)
(6) Letter of Request from Government of Tunisia
(7) Waiver of Competitive Bid (July 17, 1985)

cc:A/DIR, PROG, CONT, F&A, C&R-2
F&A/PNowick & SMahjoub:hk:08/21/85

Clearances: A/DIR/ELeonard _____
PROG/LMacary _____
CONT/EHardy _____
RLA/AWilliams (substance) _____

SECOND AMENDMENT

TO THE

PROJECT AUTHORIZATION

Name of Country: Tunisia

Name of Project: Agriculture Technology Transfer

Number of Project: 664-0304

1. Pursuant to Section 103 of the Foreign Assistance Act of 1961, as amended, the Agriculture Technology Transfer Project for Tunisia was authorized by the Assistant Administrator for the Near East on August 28, 1978, and amended on May 21, 1981. Pursuant to a specific delegation of authority and to Section 531 of the Foreign Assistance Act of 1961, as amended, that authorization is hereby amended as follows: the total level of authorized funding is increased from $5,800,000 (five million eight hundred thousand U.S. dollars) in grant funds to $8,500,000 (eight million five hundred thousand U.S. dollars) in grant funds, of which $1,500,000 (one million five hundred thousand U.S. dollars) is to be obligated in FY 1985 and $1,200,000 (one million two hundred thousand U.S. dollars) is to be obligated in FY 1986, subject to the availability of funds in accordance with A.I.D. OYB/allotment process. The life of project is 12 years and one month.

2. The authorization cited above remains in force except as hereby amended.

Signature:

James R. Phippard, Director
USAID/Tunis

Date: 8-23-85

ACTION MEMORANDUM

DATE: August 23, 1985

TO : James R. Phippard, Director

FROM : Mark Karns, Mission Environmental Coordinator

SUBJECT : Environmental Determination

Project Title: Tunisia - Agriculture Technology Transfer Amendment No.4

Project No.: 664-0304

PROBLEM: The Fourth Amendment of the Agriculture Technology Transfer Project (ATT) will provide additional funding for: (1) long and short-term training, (2) linkages between US and Tunisian agricultural research and teaching institutions, (3) training, technical assistance and logistic support to the PL 480 program and, (4) on an as-needed basis, TA, logistic and commodity support to the foregoing activities. The environmental impact of this amended project must be considered. Where a project has little or no environmental impact, a negative determination may be granted. The following paragraphs provide the rationale and request that you grant a negative determination for this project amendment.

DISCUSSION: I. This project amendment will provide additional funding to continue and expand the academic as well as the short-term training program for the Ministry of Agriculture and related technical agencies through the Direction de l'Enseignement et Recherche et Vulgarization (DERV) with the assistance of the U.S. contractor Midamerica International Agricultural Consortium (MIAC). This amendment will also further develop and reinforce existing linkages between U.S. and Tunisian agricultural institutions, through cooperative research projects between U.S. and Tunisian scientists/researchers and sabbatical exchanges. Technical assistance and logistical support/commodities will further support development programs in the agricultural sector by introducing the latest appropriate technology.

In connection with these activities and consistent with the PL 480 strategy developed jointly by the GOT and AID for FY 1985-1987, a small amount of dollar support (primarily for TA and some laboratory equipment) will be used through the ATT amendment for the following activities:

(1) Strengthening the technical capacity of personnel at the three existing soil testing laboratories for analyzing large numbers of farmers' samples, and at the same time training extension personnel in techniques for using these analyses to determine fertilizer recommendations for individual fields. Concomitantly, a field research program will be carried out to calibrate the fertilizer tests with Tunisian soil and climatic conditions and which will ultimately lead to more efficient fertilizer usage at the farm level;

(2) Introducing an integrated approach to weed control which will employ improved tillaging methods, to lessen the dependence on costly chemical herbicides. When coupled with other practices, this could increase cereals production by 15 to 30%; and

(3) Introducing, testing, and disseminating varieties of cereals and legumes which will be higher yielding and more disease-resistant under Tunisian conditions. Suitable rotations of grains and legumes for different regions of Tunisia also will be developed to improve the production of small farmers.

The innovative part of the amended project will also enable the promotion of U.S. technology transfer and the strengthening of Tunisian agriculture and research institutions which AID has previously assisted and still supports.

II. On July 25, 1985 Paul F. Novick, A/ADO had a telephone conversation with Stephen F. Lintner, Environment Protection Specialist, NE/DP, who, after being informed of the environmental implications of the project, delegated authority to the Mission Environmental Coordinator to clear the amendment to the project.

III. As most of the above described activities to be undertaken under this project amendment will involve advanced degree training and development of skills of the GOT technical cadre and given the nature of its small and controlled research component, the amended project does not require an Initial Environmental Examination, Environmental Assessment nor Impact Statement. Handbook 3, App. 2D, International Development Cooperation Agency, AID, 22 CFR Part 216, Paragraph 216.2 (c) entitled:" Categorical Exclusions", states:

"(1) The following criteria have been applied in determing the classes of actions included in paragraph 216.1(c), (2) for which an Initial Environmental Examination, Environmental

Assessment and Environmental Impact Statement generally are not required:

....

(iii) Research activities which may have an effect on the physicial and natural environment but will not have a significant effect as a result of limited scope, carefully controlled nature and effective monitoring.

(2) The following classes of actions are not subject to the procedures set forth in Paragraph 216.3, ...

(i) Education, technical assistance, or training programs except to the extent such programs include activities directly affecting the environment (such as construction of facilities, etc.);

(ii) Controlled experimentation exclusively for the purpose of research and field evaluation which are confined to small areas and carefully monitored."

RECOMMENDATION: That, based on the rationale provided in the Discussion-Section I-III, and the Categorical Exclusions cited above, you concur that this ATT Project amendment will have little or no environmental impact, and therefore rates a negative environmental determination.

Approve _____
Disapprove _____
Date 8·23·85

Clearances: PROG:LMacary

S&T/MKarns:kl:8/21/85

REPUBLIQUE TUNISIENNE

MINISTERE
DES AFFAIRES ETRANGERES

N° NH/AM/83/3 (A.E.)

Tunis le 23 AOUT 1985

Attachment No. 6

504118

Monsieur le Directeur de la Mission Spéciale
Américaine de Coopération Economique et Technique
en Tunisie

TUNIS

OBJET : Coopération Tuniso-Américaine
Programmation des Fonds de Soutien Economique
de l'année fiscale 1985.

REFERENCE : Nos lettres du 5 et 7 novembre 1984
et du 7 décembre 1984
Votre lettre du 9 Janvier 1985.

Monsieur le Directeur,

Me référant aux correspondances sus-visées et suite aux divers entretiens avec les responsables de la Mission US/AID-Tunis, j'ai l'honneur de porter à votre connaissance que le Gouvernement tunisien propose que le reliquat des 11,2 Millions de $ ESF accordés à la Tunisie dans le cadre de l'année budgétaire 1985 soit affecté à des projets de développement comme suit :

1 - Transfert de Technologie (664-0315) = 5,2 Millions de $ US, consistant en une avance pour le Programme de l'année 1986

2 - Planification familiale (664-0331) = 1 Million de $ US pour un projet dont le coût total est évalué à 7,5 Millions de $ US.

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Le Financement global du dit projet serait assuré par une dotation supplémentaire de 4 Millions de $ E.S.F. de l'année 1986 et 2,5 Millions de $ sur les Fonds Américains d'Aide au Développement de 1985 (AID/Washington).

3 - Transfert de Technologie Agricole (664-0304) = 1,5 Million de $ US. Un montant de 1,2 Million de $ US des Fonds E.S.F. 1986 permettrait de compléter le schéma de financement du projet dont le coût total est évalué à 2,7 Millions de $ US.

4 - Technologie de l'Informatique (664-0334) = 3,5 Millions de $ US. Ce projet devant être préparé, dans les meilleurs délais, par les experts tunisiens et leurs homologues américains.

Aussi vous saurais je gré de bien vouloir porter ce qui précède à la connaissance de vos Hautes Autorités afin de pouvoir procéder à la signature des Accords de Coopération se rapportants aux projets de développement sus-mentionnés.

Pr. le Secrétaire d'Etat auprès du
Ministre des Affaires Etrangères Chargé
de la Coopération Internationale

Abdelaziz LOUATI

ASSISTANT ADMINISTRATOR

AID EXECUTIVE SECRETARIAT

JUN 14 1985

ACTION MEMORANDUM FOR THE ADMINISTRATOR

THRU: AA/PPC, Richard Derham

FROM: AA/ANE, Charles W. Greenleaf, Jr.

SUBJECT: Tunisia - Agriculture Technology Transfer Project (664-0304)

PROBLEM: To waive competition in order to permit sole source negotiation of an amendment of approximately $5.0 million to a host country contract between Mid-America International Agricultural Consortium (MIAC) and the Ministry of Agriculture (MOA) of Tunisia under the Agriculture Technology Transfer (ATT) Project. This amendment will increase the amount of the existing contract between MIAC and the MOA to approximately $10.7 million and will also increase the level of effort under the contract.

DISCUSSION: Under Handbook 11, Chapter 1, Paragraph 2.4.2.B. you are authorized to waive competition in the procurement of services and authorize a single source negotiated contract for procurements which increases the scope of work or level of effort of existing host country contracts. Negotiation with the single source must be justified under one of the five criteria listed in paragraph 2.4.2.

The fourth and fifth criteria listed in that paragraph are directly relevant for present purposes; they read as follows:

A4. "The borrower/grantee desires to utilize a contractor previously engaged in the project for follow-on work and the contractor clearly has special capability by virtue of previous experience in the work, but the contractor was either not initially selected on a competitive basis or the contracting agency did not advise all competing firms that a follow-on contract might result..."

A5. "Adherence to competitive procedures would result in the impairment of the objectives of the United States Foreign Assistance Program or would not be in the best interest of the United States."

The proposed sole source waiver is justified under both of these criteria.

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MIAC has done an excellent job in the performance of its contract thus far. The mid-term evaluation, conducted in September, 1982, noted that the project was being implemented with dispatch. At that time, most activities were on schedule and expenditures very much in line with accomplishments. The project has continued on course since that time, with several objectives completed (construction and equipping of soils analysis laboratory, and equipping and staffing of the agricultural library) and satisfactory progress being made on the other outputs (notably long-term training).

These objective measures of the progress to date are only one indicator of MIAC's effectiveness in carrying out its role in the project. They do not reflect fully the resourcefulness which MIAC has displayed on numerous occasions during its work on the project. For example, in those instances in which a Tunisian candidate for long-term training has expressed a desire to pursue a specialized research interest, MIAC has searched for the school best able to accomodate the candidate's interest, even if the school was not a member of the Consortium. This approach has resulted in placements at 14 different universities outside the Consortium.

MIAC has also been particularly successful in building relationships with Tunisian counterparts and participants. The evaluation team noted the "exceptional" quality of the staff member appointed to serve as coordinating director.

The GOT has also expressed its appreciation for MIAC's work in developing relationships with Tunisian institutions and personnel. In 1983, the Tunisian Minister of Agriculture visited the University of Missouri/MIAC and expressed strong support for the development of linkages between U.S. and Tunisian teaching institutions. MIAC responded with considerable care and initiative to this overture. The GOT has since expressed its strong desire for continuing MIAC's involvement.

Ties between MIAC programs and the DERV institutions are also strong. Both sides have put considerable time and effort into these relationships. As a result, the project is now in a position to draw on the expertise and experiences of MIAC faculty members who now know Tunisian agricultural practices, needs and conditions. Several MIAC faculty have travelled to Tunisia to observe the agricultural system first hand. Faculty sabbatical opportunities are being examined, with one scheduled to begin immediately. Ten cooperative research proposals have been developed by Tunisian principal investigators with U.S. collaborators. Collegial

relationships now exist between Consortium faculty and returning participants. This network is expected to quickly expand, as the activities under the proposed amendment begin. These are key elements in the accomplishment of a major objective of this project -- development of long-term linkages between U.S. and Tunisian agricultural teaching institutions. If these linkages are to be maintained and further developed, it is essential that MIAC continue to carry out its work on the project. It would be difficult, if not impossible, to sustain the linkages which have just begun to be nurtured if there is an abrupt change of contractors.

Finally, it should be noted that it would not be in the best interest of the U.S. to put the work under the amendment of this contract out for competitive bid.

The additional work called for under the PP Amendment will overlap with and be a continuation of ongoing TA and training activities currently provided by MIAC under its host country contract with the GOT/MOA. With seven years of experience on the project, MIAC will be able to move quickly and effectively to execute the additonal work required. Any other contractor would require additional time and start-up costs to execute the same work. The delays would be detrimental to the project and make it more difficult to manage. Moreover, while the MOA has performed well on the management of the existing contract, it has no desire to manage -- nor could it be expected to effectively manage -- two Title XII contractors providing basically the same type of services to the same project at the same time.

Moreover, the proposed amendment to the MOA/MIAC contract would be consistent with those portions of the Title XII legislation which call for greater collaboration and partnership in a larger setting. In discussions with the Executive Director of BIFAD concerning possible contracting for this project, he indicated that they favored and believed that AID strategy and the relevant Title XII legislation supported continuing with the same university as long as the host government, the University and Mission concur.

RECOMMENDATION: That based upon the above justification, by your signature below, you waive competition for procurement of services for the Agriculture Technology Transfer Project and that you authorize the sole source negotiations by MOA with MIAC for an amendment to their contract in the approximate amount of $5,000,000

APPROVED: [signature]

DISAPPROVED:

DATE: July 17, 1985

Clearance

GC: H. M. Fry [signature] Date: 6/21/85

AA/PPC: R. Derham [signature] Date: 6/6/85

NE/TECH/AD:J. Rogers:lms:632-9262:05/08/85:0048d

AGENCY FOR INTERNATIONAL DEVELOPMENT

# PROJECT DATA SHEET

1. TRANSACTION CODE: C (A = Add, C = Change, D = Delete) — Amendment Number: _____ — DOCUMENT CODE: 3

2. COUNTRY/ENTITY: Tunisia

3. PROJECT NUMBER: 664-0304

4. BUREAU/OFFICE: ANE — 03

5. PROJECT TITLE (maximum 40 characters): Agriculture Technology Transfer

6. PROJECT ASSISTANCE COMPLETION DATE (PACD): MM 12 DD 31 YY 90

7. ESTIMATED DATE OF OBLIGATION (Under "B." below, enter 1, 2, 3, or 4): A. Initial FY 78 — B. Quarter 4 — C. Final FY 86

8. COSTS ( $000 OR EQUIVALENT $1 = )

| A. FUNDING SOURCE | FIRST FY 78 B. FX | C. L/C | D. Total | LIFE OF PROJECT E. FX | F. L/C | G. Total |
|---|---|---|---|---|---|---|
| AID Appropriated Total | | | | | | |
| (Grant) | ( 3570 ) | ( ) | ( 3570 ) | ( 8500 ) | ( ) | (8500 |
| (Loan) | ( ) | ( ) | ( ) | ( ) | ( ) | ( |
| Other U.S. 1. | | | | | | |
| Other U.S. 2. | | | | | | |
| Host Country | 1598 | | 1598 | | 7484 | 7484 |
| Other Donor(s) | | | | | | |
| TOTALS | 5168 | | 5168 | 8500 | 7484 | 15984 |

9. SCHEDULE OF AID FUNDING ($000)

| A. APPROPRIATION | B. PRIMARY PURPOSE CODE | C. PRIMARY TECH. CODE 1. Grant | 2. Loan | D. OBLIGATIONS TO DATE 1. Grant | 2. Loan | E. AMOUNT APPROVED THIS ACTION 1. Grant | 2. Loan | F. LIFE OF PROJECT 1. Grant | 2. Loan |
|---|---|---|---|---|---|---|---|---|---|
| (1) ARND | 120 | 080 | | 5800 | | | | 5800 | |
| (2) ESF | 120 | 080 | | | | 2700 | | 2700 | |
| (3) | | | | | | | | | |
| (4) | | | | | | | | | |
| TOTALS | | | | 5800 | | 2700 | | 8500 | |

10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each): 874 600

11. SECONDARY PURPOSE COI: 750

12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)

| A. Code | XII | | | | | | |
|---|---|---|---|---|---|---|---|
| B. Amount | 8400 | | | | | | |

13. PROJECT PURPOSE (maximum 480 characters)

The project purpose is to enable a trained nucleus of the agricultural cadre to identify, select and manage the future agricultural technology of Tunisia, and to introduce appropriate technological innovations which can be applied in the delivery of services and support to the agricultural sector.

14. SCHEDULED EVALUATIONS: Interim MM 09 YY 83 — MM 12 YY 85 — Final MM 09 YY 80

15. SOURCE/ORIGIN OF GOODS AND SERVICES: [X] 000 [ ] 941 [ ] Local [ ] Other (Specify) _____

16. AMENDMENTS/NATURE OF CHANGE PROPOSED (This is page 1 of a ____ page PP Amendment)

This amendment will provide for additional U.S. academic training, reinforcement of linkages between U.S. and Tunisian institutions, local training, technical assistance and support for related institutions development activities in Tunisia. Funding approved in this amendment will be used to finance Phase I activities, as described in the body of the PP.

17. APPROVED BY — Signature: James R. Phippard — Title: Director, USAID/Tunis — Date Signed: MM 08 DD 13 YY 85

18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION: MM DD YY

AID 1330-4 (8-79)

Clearance: CONT:EHardy E Hardy

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## I. SUMMARY

The Agriculture Technology Transfer (ATT) Project is being effectively implemented and is on schedule as per the previous evaluation and periodic reviews. Teaching and research faculty from Tunisian agricultural schools are receiving advanced degrees in the U.S. Short-term training has been provided to Ministry of Agriculture (MOA) and school staff members. A soils analysis laboratory and two agricultural libraries have been equipped and staffs trained. To further develop linkages between U.S. and Tunisian agricultural institutions, cooperative research projects between U.S. and Tunisian scientists have been started, and the exchange of faculty through sabbaticals is being arranged. In view of the progress in this project and the importance of continuing to expand Tunisia's institutional capacity to develop and to introduce the latest appropriate technology into the agriculture production system, the GOT and USAID would like to extend and expand this project. The activities under the proposed amendment which provides additional funds would consolidate the U.S. investment in scientific and research training provided thus far, and shore up the effect of this investment on agricultural production. This will be accomplished by training staffs of operating institutions and providing support mechanisms readily applicable to Tunisian research and to the implementation of development projects.

Inputs under this amendment will be in five areas:

A. Long-term training,

B. Short-term training,

C. Linkages between Tunisian and U.S. researchers and institutions,

D. Training, technical assistance and logistical support to selected activities supported by PL 480 Title I,

E. Technical assistance and logistical support/commodities where a small input of U.S. technology will enhance a significant ongoing Tunisian project or program.

This amendment would extend the PACD from the currently planned August 31, 1986 to December 31, 1990 for a total LOP of 12 years (STATE 226489 provided AID/W's waiver approval). The ATT project has been designed as a $10.8 million project, of which obligations in the amount of $5.8 million (through Amendment 3) constitute Part 1. Obligations under Amendment 4 will constitute Part 2. Under Amendment 4, over the life of project an additional $2.7 million will be added including $1.5 million

to be obligated in FY '85 and $1.2 million to be obligated in FY '86. Through Amendment 4, total life of project funding from USAID will be $8.5 million. Counterpart funding will be obtained from the GOT.

During the design of Amendment 4, further activities to be funded at $2.3 million were designed but not included in the project at that time. If later funded, these activities would constitute Part 3 of the ATT. To maximize the resources of the design effort, these Part 3 activities have been conceptualized and are described in Annex A to this Project Paper. However, Parts 2 and 3 are independent and Part 2 stands alone, regardless of Part 3 funding. Should Part 3 be funded, no further design activities will be required.

A host country contract extending the work of the current contractor, Midamerica International Agricultural Consortium (MIAC), is recommended in both Parts 2 and 3 to be negotiated on a sole-source basis. A waiver of competitive bid for contract with MIAC in Part 2 has been obtained.

## II. BACKGROUND

### A. History

The original ATT Project Paper (664-0304, September, 1978) gave a detailed description of the agricultural situation in Tunisia. It is basically an economy of small farmers operating at near subsistence levels. Rainfall is low and variable. Most of the topography is from rolling to steep with serious soil erosion from both water and wind. There is a wide variety of crops and livestock produced in many different combinations, most of them subject to high risks.

Experience in Tunisia and elsewhere suggests that there is great opportunity for improvement in production and income, at reduced risk and with simultaneous protection of the natural resource base. These improvements will stem in part from the use of improved relevant technologies and the investment of additional capital in physical and human resources.

Modest improvements have occurred since the late 1970's. Fertilizer production and distribution have expanded greatly and consumption has increased steadily. Provision of credit to farmers has expanded. Human capital has been enhanced through formal and informal educational programs at all levels.

In spite of progress, the potential remains for further improvement by building on and carrying forward the activities of the ATT. The basic approach of this project, building institutions and capacity to develop relevant technologies,

continues to be quite appropriate. The original ATT Project purpose emphasized the transfer of technology and the development of capacity to introduce technological innovation applicable in the agricultural sector. Common conceptions of technology transfer often focus too narrowly on new pieces of equipment or methodologies. These conceptions neglect the more important aspect of teaching the user how to use the technology, to understand its utility or its place in a total production system. In the ATT Project, great emphasis has been placed on the latter aspect. To prevent new tools from being neglected or swamped in old ways of doing things, the ATT Project has viewed technology transfer as the transmission of knowledge from a developer (teacher/researcher) or custodian (library) to a user (farmer) who will apply the knowledge to help achieve a goal. Thus it is knowledge that is being transferred, from mind to mind.

The primary technology transfer to date has been bringing future teachers in higher education and researchers to state-of-the-art status in selected scientific disciplines, including teaching and research methodology in those fields. This was appropriate since the initial strategy was to build the human component of the college-level teaching and research institutions.

The aspects of the project purpose which emphasize adoption and management of technological innovation cannot be realized if the technology transfer stops with the faculty and researchers. AID has given clear recognition that technology transfer is not complete until the technology is put in the hands of the farmer. Faculty and researchers may be a critical foundation of a progressive agricultural system. Yet in the absence of a better developed management and outreach system, it will be much harder for trained agricultural researchers and scientists to effect the changes in agricultural technology, management and service delivery specified in the project paper. Since technology transfer is not accomplished until technology reaches and is adopted by the farmer, this amendment with its focus on the service delivery system, will bring the technology much closer to the farmers of Tunisia. It is, as a result, a logical, next step.

B. Accomplishments

As evidenced by the mid-term evaluation in September 1982 and subsequent quarterly reports, the ATT Project has been highly successful in meeting project objectives. Eighty advanced degrees will be earned by participants in the long term component -- 38 Ph.Ds and 42 M.S.s. Most participants have chosen topics that directly relate to Tunisia's agricultural production problems. Many have gathered data for their research

in Tunisia. Seven Ph.D candidates and their advisors are committed to the conduct of dissertation research in Tunisia. By the current PACD (8/86) all participants should have completed their training and returned to their home institutions.

In addition to long term training, the project paper identified several other outputs. To date, 21 short term participants have completed professional development programs in the U.S. Professional and technical studies, analyses and reports have been produced, including 10 technical reports and 42 theses and dissertations (through September, 1984). With respect to library development, donated scientific journals and bulletins have arrived in Tunisia, and approximately 1300 books have been ordered and received. As of January, 1985, the first of two librarians to be trained to the M.S. level has completed the degree and assumed a position at the Institut National de la Recherche Agronomique de Tunisie (INRAT) library. Construction of the soil testing laboratory has been completed and all equipment received.

In the past year, the ATT Project has been able to formalize an innovative approach to developing linkages between Tunisian and U.S. researchers for research projects of mutual interest. Results of this initiative have been provision of a sabbatical leave in the U.S. and 10 cooperative research agreements (all underway) between returning participants and their U.S. faculty.

Midamerica International Agricultural Consortium has been the university contractor for the ATT Project. MIAC, a consortium of 5 land grant universities, was selected to design the ATT Project in 1978. In accord with Title XII legislation, the collaborative approach was followed with MIAC implementing the project. In June, 1981, the authorization of the ATT was amended to increase AID's contribution from $4.5 million to $5.8 million. The amendment provided for inflationary costs not anticipated in the design phase.

## III. GOAL, PURPOSE AND END OF PROJECT STATUS

### A. Goal and Purpose

The goal of AID assistance to the Tunisian agricultural sector remains unchanged since the original ATT Project Paper. The goal is "to increase agricultural production and rural incomes through more efficient management of production systems and utilization of agricultural resources."

The purpose of the project, as stated in the Project Paper, has been to "enable a trained nucleus of the agricultural cadre to identify, select and manage the future agricultural technology

of Tunisia, and to introduce appropriate technological innovations which can be applied in the delivery of services and support to the agriculture sector." The emphasis in implementation of the amendment will shift from training persons who will develop the technologies to training persons who are responsible for delivery of the technologies and related services to farmers.

The success of the ATT to date has spurred the MOA to seek to extend Project activities. In the course of the design effort, the proposed change in emphasis was discussed with many administrators in the Ministry of Agriculture, Direction de l'Enseignement, de la Recherche et de la Vulgarisation (DERV) and other GOT ministries, and there is widespread enthusiasm for the continuation of the ATT in the direction proposed. Directors of DERV institutions and the directors of a number of Ministry of Agriculture agencies and Offices* were invited to offer suggestions on activities that would effectively and efficiently achieve the project purpose. The names of persons interviewed and a summary of their comments are given in Annexes B and C. The extension will build on earlier activities and complete the program of "training a nucleus of the agricultural cadre to identify, select and manage the future agricultural technology of Tunisia".

B. End of Project Status

This project will have impact on three major areas. The first is strengthening the Tunisian agricultural institutions responsible for development and delivery of technologies and related services. The second is Tunisian administrators, faculty, researchers and technical personnel using the latest in techniques and technologies. These institutions will be giving priority to solving farmers' problems through a coordinated effort of various institutions and interdisciplinary teams. The third is more responsive and effective action by production-oriented institutions through use of the most relevant technologies, and appropriate management techniques and philosophies. These changes taken together should lead to increased production and increased farm incomes as farmers are provided, through a more effective service delivery system, technology related to fertilizer use, varieties selection and other production problems they typically face.

*The MOA has established several Offices, semi-autonomous units of an industrial/commercial character, charged with substantive responsibility, for example, the Office of Cereals (OC) or the Office of Livestock and Pastures.

## IV. ACTIVITIES PROPOSED - OUTPUTS

The activities selected for Part 2 of the proposed extension are:

(a) long-term training of approximately 20 persons in the U.S.,

(b) short-term training including 6 person months of training in the U.S. and 2 person months of trainer time in Tunisia,

(c) continuing and strengthening linkages established thus far between U.S. and Tunisian agricultural institutions, consisting of 10 new cooperative research agreements, 4 sabbatical leaves, and 2 sister-to-sister school agreements between interdisciplinary teams of scientists,

(d) providing limited technical and logistical support for the PL 480 local currency-funded activities in Tunisia, including 20 person months of training and technical assistance (TA) and expenditure of small amounts of dollars for selected commodities which will greatly improve the efficiency of PL 480 Title I programs, and

(e) technical assistance and limited logistical support of the proposed training and linkage activities, to include 2 years residency of a long-term training advisor, 6 person months of TA on an as-needed basis and limited dollar outlays for key inputs to ongoing programs of the Government of Tunisia (GOT), expected to greatly improve their functioning.

These activities, along with the rationale for their inclusion, are described in the following sections. Budgetary inputs to these activities are detailed in V. Project Analyses, Section F. Financial Analysis.

### A. Long-term Training

In Part 2, it is proposed that Master's degree training be provided for up to 20 participants. The candidates will come from those Offices and agencies of the Ministry of Agriculture charged with implementation of development programs and will return to them after training.

Candidates will be managerial staff needing advanced training in technical fields related to production problems faced by farmers. This is the target group because: (a) many ATT participants filled such roles prior to participating in the project, and their replacements have less training and

experience; (b) the operating agencies need technically trained persons who understand the technologies being developed and the problems associated with delivery, and who can readily interface with the highly trained researchers; and (c) delivery of services is a necessary step between development of technologies and use by farmers. Training for the new group will largely be at the Master's Degree level and will focus on technology and its application. Examples of the fields in which training is needed are given in Annex C.

The directors of the agencies and Offices indicate that the pool of qualified candidates is considerably larger than the number of slots proposed. As a measure of the value placed on this training, the directors indicated with enthusiasm their willingness to give leave status to persons selected for training.

Many agency heads referred to the need for training in management. Candidates for the ATT Project, by virtue of the selection criterion of experience with the agency, are mid-level managers responsible for administration of programs in technical areas. For this reason it is vital that the long-term training incorporate management development in, for example, development project management, fiscal management, or administration. Several options for providing this are available - minor fields of study in management, summer courses, or management programs for agricultural managers.

Other comments should be added with respect to selection of Master's candidates and administration of the long-term training program. To insure that the best return is obtained from training, training programs will be chosen according to criteria to be developed jointly by DERV and MIAC and approved by USAID.

It is current policy of the GOT to require persons taking long-term training in the U.S. to return to Tunisia for 10 years. Apparently this policy is being strictly followed. If the purpose of the proposed long-term training is to be achieved, it is important for the GOT to continue the policy of returning participants to positions for which they have been trained. Ideally, a period of two years should enable the sponsoring agency to benefit from the training.

Although the great majority of long-term participants will be Master's candidates from the Ministry of Agriculture, it may be useful to devote a <u>limited</u> number of slots to advanced degree training of teaching institution faculty. Priority needs remain to be met in the areas of farm management and livestock; for this reason, up to a maximum of 15% of the long-term training may be devoted to these needs.

B. Short-Term Training

During Part 2, six person months of short-term training will be provided in the U.S. and third countries; 2 months of trainer time for local training will be provided for administrative, technical and supervisory personnel of the agencies and Offices of the MOA. As with the long-term training, the primary purpose of the short-term training is to provide specific technologies or skills that will enable the agencies to more effectively accomplish their missions. The training is divided into two components described below.

1. Training outside Tunisia. Such training may be in the U.S., the International Centers or in third countries. One group of participants will be senior or highly experienced administrative, scientific or technical personnel who hold degrees appropriate for their jobs. Another group is persons who will serve as trainers upon return. Technical staff may also be trained in topical areas. (See Annex C for examples.) The training experience may be tailored to individual needs (as has been the case to date in the ATT Project), or be offered at one of the highly specialized conferences or short courses offered periodically in the U.S. and elsewhere. AID provides support for many such conferences. Such training will be particularly useful to those key staff persons who can be made available for training for only short periods of time.

It is AID policy that air travel for such training be paid by the host country. This requirement apparently poses no problem for the Offices, but will be a continuing problem for the line agencies. The Offices could probably use all available training time, but this would not be the wisest allocation from the view of the GOT. Good advance planning, to insure that annual budgets include these costs, and involvement of the agencies in selection and management of this component will help.

A total of 6 person months is proposed for this category in Part 2.

2. Training in Tunisia. The agencies and Offices in aggregate have a very large number of supervisory and technical personnel. Their specific assignments run the gamut of occupations in and related to agricultural production, natural resources use and conservation, as well as agribusiness, be it farm inputs, marketing or processing. Specific examples are provided in Annex C. Lack of training in particular skills for supervisory and technical personnel can be an impediment or even a bottleneck to an agency in accomplishing its mission. In such cases an appropriate response may be to organize a training session in Tunisia and bring in instructors from wherever appropriate.

A completely different situation, also suited for in-country training, occurs when there is a group of top level personnel who need training in the same technology or system. A seminar or conference with one or several instructors is an appropriate response. Such training has the following advantages: (1) instruction can be tailored to both the specific needs and the academic level of the trainees; (2) cost effectiveness is high for instruction; (3) arrangements can be made quickly; (4) language barriers can be readily overcome; (5) large numbers can be trained.

A total of 2 months trainer time is suggested for this category during Part 2. Trainer rather than trainee time is budgeted because cost to the project is largely for the trainer.

C. Developing Continuing Linkages Between Tunisian and U.S. Professionals and Institutions

Linkages to support scientific and research activities are critical in keeping trained professionals at state-of-the-art levels. In the absence of mechanisms to keep professionals abreast of their fields, technology as an asset can only decline in value.

Yet forging such linkages is a delicate process. Effort has not in the past been devoted to finding mechanisms that are modest in cost and administratively feasible for promoting linkages. Furthermore, the assumption that a relationship developed during training will continue and even flourish automatically has often proved invalid; the experience of U.S. institutions with graduates who are U.S. citizens illustrates this.

Establishing continuing linkages was essential to the accomplishment of the broad purposes of the GOT and the U.S. Government when the ATT Project (and a number of other projects) began. Tunisian officials often articulate the goal of incorporating the best of U.S. technologies and systems into the Tunisian system, and institutional linkages are one means of accomplishing this.

A modest start has been made in the ATT Project toward developing continuing professional relationships between U.S. faculty and Tunisian faculty and researchers. It is proposed that the current effort be refined and expanded and that a new intervention be started, described below in (2) Sister-to-Sister Institutional Relationships.

1. Cooperative research agreements between a former faculty advisor and a Tunisian former student. The need for such a

program was described as follows. The Tunisian student returns from an environment that includes state-of-the-art laboratories, libraries and computers, fellow graduate students to turn to, and a faculty advisor ready to help. In Tunisia, the environment is different. Much of this is lacking, especially the collegial support. Even in the U.S., the new Ph.D must initiate his/her own research program, often with difficulty. There, however, the new graduate is in a familiar environment and has easy access to peers and senior faculty and researchers.

Publication of research results in some form is necessary if research findings are ever to be put to use. Most publications of any type by a new scientist are coauthored by a senior person, often the former advisor. A relationship extending over a period of time is necessary for joint publication.

The cooperative agreement between former student and advisor is a promising vehicle for turning a well-trained but inexperienced person into a productive researcher and scholar. The agreements have been small in scope of work and budget ($10,000 to $15,000 each) but have been a flexible tool for developing a productive research effort. The inputs might consist of travel, small equipment or supplies, or any combination of these. In no case have salaries been paid for either party nor expenses covered that are normally paid by the respective institution. This mechanism provides marginal money required which, in conjunction with much larger expenditures by the two parties (and governments), will have a synergistic impact.

The expected output is a continued professional relationship, with the result of greater productivity by the Tunisians and involvement of U.S. scholars in research on Tunisian problems. Another output is true joint research and publication. This is the result that will promote continuous collaboration without special support. The initial relationship of advisor to student or senior to junior researcher should mature into a true peer relationship.

Although linkage activities will primarily be between researchers in Tunisian and U.S. institutions, linkages involving other subjects, for example, extension or teaching, are not precluded.

It is proposed that 10 new cooperative agreements be started in the course of Part 2.

2. Sister-to-sister institutional relationships. Although it would be desirable to establish sister-school relationships, such relationships have proven difficult to forge. At the institutional level, it is difficult, if not impossible, to find

educational institutions sufficiently similar in scope, mission and policies to make a match workable. Further in the final analysis, relationships develop primarily between people; rarely is it difficult to find common interests among small groups of scientists. Hence a unique but feasible approach is suggested for this project.

All U.S. institutions of higher education have encouraged an interdisciplinary approach to major problems and many successful models have emerged. Examples in the U.S. include integrated pest management, farming systems, supply/demand analysis and projections, range management, soil and water conservation, and biotechnology. It is proposed that two agreements, similar in form to the individual cooperative agreements, be developed between interdisciplinary teams in U.S. colleges of agriculture and counterpart teams in a Tunisian institution.

This is a feasible approach to developing a sister-to-sister institutional relationship. Institutions are likely not involved in any active sense in the individual relationships (they approve, but in the U.S., seldom initiate). However, for the teams to exist and thrive there must be an institutional commitment. In the U.S. the teams have budgets, usually from multiple sources, and great flexibility in planning the use of funds. They are appropriate groups to plan and execute faculty and student exchanges, and equipment, methodology and data sharing. Each team in the U.S. knows its institutional policies on all aspects of the interchanges and how to achieve the objectives of the project in its setting.

The team and interdisciplinary approaches are just being tested in Tunisia, and their merit is still being analyze. Pilot efforts with this methodology may help to establish it as a productive alternative to individual research for problems that span disciplines. The incorporation of this element should encourage still further institutional change and development in Tunisia. Several returning ATT candidates have an interest in pursuing this approach.

3. Sabbaticals. Sabbatical leave is the primary tool available for senior teachers and researchers to reinvigorate themselves and keep at the frontiers of their discipline. Such leaves are in the interest of the individual and institution, and many of the best universities make taking sabbatics mandatory. Further information on sabbatical policies as they affect the ATT Project is contained in Annex D.

In Part 2, the plan provides for two sabbatical leaves for Tunisians in the U.S. and two U.S. professors with sabbaticals in Tunisia.

D. Support to PL 480 Projects

A new multiyear PL 480 program is being implemented to increase the efficiency of Tunisian agriculture by improving the uptake and efficiency of fertilizer, pesticides, and seeds. This program should directly impact farm production and farm incomes. As part of the new program, private farmer cooperatives will be developed, and a line of credit funded, to facilitate supplying of small farmers with commodities like fertilizers, seeds, etc.

Plans for the new program have been based on results of evaluations of past PL 480-funded projects and on recent design efforts. While these activities are to be funded through PL 480 local currency proceeds, support of the ATT Project will provide foreign exchange for a small amount of equipment, training, and technical assistance. Although the dollar contribution for support is small, coupled with the PL 480 local currency funds, it should have a large impact.

The activities under the larger PL 480 umbrella, to be supported by the ATT Project, are:

(1) Strengthening three existing soil testing laboratories for analyzing large numbers of farmers' samples, and at the same time training extension personnel in techniques for using these analyses to determine fertilizer recommendations for individual fields. Concomitantly, a field research program will be carried out to calibrate the chemical tests with Tunisian soil and climatic conditions.

(2) Introducing an integrated approach to weed control which will employ improved tillaging methods, thereby lessening the dependence on costly chemical herbicides. When coupled with other practices this could increase cereals production by 15 to 30%.

(3) Introducing, testing, and disseminating varieties of cereals and legumes which will be higher yielding and disease-resistant under Tunisian conditions. Suitable rotations of grains and legumes for different regions of Tunisia will also be developed to enhance the production of small farms. Annex E contains an expanded description of activities planned for the ATT in support of the PL 480 Program.

A key element of the PL 480 program will be establishment of a PL 480 Project Unit, under a Project Director, within the Office of Cereals to provide management, coordination and implementation of activities. Activities, in the area of training of lab staffs and of extension workers, will be coordinated for the ATT and PL 480 projects through DERV.

## E. Support of the Training and Linkage Components

### 1. Technical Assistance

Part 2 of the ATT provides for a long-term resident advisor (24 months) and for 6 person months of short-term assistance.

The MIAC resident advisor will serve as a long-term technical advisor in Tunisia. Specific duties of this team member are described in VI. Management/Implementation, Section A. Management Mechanism. The person will be a faculty member at a U.S. institution and will help promote the broader goals of institution building and linkage between institutions.

Short-term technical assistance will be in the form of a quick response to problems encountered by the agencies and Offices in implementing their programs, where additional technical information will provide a total or partial solution. Many examples were mentioned by agency personnel and some are indicated in Annex C.

With respect to the Master's Program in Crop Production at INAT, limited TA (and equipment) may be provided to strengthen this program. TA would be provided, for example, in the area of curriculum development. Two ATT participants have returned to INAT prepared to teach plant pathology and plant breeding. These faculty are current in their disciplines; to couch this subject matter in a well-designed curriculum it would be useful for INAT faculty members to work, perhaps, with senior, counterpart faculty at MIAC, to strengthen the overall curriculum.

### 2. Logistical Support/Commodities

In the process of implementing the major components (A, B, C, and D above), it is inevitable that the unavailability of some small items will become significant barriers to effective use of the large U.S. and Tunisian budgets devoted to project implementation. Examples include small laboratory equipment or field equipment, particularly where compatability with previously purchased U.S. equipment is essential. Particular chemical or seed stock may be unavailable locally. Some piece of specialized equipment or computer software may be vital to the success of local training, yet not available locally. These may be provided under the ATT. Likewise for the Master's Program in Crop Production at INAT, small but key pieces of equipment will be provided to strengthen this program. The possibilities are almost countless and the needs are largely unpredictable. The approach of this component parallels the general philosophy of responding (quickly and with flexibility) to barriers to achieving the ultimate goal of use of improved technology by farmers.

## V. PROJECT ANALYSES

### A. Economic Analysis

The economic analysis of the 1978 project indicated that lack of an adequate institutional base for creating and delivering appropriate technology was a severe restraint in reaching the GOT agricultural development objectives. It was decided that the most effective and efficient way of building the institutions was through participant training.

The proposed project extension continues this thrust. The most expensive component is long-term training in the U.S. The U.S. budget is $1,000,000 for 20 candidates. AID experience suggests that this type of training is one of the most cost effective methods for achieving long range development goals. The projected average cost per M.S. degree ($50,000) is well within the range for similar programs. The fact that the trainees will come from the agencies responsible for delivery of the technologies and related services and return to them, thereby increasing their effectiveness, will protect and enhance the earlier investment in training researchers and teachers.

The modest amount of short-term training outside Tunisia and locally (6 person months in U.S. and 2 months of trainer time in Tunisia) for $65,000 can fill in gaps impractical to handle through long-term training. This will increase the effectiveness of the long-term training as well as enhance the agencies' capability to deliver services.

The linkage elements, with a U.S. cost of $39,000 should increase the research productivity of approximately 20 Tunisian researchers and enable approximately 20 U.S. scientists to assist in solving Tunisian problems. The investment on a per person basis is very low and benefits should far exceed costs.

The U.S. budget for the support of the PL 480 program is $450,000. Tunisia plans to spend $3.3 million on these activities. The relatively small U.S. expenditure for TA, short-term training and logistical support will enhance the effectiveness of the Tunisian expenditures. The combined efforts in the broad areas of soil testing and calibration, weed control and varietal improvement will provide multi-million dollar benefits over a period of years.

With respect to the impact of this project on the Tunisian goals for the agricultural sector, there is evidence that new technology must be the base of agricultural development. The agricultural sector may stagnate with traditional production methods in the

absence of technology and dissemination to farmers of technology designed to address specific production problems encountered daily in the field. Training and linkages are effective means for Tunisia to make rational selection of types of technologies to be transferred, to modify them appropriately and ultimately to secure the capacity to share in the development of technology in the world.

The miscellaneous technical services and commodities proposed are essential to making the other elements of this plan work effectively. If the expected outputs are achieved, the total U.S. expenditure proposed will be extremely cost effective.

B. Administrative Analysis

The major issues in considering administrative feasibility are 1) the availability and capability of institutions concerned with the intervention, 2) the extent to which appropriate policies exist or must be initiated, and 3) the impact of the interventions on institutional roles, strength and linkages.

With a single minor exception, the interventions proposed here extend present activities with slight modification. As cited elsewhere, results to date have been exemplary. This means that the Tunisian institutions and the project management plan have worked. With minor changes, the same institutions and management will be used in the project extension. No new institutions or coordinating mechanisms are required. Both the implementation of the Project and its outputs should strengthen existing institutions and improve linkages between them.

The contractor has also demonstrated the ability to perform all needed services promptly. Extension of the ATT Project requires no change in type of work or procedures by the contractor.

Since training is a major element, ability of all institutions to accomplish the goals is an important consideration. U.S. institutions have demonstrated the ability to offer the type of training needed, producing graduates who meet the expectations of the GOT. Experience to date has been that the MOA identifies highly qualified candidates for long and short-term training, frees them for training, secures their return and integrates them back into the system. To insure that sponsoring units reap the benefits of the participant training, it is vital that the MOA continue to emphasize the importance of returning participants to positions for which they have been trained. This is provided for in a covenant, Section 5.2, of the Project Grant Agreement. Joint commitments of all parties --- candidates and agencies --- are important to assure the reintegration as planned.

The single new element proposed here is the development of 2 sister-to-sister institutional relationships. While the goal of having such relationships is admirable, great difficulty has been experienced in other contexts in developing such relationships at more than a ceremonial level. A unique approach to developing such a relationship is described in the proposal and it should be tried. As described above, this approach of interdisciplinary teams working on integrated problems is relatively new to the Tunisian research environment, having been introduced only 2 years ago. The proposed expenditure is small ($130,000) and if it works the payoff will be large. The risk should be recognized, however, that the relationships may fail to gel.

C. Environmental Analysis

The ATT Project, with activities largely devoted to training and technical assistance, received a negative determination when orginally authorized (Ref. Project Paper 664-0304, Annex B Initial Environmental Examination). The Mission believes that this determination is still valid for the activities of the proposed amendment. Delegation of Authority to clear the amendment in the field was granted to the Mission Environmental Officer, as a result of a conversation July 25, 1985 between the Acting Agriculture Development Officer and the Environment Protection Specialist (NE/PD), in which the environmental implications of the amendment were reviewed. Given that the bulk of funding is directed toward long and short-term training and that in PL 480 only research and experimentation of a controlled nature will be undertaken, the Mission believes the terms of the categorical exclusions, cited below, are applicable. In accordance with Handbook 3, App. 2D, Part 216.2(c), categorical exclusions are granted to education, technical assistance, or training programs which do not directly affect the environment and to research and controlled research-related experimentation which is small in scope and effectively monitored.

D. Social Analysis

The social analysis undertaken for the original Project Paper remains valid. The ATT as implemented so far is dovetailing well with the macro-level social systems, those of the ultimate beneficiaries. These social systems have not changed since the analysis in the Project Paper was performed; the project has been successful in training people sensitive to the social systems in place, who can effect change appropriate to the level of functioning and traditional approaches of Tunisian farmers. It is foreseen that the transfer of agricultural technology will continue to positively benefit the farmer, as for example through the improved capacity of the service delivery system to analyze soil samples and make recommendations to the farmer about optimal

fertilizer use. The proposed amendment makes no major changes that would detrimentally affect the social systems as analyzed in the PP.

The proposed amendment would, however, make a change at the micro-level, related to the delivery of services by the MOA. The activities in the amendment would address one unintended consequence of the ATT, as implemented so far. The colonial era in Tunisia ended with a grave shortage of trained agricultural personnel. This widespread shortage continued to exist up to the commencement of the ATT and constituted the major rationale for the Project. Of necessity, the Project sought to recruit highly qualified candidates for advanced degree training in the U.S to return to Tunisian teaching institutions. The shortage of M.S. and B.S.-level candidates meant that broad recruitment procedures were adopted and qualified candidates selected wherever found. Many of the agencies and Offices of the MOA lost key staff members; some small units of the Ministry where several staff members were recruited were essentially stripped of their most promising, experienced personnel. Thus, over the long term, the return of staff from training provided under this amendment will help to restore the equilibrium of Ministry agencies and Offices, upset when the ATT recruited candidates to be trained and placed at INAT and INRAT.

E. Technical Analysis

This project extension is largely an institution-building effort, with training (both long and short-term) as its major activity, along with the provision of technical assistance and logistical support. In addition, professional linkages between Tunisian and U.S. institutions will be supported. The objective is to assist Tunisia to achieve its agricultural goals by developing local manpower through advanced educaton and training, and by establishing mutually productive interactions between institutions in Tunisia and in the United States. As such, issues of technical appropriateness are minimal. Clearly Tunisia requires highly trained manpower to staff its institutions of higher learning, research organizations, and agricultural development agencies, if the country is to be able to improve the efficiency and performance of its agricultural sector. The original ATT Project Paper treats this subject effectively.

A major focus of this project extension is to train personnel in those Offices, organizations and line agencies of the Ministry of Agriculture that deal directly with production problems faced by farmers. Staff will receive training, to the Master's level, designed to equip them to take leadership in solving problems related to the practicalities of production agriculture. Consequently, major subjects and thesis topics selected by

participants under this project extension will be oriented toward applied subjects.

Technical assistance is provided under this extension to assist in solving problems and to provide in-country training. The PL 480 Project Paper (January, 1985) clearly demonstrates the benefits the logistical support and technical assistance will bring to Tunisia's agriculture.

F. Financial Analysis and Budget Description

The financial analysis of this project amendment consists of two components: (1) The budget tables and narrative for the additional AID and GOT costs for Part 2 of the project, and (2) Controller concurrence with financial implementation.

1. Budget Description

a. U.S. Contribution

The AID contribution, in Part 2, as shown in Table A will be used almost exclusively to finance foreign exchange costs. Exceptions may include costs for incidentals related to in-country activities, such as short-term training or TA. The cost factors for TA and training are based on those experienced in this and similar Tunisian projects over the past 2 years. Recently inflation rates have been low and are expected to remain relatively low. In view of recent experience, therefore, the need for contingency and inflation funds is reduced and has been estimated at 8%.

b. GOT Contribution

The GOT contribution in Part 2 (as shown in Table B) to this project represents approximately 60 percent of total Part 2 cost and covers almost all local costs. The inflation factor in this table is built into the individual line items in accordance with GOT normal budgeting procedures. The personnel and general operating costs are paid under the GOT Title I budget, and the other costs are budgeted and allocated annually by the Ministry of Plan through the DERV and OC to the ATT Project. The GOT contribution to date in dinars has been generally as projected; however expressed as dollars it is somewhat lower given the recent strength of the dollar. In view of the demonstrated ability of the GOT to budget and manage funds required to date, no problems are envisioned with this extension and expansion of the project.

Table A

Part 1

USAID Budget (000$)

| Project Obligations/Budget From Initiation through FY'84 | | |
|---|---|---|
| Participants | $ 3,487 | |
| Commodities | 306 | |
| Contractor Support | 1,677.106 | |
| Travel | 270.750 | |
| Evaluation | 50.144 | |
| Total through FY'84 | | $5,800 |

Part 2

AID Budget, US$ (000)

| ACTIVITY | FY'86 | FY'87 | FY'88 | FY'89 | FY'90 | TOTAL |
|---|---|---|---|---|---|---|
| Contractual Items | | | | | | |
| Long-term Training (20) | 160 | 380 | 360 | 100 | - | 1000 |
| Short-term Training | | | | | | |
| In Tunisia (2 PM) | 16 | 16 | - | - | - | 32 |
| Outside Tunisia (6PM) | 27.5 | 5.5 | - | - | - | 33 |
| Linkages | | | | | | |
| Cooperative Research Agreements (10) | 122.5 | 52.5 | - | - | - | 175 |
| Sabbaticals | | | | | | |
| Tunisians (2) | 15.5 | 15.5 | - | - | - | 31 |
| U.S. (2) | - | - | 27.5 | 27.5 | - | 55 |
| Sister to Sister Institution Relationships (2) | 65 | 65 | - | - | - | 130 |
| Technical Assistance | | | | | | |
| MIAC Resident Advisor (24 PM) | 83 | 125 | 42 | - | - | 250 |
| Miscellaneous TA (6 PM) | 30 | 30 | 15 | 15 | - | 90 |
| Dollar Support - PL 480 T + TA (20 PM) | 90 | 90 | 60 | 30 | 30 | 300 |
| Logistic Support (000$) | 75 | 30 | 15 | 15 | 15 | 150 |
| Misc. Commodities (000$) | 18 | 18 | 18 | 18 | 18 | 90 |
| Contract Subtotal | 702.5 | 827.5 | 537.5 | 205.5 | 63 | 2336 |
| Non-Contract Items | | | | | | |
| Evaluation | 30 | 0 | 0 | 0 | 30 | 60 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Contingency/ Inflation | 0 | 85 | 104 | 67 | 48 | 304 |
| Non-Contract Subtotal | 30 | 85 | 104 | 67 | 78 | 364 |
| Total Part 2 by Year | 732.5 | 912.5 | 641.5 | 272.5 | 141 | 2700 |
| TOTAL PART 2 | | | | | | 2700 |
| GRAND TOTAL | | | | | | 8500 |

Table B

Part 1

GOT CONTRIBUTIONS/BUDGET
THROUGH AUGUST '86 in 000's TD*

| | |
|---|---|
| Personnel | 133 |
| Office space | 17 |
| Office equipment | 7.30 |
| Office supplies | 4.06 |
| Vehicles and transport | 88.40 |
| Lab facilities | 178.42 |
| Participant support | 1293.46 |
| Other | 88.40 |
| Subtotal | 1810.07 |
| Inflation (12%) | 217.21 |
| Total through August '86 | 2027.28 |

*Calculated from a dollar budget at .811 exchange rate.

Part 2

GOT, '000's TD

| ACTIVITY | FY'86 | FY'87* | FY'88 | FY'89 | FY'90 | TOTAL |
|---|---|---|---|---|---|---|
| Travel long and short-term participants | 62.7 | 15.7 | - | - | - | 78.4 |
| Salaries for long-term participants | 14.1 | 33 | 31.7 | 8.8 | - | 87.6 |
| Personnel cost of management of training program | 11.0 | 11.0 | 11.0 | 11.0 | 10.0 | 54 |
| Salaries for short-term participants | 2.90 | 7 | - | - | - | 3.6 |
| Cooperative research agreements | 49 | 21 | - | - | - | 70 |
| Sabbaticals for Tunisians | 13.6 | 13.6 | - | - | - | 27.2 |
| Sister-to-sister institutional relationships | 50 | 50 | - | - | - | 100 |
| Laboratory facilities | 33 | 48 | 24 | 24 | 12 | 141 |
| Support of in-country seminars, short-term training, etc. | 10 | 30 | 30 | 30 | 30 | 130 |
| Vehicles and vehicle operating costs (includes 2 vehicles at 6000 D each) | 14 | 8 | 8 | 10 | 10 | 50 |

*Due to constraints of the 7th Plan budgeting process, with the exception of PL 480 activities, GOT outlays during Part 2 for other than inkind or previously-budgeted expenses must be confined to Calendar Years, 1985 and 1986.

| | | | | | | |
|---|---|---|---|---|---|---|
| Activities for soil analyses, weed control, variety selection | 500 | 700 | 700 | 700 | 700 | 3300 |
| Total Part 2 by Year | 760.3 | 931 | 804.7 | 783.8 | 762 | 4041.8 |
| TOTAL PART 2 | | | | | | 4041.8 |
| GRAND TOTAL | | | | | | 6069.08 |

2. Controller Concurrence with Methods of Implementation and Financing

| Method of Implementation | Method of Financing | Approximate Amount (U.S. $000) |
|---|---|---|
| TA HC Contract | Direct L/Com | 2,336 |
| Evaluation - IQC | Direct Payment | 60 |
| Contingency/Inflation | Direct L/Com or Direct Payment | 304 |
| Total Project Amendment | | 2,700 |

The financing methods outlined above are covered under the preferred methods of financing indicated in the Payment Verification Policy Implementation Guidance and are consistent with the Mission Implementation Guidance on file in AID/W. No additional justification is required. The Host Country Contract procedures of the Ministry of Agriculture were reviewed in detail in the original Payment Verification General Assessment Submission and were determined to meet USAID requirements.

The Host Country will amend an existing contract with MIAC at the University of Missouri. The financial management and disbursement procedures for this contract will continue to be implemented in the same way as they are currently. USAID has had more than six years experience with MIAC and has found its payment documentation adequate.

The University is subject to extensive audit by state auditors. USAID feels that this audit coverage is sufficient and that a specific line item in the budget for audit is not necessary. In the unlikely event that an audit shall become necessary in the future, funds will be made available from the contingency line item.

## VI. MANAGEMENT IMPLEMENTATION

The proposed implementation plan calls for extending the work of the current ATT contractor, Midamerica International Agricultural Consortium (MIAC) on a non-competitive basis. MIAC was selected in 1978 to design the ATT Project. In accord with the Title XII Legislation, the collaborative approach was followed with MIAC implementing the Project. The extension will be a host country contract between the GOT/MOA and MIAC. Justification for continuing with MIAC is provided in Annex F.

A. Management Mechanism

Proposed activities will be managed in essentially the same manner as currently in the ATT Project. The management mechanisms are as follows:

- A MIAC campus coordinator whose major responsibilities are: backstopping the resident advisor; management and coordination of participants' programs in the U.S.; identifying and sending short-term TA personnel; and procuring logistical support in the U.S.

- A MIAC advisor, resident in Tunisia, whose major responsibilities are: assisting in participant selection for short and long-term training in the U.S.; assisting in developing training programs; helping plan local training; helping develop cooperative agreements for the three linkage activities; assisting in planning for and receiving short-term technical assistance; developing specifications for equipment; and serving as the focal point for all Project activities.

- A Tunisian project director whose major responsibilities are: coordinating selection of participants for long and short-term training and development of their programs; soliciting linkage proposals and assisting in their development; coordinating requests for short-term TA; and performing other administrative tasks as needed by the resident advisor.

- A Project Coordination Committee (PCC) that will meet at least annually to review and appraise progress and formulate plans. The present composition is: a MIAC principal, a USAID/Tunis representative and representatives of DERV as nominated by the Ministry. The DERV representatives have included the Directors of INRAT and INAT and all or some of the directors of higher education. The new composition will be a USAID/Tunis representative, a MIAC principal, the Director of DERV, the Director of Direction des Affaires Administratives et Financières (DAAF), the Director/Coordinator of the Offices, the Director of the PL 480 Project Unit and the director of a line agency (to be named by the MOA).

- To carry out more ongoing operations (in contrast to the oversight and planning functions of the PCC), a Project Operations Committee (POC) will be constituted. This committee will consist of representatives of MIAC, DERV, INAT, DAAF, the Director/Coordinator of the Offices, Director of the PL 480 Project Unit and a line agency of the MOA. As appropriate, other members may be drafted to serve on the committee. The PCC will name the individuals who will serve on the POC.

## B. Implementation of Activities

Because this is an extension of an ongoing Project and because there are few changes in Project orientation as a result of this contract extension, few problems are anticipated in the implementaion of this Project. A mechanism is already in place for the selection of participants, which can readily be modified in the Project extension. Other administrative mechanisms -- for the purchase of commodities, provision of TA, etc. -- are in place and will continue to function in the amended Project. Currently the MIAC Project Advisor for the Agricultural Research Project spends a very small proportion of his time on the ATT Project. In the first year of the project extension a MIAC resident advisor for the extended ATT Project will take up the post in Tunisia for a 2-year period.

### 1. Long-Term Training

(1) The agencies will notify their prospective candidates of the opportunity and invite applications.

(2) The agency will screen applicants and recommend to the Project Operations Committee the most qualified candidates and the priority training needs. At a minimum, the candidates must have completed the B.S. degree with sufficiently high grades to be admitted to a U.S. graduate school. Admission without probation usually requires a 3.0 to 4.0 GPA on a 4.0 scale. They must also score at least 450 on the TOEFL exam. Reaching this level may require up to six months study of English in Tunisia. Priority will be given to candidates who have worked for the agency at least two years prior to applying. In addition, the agency must verify that it will benefit from the training; will place the person on leave; will reemploy the candidate in the same or a more responsible role uponcompletion of training; and that the candidate will commit to return to the agency for at least two years upon completion of training.

(3) Because of the great training needs, it will be necessary to assign target quotas to agencies. The allocation should be based upon technical training needs, the relative advantage of training in the U.S., availability of candidates, and current priority of mission to the Ministry. The assignment of quotas should be made by the PCC and the actual selection of candidates will be by the POC.

(4) Based upon experience to date in the ATT Project, a maximum of 30 months in the U.S. will be required to complete the Master's degree with 4 months of intensive English training and 26 months for course work, research and practical training. Phasing of long-term participants in Part 2 of the Project is displayed in Figure 1.

Person years of long-term participants are indicated in Figure 2. Implementation Plan, displaying activities throughout Part 2 of the Project.

2. Short-Term Training

(1) The POC will assist in planning and implementing short-term training.

(2) The POC will develop guidelines to be used by the agencies (and Offices) in recommending personnel and programs. Participants for short-term training must be well suited for the contemplated training programs, which will prepare them better to perform their professional responsibilities upon their return. It is understood that the most efficient and economical means will be proposed and that, where possible, trainees will be grouped.

(3) The agency directors will be advised quarterly of opportunities by the Tunisian project director and invited to submit proposals to that office. Each proposal will indicate type of training needed, number of persons to be trained, present qualifications, and suggested source and type of training.

(4) The project director with assistance from the MIAC resident advisor will discuss the proposal with the agency directors to ascertain importance, feasibility, and possible options for providing the training.

(5) The project director will present proposals and feasibility appraisals to the POC for final selection.

(6) In all cases, participants and instructors will be asked to submit in writing an evaluation of the training experience.

(7) Short-term training activities not related to PL 480 will be initiated within the first 15 months of Part 2.

Figure 1 - Phasing of Long-Term Participants (Part 2)

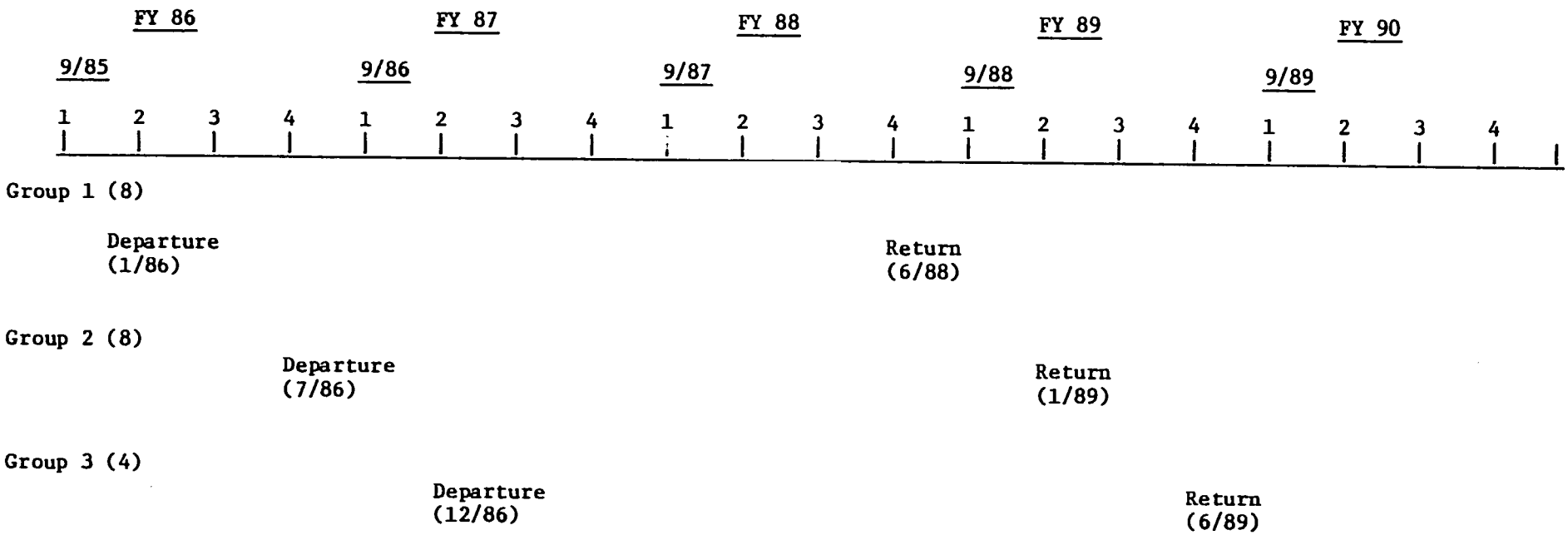

Figure 2 - Implementation Plan (Part 2)

| | FY '86 | FY '87 | FY '88 | FY '89 | FY '90 |
|---|---|---|---|---|---|
| Long-Term Training (Person years in training) | 8 | 19 | 18 | 5 | - |
| Short-Term Training (PM in US/Y; Trainer M in Tunisia/Y) | 5;1 | 1;1 | - | - | - |
| Linkages Cooperative Research Agreements (number initiated) | 7 | 3 | - | - | - |
| Sister-to-Sister Institution Agreements | 1 | 1 | - | - | - |
| Sabbaticals Tunisians (nos.) | 1 | 1 | - | - | - |
| U.S. (nos.) | - | - | 1 | 1 | - |
| Technical Assistance MIAC Resident Advisor (PM/Y) | 8 | 12 | 4 | - | - |
| Miscellaneous (PM/Y) | 2 | 2 | 1 | 1 | - |
| Dollar Support PL 480 TA (PM/Y) | 6 | 6 | 4 | 2 | 2 |
| Logistic Support (000$) | 75 | 30 | 15 | 15 | 15 |
| Miscellaneous Commodities (000$) | 36 | 22 | 16 | 16 | - |

3. Linkage Activities

With respect to linkage activities, the current selection and implementation plan will be continued for the cooperative research agreements. The project director will notify potential participants of the opportunity. First priority goes to Tunisians returning with Ph.D degrees, with second priority going to those returning with the M.S. degree and having a research assignment. The individual takes the initiative in developing a plan of work within the guidelines provided, including contacting and securing the cooperation of the U.S. professor. The MIAC resident advisor and campus coordinator are available to help work out problems and facilitate communications. The plan of work is formalized in a cooperative agreement approved by the director of the Tunisian school, the director of DERV, the resident advisor and the campus coordinator, who will make the necessary arrangements with the U.S. faculty member and U.S. institution.

Maximum flexibility will be required in developing the interdisciplinary agreements. The resident advisor and the campus coordinator have major roles to play in initiating and negotiating the agreements. The negotiated agreements will be signed by the appropriate U.S. and Tunisian institutions, committing both to this activity.

Arrangements for sabbatical leave will be made in the following manner. In Tunisia, the eligible faculty will be notified of the program and given the opportunity to submit a plan. The individual must initiate and successfully negotiate the arrangements with a U.S. institution. The resident advisor and campus coordinator will assist with communications and negotiation, but primary responsibility rests with the individual. The campus coordinator will publicize the opportunity for U.S. professors to take sabbaticals in Tunisia; but Tunisian professors, through their professional contacts, are in the best position to recruit the "right" U.S. faculty members. Again the U.S. faculty member must take the lead in negotiations, with the resident advisor and campus coordinator playing facilitating roles. The POC or its designee (likely the project director) will approve the plan. The plans that are developed and approved will then be formalized in an agreement signed by the proper individuals in the U.S. and in Tunisia.

Cooperative research activities, to continue the current momentum, will take place relatively early in the Part 2. Sister-to-sister school agreements should get under way during the first 15 months of Part 2. Sabbatical leaves for 2 Tunisians are scheduled in the first 2 years of Part 2 and for 2 Americans in the 3rd and 4th years of Part 2.

4. PL 480 Supports

In terms of PL 480 supports, requests for the use of ATT funds for training, technical assistance, or logistic support will be presented by the PL 480 project director, for review and approval by the ATT POC. The resident advisor and the Tunisian project director will coordinate implementation. PL 480 TA, logistical support and training activities will be more concentrated in the first two years of the project to assist with the start-up phase of local-currency funded operations, but will continue throughout Part 2.

5. Technical Assistance/Logistic Support

To meet technical assistance needs, the Tunisian project director on behalf of the POC will advise the Offices and agencies that short-term TA can be made available to assist in solving immediate and small scope problems. Requests for assistance will come to the project director who will work with the resident advisor in implementation. Requests for logistic support will be initiated by the individuals and institutions involved in activity components A, B, C and D. Requests will be sent to the Tunisian project director who will seek approval of the POC. The resident advisor will assist in development of requests and responses to them.

Phasing of all components has been previously displayed in tabular form in Figure 2. Figure 3 details the schedule of activities through January, 1986.

Figure 3 - Illustrative Schedule of Activities Through January, 1986

| AUGUST | SEPTEMBER | OCTOBER | NOVEMBER | DECEMBER | JANUARY |
|---|---|---|---|---|---|
| Project Agreement signed, advertisement for participants | Contract draft prepared, coordinating committee determines priority training needs | Contract reviewed by MIAC | Contract signed, linkages planning commences, candidates selected and commence English training | First short-term training commences; first PL 480 equipment ordered | Long-term candidates go to U.S. |

C. Evaluation Plan

Evaluations of the project will be of two types. First is ongoing evaluation of activities by the contractor, the counterpart agencies and USAID personnel. A function of the PCC is to continuously monitor activities and progress, and to formally review project status at least once a year. The contractor will make an annual appraisal of project activities and performances of its personnel assigned to the project. The evaluation of all training activities -- long term, short term, in Tunisia, and elsewhere -- will be collected and included in the contractor's annual evaluation report. These evaluations will not only look at achievements, but will identify problems and constraints that limit progress and make recommendations for overcoming the obstacles. USAID will also monitor progress on a continuing basis as part of its normal duties. USAID participates in the evaluations made by the PCC.

Plans for the conduct of formal evaluations, the second type of evaluation, are shown in tabular form below:

Schedule of Project Evaluation

| Type | Duration | Schedule |
|---|---|---|
| Formal Evaluation | one month | Nov., 1985 (focussing on Linkages in conjunction with Project 0315) |
| Possible Mid Project | one month | To be determined |
| Possible Post Project | one month | To be determined |

With respect to the evaluation slated for November, 1985, training and linkages activities in the ATT and the Technology Transfer Project will be evaluated in a cross sectoral evaluation. Subsequent evaluations will depend on whether cross-portfolio evaluations focussing on linkages, dissemination and application of research, etc. are developed or whether changes in key project assumptions occur.

An impact-oriented evaluation may be conducted well after project completion. This evaluation would consider primarily the extent to which the ultimate goals of stronger agricultural institutions and the development and delivery of more effective technologies and services to farmers were achieved as a result of project activities. USAID will take the lead in the formal evaluations, which will also involve the contractor and the appropriate Tunisian institutions.

All evaluations of activities will consist of matching actual accomplishments against the implementation plan in the preceding section and the project outputs projected in this paper. An estimate of the extent of attainment of the broader goals must be based on data collected and made available by agencies in the GOT.

## VII. PROJECT RELATIONSHIP TO AID STRATEGY, GOT AGRICULTURE POLICY, AND OTHER DONOR ACTIVITY

### A. AID Strategy

The activities under this amendment conform to the Mission's proposed programming for FYs 85 and 86 ESF, as approved by the Bureau and shown in the operating year budget and the FY 86 congressional presentation. The ATT Project, with its close liaison to the Ministry and to Tunisian agricultural teaching institutions, relates closely to two key components of Mission strategy -- promoting technology transfer and strengthening Tunisian institutions which AID has previously assisted. This project is expected to have a positive impact on GOT policy. The MOA institution staff members, trained in U.S. agribusiness techniques, for example in water management or farm management systems, will contribute to agricultural policy formation and influence the adoption of field innovations. The training and linkages between Tunisian and U.S. teaching institutions also respond to the AID priority of institution building and to the Title XII priority concerning maximal use of U.S. agricultural colleges and universities.

In the agricultural sector, AID has recently given increased emphasis to longer time frames of program elements. (See AID Strategy for Food and Agriculture Development Assistance, Nov.4, 1983, p. 12) The 12 year time horizon of the amended ATT Project is appropriate to sustain the process of institution building and technology transfer. The second phase of training activities and the linkages between U.S. and Tunisian teaching institutions (foreseen to continue after AID funding ends) accord with this new emphasis on longer term interventions.

### B. GOT Policy

Tunisia has given high priority to the agricultural sector, involving directly at least 45% of the population and dealing with the nation's number one economic problem - the food supply. Agriculture has been made the highest priority for investment in the Sixth Plan, currently in force, with small and medium-sized farms having central importance. GOT agricultural policy is designed to: (1) achieve food security and self reliance, (2) increase productivity and income of farmers, and (3) increase total employment in the agribusiness sector associated with farm inputs and post harvest operations, including processing and exporting. An unstated but underlying policy is to reduce, through improved technologies and management, the high risk that is inherent in agricultural production in the climatic conditions that prevail in Tunisia.

This project contributes directly to accomplishment of the GOT agriculture policy through the major interventions of helping build the agricultural institutions responsible for the development and delivery of new technology and related services. These institutions are particularly charged with helping the farmer obtain maximum benefit from harvested crops, with respect to storage, processing, maintenance of quality and marketing for export or domestic consumption.

The institution building takes place through long and short-term training, and through limited TA and logistical support to help solve high priority technical problems encountered in delivery of technology and services. The linkage activities are designed to increase the productivity of recently trained researchers, through involving U.S. scientists in solving Tunisian problems and in developing relationships for continuous sharing of knowledge, data and equipment.

C. Other Activities in Related Areas

Activities planned for the ATT will dovetail with the plans and activities of several other international agencies and with the self-help measures undertaken by the GOT from local currency proceeds of PL 480 Title I. Among these other agencies is the International Center for Agricultural Research on Dry Areas (ICARDA), core funded by AID. ICARDA offers programs and training opportunities related to needs of agricultural production in arid lands. Many offerings are appropriate to the training needs of the MOA; foreign exchange available through the ATT will enable the GOT to take advantage of this AID-sponsored training facility. Further, the IBRD and International Fund for Agricultural Development (IFAD) are funding capital development programs in agriculture, which staff trained in the ATT will be expected to administer. An example is the upcoming IBRD loan to improve irrigation and on-farm water management. The loan will subsidize capital investment; training needs must be met through some other mechanism to maximize the utility of this project. Likewise other donors are working in the areas of potatoe seed production and storage. Canadian TA is involved in this, as is the International Center for Potatoes (ICP), concerned with infrastructure for seed storage, and production, training and research in seed production.

The ATT will also work in areas which may potentially become appropriate for large-scale donor assistance. The ATT will commence a variety of projects on a pilot basis in the areas of plant propagation, soil conservation and utilization of surplus water (during periods of excess) for cereal production. These activities, if proven valuable when piloted, may raise the

awareness of GOT officials and lead to follow-on activities by AID and other donors.

Dollar funding for PL 480 activities may likewise have a synergistic effect in conjunction with GOT self-help measures. Local currency budgets for this program are large. However foreign currency controls within the GOT leave the MOA with marginal access to TA and equipment, which may be unavailable locally, with which to maximize returns to program activities. Within the ATT, small but key expenditures may be made for these purposes.

# ANNEX A

## Part 3

## Implementation and Financial Plans

Part 3 of the ATT will enlarge the magnitude of outputs and inputs but not change the types of activities nor organization of the Project. For this reason, no further description of activities is necessary in this annex.

The additional inputs which will be provided are

- long-term training to 20 participants,

- short-term training, with 5 PM in the U.S. and 1 month of trainer time in Tunisia,

- linkages including cooperative research agreements (5), sabbaticals of 2 Tunisian faculty in the U.S. and 2 U.S. faculty in Tunisia, and sister-to-sister institution agreements (2),

- technical assistance, including 12 months of the MIAC resident advisor, and 6 PM of short-term TA in Tunisia,

- dollar support to the PL 480 program, consisting of 8 PM of short-term training and technical assistance, and logistic support in the amount of $100,000, and

- miscellaneous commodities totalling $100,000.

This Annex comprises Figures and Tables displaying implementation and budgetary data.

Figure A-1 is an implementation plan of Part 3 activities.

Figure A-2 shows the concurrent phasing of long-term participants in Parts 2 and 3.

Figure A-3 is a concurrent implementation plan of Part 2 and Part 3 activities.

Table A-A is a budget of the USAID contribution including a detailed budget for Part 3.

Table A-B shows the GOT contribution including detailed breakdown of Part 3.

Table A-C consists of a detailed concurrent budget of the USAID contribution for both Parts 2 and 3.

Table A-D contains a detailed concurrent budget of the GOT contribution in Part 2 and Part 3.

Figure A-1

Implementation Plan (Part 3)
Additional Inputs

| | FY '86 | FY '87* | FY '88 | FY '89 | FY '90 |
|---|---|---|---|---|---|
| Long-Term Training (Person Years) | - | 8 | 19 | 18 | 5 |
| Short-Term Training (PM in U.S., Trainer M in T.) | - | 1;0 | 2;1 | 1;0 | 1;0 |
| Linkages | | | | | |
| Cooperative Research Agreements (Numbers Initiated) | - | 2 | 2 | 1 | - |
| Sabbaticals | | | | | |
| Tunisians (Nos.) | - | - | 1 | 1 | - |
| U.S. (Nos.) | - | - | 1 | - | 1 |
| Sister-to-Sister Institution Agreements | - | - | 1 | 1 | - |
| Technical Assistance | | | | | |
| MIAC Resident Advisor (PM/Y) | - | - | 8 | 4 | - |
| Miscellaneous PM/Y | - | 1 | 2 | 2 | 1 |
| Dollar Support PL 480 | | | | | |
| T + TA (PM/Y) | - | 2 | 2 | 2 | 2 |
| Logistic Support (000$) | - | 25 | 25 | 25 | 25 |
| Miscellaneous Commodities (000$) | - | 25 | 25 | 25 | 25 |

*Activities begin Jan. 1, 1987

Figure A-2 - Phasing of Long-Term Participants (Parts 2 and 3)

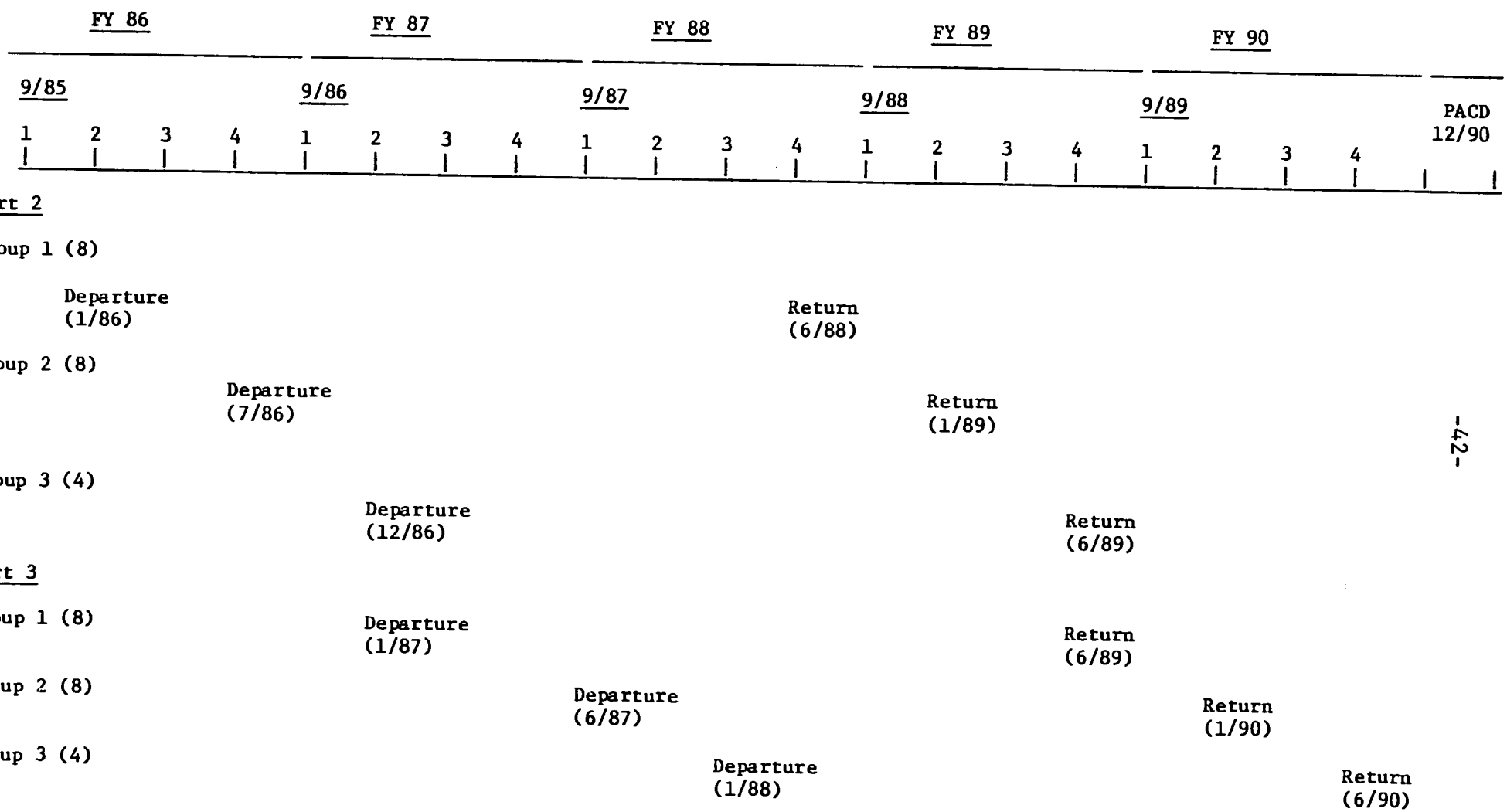

Figure A-3 - Implementation Plan (Part 3)
Concurrent Provision of Part 2 and Part 3
Inputs FY '86 - FY '90

| | FY '86 | FY' 87* | FY '88 | FY '89 | FY '90 |
|---|---|---|---|---|---|
| Long-Term Training (Person Years) | 8 | 27 | 37 | 23 | 5 |
| Short-Term Training (PM in U.S.; Trainer M in Tunisia) | 5;1 | 2;1 | 2;1 | 1;0 | 1;0 |
| Linkages | | | | | |
| Cooperative Research Agreements (Nos. initiated) | 7 | 5 | 2 | 1 | - |
| Sabbaticals | | | | | |
| Tunisian (Nos.) | 1 | 1 | 1 | 1 | - |
| U.S. (Nos.) | - | - | 2 | 1 | 1 |
| Sister-to-Sister Institutional Agreements | 1 | 1 | 1 | 1 | - |
| Technical Assistance | | | | | |
| MIAC Resident Advisor (PM/Y) | 8 | 12 | 12 | 4 | - |
| Miscellaneous (PM/Y) | 2 | 3 | 3 | 3 | 1 |
| Dollar Support of PL 480 T + TA (PM/Y) | 6 | 8 | 6 | 4 | 4 |
| Logistic Support (000$) | 75 | 55 | 40 | 40 | 40 |
| Miscellaneous Commodities (000$) | 36 | 47 | 41 | 41 | 25 |

*Part 3 activities begin Jan. 1, 1987.

Table A-A

USAID Budget (000$) including Detail of Part 3

Project Obligations/Budget

From Initiation through FY '84

Total* 5,800

Project Obligations/Budget

Under Part 2

Total* 2,700

*Refer to Section F. Financial Analysis, Table A for breakdown. Note Table A-C shows detailed concurrent budget of Parts 2 and 3.

| PART 3 | FY '86 | FY '87 | FY '88 | FY '89 | FY '90 | Total |
|---|---|---|---|---|---|---|
| CONTRACTUAL ITEMS | | | | | | |
| Long-Term Training (20) | - | 160 | 380 | 360 | 100 | 1000 |
| Short-Term Training | | | | | | |
| In Tunisia (1 PM) | - | - | 16 | - | - | 16 |
| In U.S. (5 PM) | - | 5.5 | 11 | 5.5 | 5.5 | 27.5 |
| Linkages | | | | | | |
| Cooperative Research Agreements (5) | - | 35 | 35 | 17.5 | - | 87.5 |
| Sabbaticals | | | | | | |
| (Tunisians-2) | - | - | 15.5 | 15.5 | - | 31 |
| (U.S.-2) | - | - | 27.5 | - | 27.5 | 55 |
| Sister-to-Sister Institutional Agreements (2) | - | - | 65 | 65 | - | 130 |
| Technical Assistance | | | | | | |
| MIAC Resident Advisor (12 PM) | - | - | 83 | 42 | - | 125 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Miscellaneous TA (6 PM) | - | 15 | 30 | 30 | 15 | 90 |
| Dollar Support PL 480 T + TA (8 PM) | - | 30 | 30 | 30 | 30 | 120 |
| Logistic Support (000$) | - | 25 | 25 | 25 | 25 | 00 |
| Miscellaneous Commodities (000$) | - | 25 | 25 | 25 | 25 | 100 |
| CONTRACT SUBTOTAL | - | 295.5 | 743 | 615.5 | 228 | 1882 |
| NON CONTRACT ITEMS | | | | | | |
| Evaluation | - | - | - | - | 30* | 30 |
| Contingency/ Inflation(8%) | - | 26 | 123 | 152 | 87 | 388 |
| NON CONTRACT SUBTOTAL | - | 26 | 123 | 152 | 117 | 418 |
| TOTAL PART 3/YEAR | - | 321.5 | 866 | 767.5 | 345 | 2300 |
| TOTAL PART 3 | | | | | | 2300 |
| GRAND TOTAL | | | | | | 10,800 |

*For marginal costs of evaluating additional inputs in Part 3 concurrently with final evaluation of Part 2 previously indicated.

Table A-B

GOT Contribution (000TD) including Detail of Part 3

GOT Contributions/Budget

Through August, 1986 in 000's TDs

Total* 2027.28

GOT Contributions/Budget

PART 2

Total* 4041.8

*Refer to Section F. Financial Analysis, Table B for breakdown Calculated from a dollar budget at .811 rate of exchange.

| PART 3 | FY '86 | FY '87 | FY '88 | FY '89 | FY '90 | Total |
|---|---|---|---|---|---|---|
| Travel for Long and Short Term Participants | - | 26 | 35 | 9 | 4 | 74 |
| Salaries for Long-Term Participants | - | 14.1 | 33 | 31.7 | 8.8 | 87.6 |
| Salaries for Short-Term Participants | - | .6 | 1.2 | .6 | .6 | 3.0 |
| Cooperative Research Agreements | - | 14 | 14 | 7 | - | 35 |
| Sabbaticals (Tunisians-2) | - | - | 13.6 | 13.6 | - | 27.2 |
| (U.S.-2) | - | - | 10 | | 10 | 20 |
| Sister-to-Sister Institutional Relationships | - | - | 50 | 50 | - | 100 |
| Support of In-Country Seminars, Short-Term Training, etc. | - | 15 | 25 | 25 | 10 | 75 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Activities for Soil Analyses, Weed Control, Variety Selection | - | 300 | 300 | 300 | 300 | 1200 |
| TOTAL PART 3/YEAR | - | 369.7 | 481.8 | 436.9 | 333.4 | 1621.8 |
| TOTAL PART 3 | | | | | | 1621.8 |
| GRAND TOTAL | | | | | | 7690.88 |

Table A-C

Detailed Concurrent Budget of
USAID (000$) Contribution in Parts 2 and 3

| | FY '86 | FY '87 | FY '88 | FY '89 | FY '90 | Total |
|---|---|---|---|---|---|---|
| Contractual Items | | | | | | |
| Long-Term Training (40) | 160 | 540 | 740 | 460 | 100 | 2000 |
| Short-Term Training | | | | | | |
| In Tunisia (3 PM) | 16 | 16 | 16 | - | - | 48 |
| Outside Tunisia (11 PM) | 27.5 | 11 | 11 | 5.5 | 5.5 | 60.5 |
| Linkages | | | | | | |
| Cooperative Research Agreements (15) | 122.5 | 87.5 | 35 | 17.5 | - | 262.5 |
| Sabbaticals | | | | | | |
| Tunisians (4) | 15.5 | 15.5 | 15.5 | 15.5 | - | 62 |
| U.S. (4) | - | - | 55 | 27.5 | 27.5 | 110 |
| Sister-to-Sister Institutional Relationships | 65 | 65 | 65 | 65 | - | 260 |
| Technical Assistance | | | | | | |
| MIAC Resident Advisor (36 PM) | 83 | 125 | 125 | 42 | - | 375 |
| Miscellaneous TA (12 PM) | 30 | 45 | 45 | 45 | 15 | 180 |
| Dollar Support | | | | | | |
| PL 480 T + TA (28 PM) | 90 | 120 | 90 | 60 | 60 | 420 |
| Logistic Support (000$) | 75 | 55 | 40 | 40 | 40 | 250 |
| Miscellaneous Commodities (000$) | 18 | 43 | 43 | 43 | 43 | 190 |
| CONTRACT SUBTOTAL | 702.5 | 1123 | 1280.5 | 821 | 291 | 4218 |

| | | | | | | |
|---|---|---|---|---|---|---|
| NON CONTRACT ITEMS | | | | | | |
| Evaluation | 30 | - | - | - | 60 | 90 |
| Contingency/ Inflation (8%) | - | 111 | 227 | 219 | 135 | 692 |
| NON CONTRACT SUBTOTAL | 30 | 111 | 227 | 219 | 195 | 782 |
| TOTAL BY YEAR | 732.5 | 1234 | 1507.5 | 1040 | 486 | 5000 |
| TOTAL PARTS 2+3 | | | | | | 5000 |

Table A-D

Detailed Concurrent Budget of
GOT Contribution (000$) in Parts 2 and 3

| Activity | FY '86 | FY '87 | FY '88 | FY '89 | FY '90 | Total |
|---|---|---|---|---|---|---|
| Travel for long and short-term participants | 62.7 | 41.7 | 35 | 9 | 4 | 152.4 |
| Salaries for long-term participants | 14.1 | 47.1 | 64.7 | 40.5 | 8. 8 | 175.2 |
| Personnel cost of management of training program | 11 | 11 | 11 | 11 | 10 | 54 |
| Salaries for short-term participants | 2.9 | 1.3 | 1.2 | .6 | .6 | 6.6 |
| Cooperative research agreements | 49 | 35 | 14 | 7 | - | 105 |
| Sabbaticals | 13.6 | 13.6 | 23.6 | 13.6 | 10 | 74.4 |
| Sister-to-sister institutional relationships | 50 | 50 | 50 | 50 | - | 200 |
| Laboratory facilities | 33 | 48 | 24 | 24 | 12 | 141 |
| Support of in-country seminars, short-term training, etc. | 10 | 45 | 55 | 55 | 40 | 205 |
| Vehicles, vehicle operating costs (including 2 vehicles at 6000D each) | 14 | 8 | 8 | 10 | 10 | 50 |
| Activities for soil analyses, weed control, variety selection | 500 | 1000 | 1000 | 1000 | 1000 | 4500 |

| | | | | | | |
|---|---|---|---|---|---|---|
| TOTAL BY/YEAR | 760.3 | 1300.7 | 1286.5 | 1220.7 | 1095.4 | 5663.6 |
| TOTAL PARTS 2+3 | | | | | | 5663.6 |

## ANNEX B - CONSULTATIONS

| | |
|---|---|
| March 18, 1985 | Mr. Hafsia, Director of DERV, MOA |
| March 19, 1985 | Mr. Kamel Belkhodja, Director, Coordination of Irrigated Perimeters, MOA |
| | Mr. Mohamed Habib Najar, P.D.G., Office of Livestock and Pastures |
| | Mr. Mohamed Lassaad Mouaffak, Deputy Director, Office of Cereals |
| | Mr. Taieb Jalal, Director, Dep. of Forestry, MOA |
| March 21, 1985 | Mr. Habib Benaissa Missaoui, Dept. of Soil Conservation, MOA |
| | Mr. Abderrahman Jarraya, Director of INAT |
| | Mr. Ghallab, Deputy Director of Studies, Dept. of Large Water Projects, MOA |
| | Mr. Moncef Moatamri, Central Commissioner, Coordinator of CRDAs, MOA |
| March 22, 1985 | Mr. A. Mhedhbi, D.G., International Group for Legumes (GIL) |
| | Mr. Mohamed Jarraya, Director, Department of Assistance to Small and Medium Farmers, MOA |
| | Mr. Ahmed Harzallah, P.D.G., Medjerda Valley Authority |
| March 23, 1985 | Mr. Mohamed Ben Senia, Director, Moghrane School for Farm Management |
| March 25, 1985 | Mr. Sadok Allaya, Director, National Society of Plant Protection |
| | Mr. Mohsen Boujebel, Director, Dept. of Planning, MOA |
| | Mr. Mustapha Lasram, Director of INRAT |
| | Mr. Hassine Zayati, Secretary General, MOA |
| | Mrs. Fatma Larbi, Director of International Cooperation, MOA |

| | |
|---|---|
| March 26, 1985 | Mr. Malek Ben Salah, Director, Crop Production, MOA |
| March 29, 1985 | Mr. Habib Fekih, Director of Department of Administration and Fiscal Affairs, MOA |
| | Mr. Lassaad Ben Osman, Minister, MOA |
| | Mr. Adel Kammoun, Chef de Cabinet, MOA |

## ANNEX C - PROJECTED TRAINING AND TECHNICAL ASSISTANCE NEEDS

| NAME OF AGENCY | LONG TERM TRAINING | | | SHORT TERM TRAINING | CONSULTANTS (short-term) | COMMENTS |
|---|---|---|---|---|---|---|
| | Technical | Post-Harvest | Management | | | |
| IRRIGATION | ag devel rehab/devel of irrigated perimeters | | accounting, cost, subsidy analysis | extension service activities, coops | as needed | would like a model erosion control program |
| LIVESTOCK | reproduction, nutrition forage | industrialization | economics, cost sensitivity of production | extension | core only (familiarization key) | still need faculty, need specialist staff, identified need for an English lang. lab at INAT |
| OFFICE OF CEREALS | varieties, weed control, fertilization | silo mgt, stock handling, commercialization | quality eval. of stocks, appraisal, statistics | futures handling | yes (familiarization not imp. here | |
| FORESTRY | pastoralism entomology engineering | mgt, transformat. & exportation of forest prod. | planning, economics | extension national parks | | |
| SOIL CONSERVATION | engineering watershed mgt | | rural mgt | photo interp., extension, visit US projects | | |
| RURAL ENGINEERING | water systems for arid lands | cold storage, transformat., preservation of farm goods | modelling, opt. use of water supplies | | for example, master plan cold storage | would also like MS for new BS grads |

| | | | | | | |
|---|---|---|---|---|---|---|
| DAMS | None | | | visit US projects | | |
| REGIONAL | cereals, livestock, crop protection, range, soils | | economist for planning | extension | for example: medics in product. | |
| LEGUMES GROUP | potatoe seed production | preservation, cold storage | statistics-acreage, domestic/ export prices | cold storage | yes. | will have to coordinate positions with MOA |
| CREDIT | credit, supply of inputs mechanized | marketing | coops mgt, accounting | yes, incentive tive of visits elsewhere. local train. | expert as needed and to run local training sessions | |
| MEDJERDA VALLEY AUTHORITY | water mgt irrigation seed prod. | commercialization of production | economics, profitability, monitoring/ inform. services to advise farmers. | ST & TA: genetic improvement of crops, farming of multiplication plots, in vitro - genetic variability of cultures. | | |
| WEED | None | | | ST & TA: Pilot, mechanic training calibration/design of airborne spray equipment Management: Storage/Administration | | |
| CROP PRODUCTION | cereals, legumes, sugar, beets, stone fruits, apples, potatoes, plants | vegetable processing | | ST & TA: extension/communication, integrated pest management, crop fertilization, farm management | | would be interested in sending students for combined BS/ MS training |

## ANNEX D - SABBATICAL POLICIES

All sabbaticals are individually tailored. A very common and useful form is for the individual to join the faculty of another university and perform some services for that institution. This type is proposed for this project, to help develop continuing individual and institutional relationships.

DERV has a specific policy on sabbatical leaves. They are encouraged and a faculty member receives the base salary (about 45% of total compensation) while on sabbatical leave. No limit is placed on the amount that the person may receive from the host institution or other sources such as AID or Foundations. The Tunisian institutions can pay U.S. faculty coming to Tunisia. If service is to be rendered, half of the salary of a Tunisian full professor (about $400 per month) can be paid.

Policies vary among U.S. institutions. For example, some pay full salary, others half salary and for others the matter is negotiable. Some place ceilings on payments from host institutions and others do not. The prevailing philosophy is that a faculty member should not make money from the leave; realities also dictate that it be of minimum cost to the individual. The faculty member and his family invariably bear the costs associated with a short-term interruption in living conditions and arrangements. The plan must have sufficient flexibility to accommodate the diverse policies of U.S. institutions.

## ANNEX E - EXPANDED DESCRIPTION OF SUPPORT TO PL 480 PROGRAM

### Overview

Three activities in the PL 480 program will be of concern. First, soil testing laboratories in Tunis, Le Kef and Beni Khaled will be provided technical assistance and limited logistical support. These laboratories will be used to provide analyses of soils from farmers' fields from which appropriate fertilizer recommendations can be made. For these laboratories to effectively analyze large numbers of farmers' samples, a modest amount of additional equipment will be required, along with appropriate staff training in large production-laboratory techniques. Moreover, the chemical soil tests must be calibrated to the soil and climatic conditions of Tunisia through an extensive series of field experiments, applying different rates of fertilizer at many different locations. Extension personnel will also need training in the techniques for deriving fertilizer recommendations from chemical analyses and for educating farmers about fertilizer needs.

Second, an integrated approach to weed control will be introduced. Weeds are a serious pest in Tunisia's cereal production systems, competing for nutrients, water, light and space. Although the use of herbicides for wheat and barley crops can be highly remunerative, the escalating costs of chemical herbicides dictate that they be used in the most efficient way. Perhaps the most effective combination is use of herbicides and tillage during the fallow period, which not only conserves stored soil moisture but also reduces the weed population. Research will be conducted to determine the most efficient weed control measures, integrating effective herbicides at efficient rates with the appropriate tillage practices. To make the PL 480 dinars most effective a small amount of dollars are provided in this project to furnish crucial technical assistance. This TA may be used to provide advice on research design or interpretation, or to provide local training for Tunisian scientists and technicians.

Third, varieties of cereals and legumes will be introduced, tested and selected for high yield and disease resistance under Tunisian conditions. Testing and screening will be accomplished through a series of field trials located in the principal cereal and legume producing areas of Tunisia. Similarly, field trials will be established to determine the most efficient cereal-legume rotations for various regions of the country.

Description of Support

This project will provide support for limited training, technical assistance and logistical support of certain activities within the framework of the larger PL 480 program. The specific types and amounts of support are described below.

Training

Training will take several forms, but will consist chiefly of local training in Tunisia conducted by visiting scientists from the U.S. or other countries. An example would be a short course for soils laboratory personnel, as the three soil testing laboratories gear up for large scale testing. A team of 2-3 scientists would come to Tunisia for approximately one month to teach methods of handling large numbers of soil samples, to teach chemical techniques specific to the analysis of large numbers of samples, and to teach extension personnel how to interpret the chemical tests to make fertilizer recommendations. This short course would be attended by the staffs of the three target soil testing laboratories and by appropriate extension personnel. Other local training courses might be organized to teach techniques for conducting experiments to calibrate soil tests, or to bring other researchers up to date in recently developed methodology. It is possible that other training activities might take the form of short visits by Tunisian scientists to laboratories or research stations in the U.S. or elsewhere. It is estimated that approximately $50,000 will be used for such training.

Technical Assistance

A limited amount of technical assistance may be needed related to soil testing and soil test calibration, weed control, and varietal testing and development. Funds in the ATT Project would finance the cost of getting scientists from the U.S., or third countries, to Tunisia to help solve problems as they arise during this project. Approximately $250,000 will be used in this element.

Logistic Support

In the course of pursuing the work under the PL 480 project, there will undoubtedly be a few items of equipment or supplies, crucial to project activities, that will need to be replaced or provided. Likely some of these items will not be available in Tunisia and their purchase will require foreign exchange. A small amount of funding in dollars has been budgeted to make possible the purchase of these critical items Approximately $150,000 has been allocated for this purpose.

## ANNEX F - JUSTIFICATION FOR EXTENDING PRESENT CONTRACTOR ON A SOLE SOURCE BASIS

A waiver of the requirement for competitive bid has been obtained for this Project (Ref. State 230396). Justification for this waiver follows.

Negotiation with a sole source must be justified under one of the criteria contained in A.1 through A.5 of paragraph 2.4.2B, AID Handbook 11, Chapter 1.

Criteria A.4 and A.5 of paragraph 2.4.2. read as follows:

4. The borrower/grantee desires to utilize a contractor previously engaged in the project for follow-on work and the contractor clearly has special capability by virtue of previous experience in the work, but the contractor was either not initially selected on a competitive basis or the contracting agency did not advise all competing firms that a follow-on contract might result ...

5. Adherence to competitive procedures would result in the impairment of the objectives of the United States Foreign Assistance Program or could not be in the best interest of the United States.

Both of these criteria apply to these circumstances.

With respect to criterion A.4, MIAC has done an excellent job in the performance of its contract thus far. The mid-term evaluation, conducted in September, 1982, noted that the project was being implemented with dispatch. At that time, most activities were on schedule and expenditures very much in line with accomplishments. The project has continued on course since that time, with several objectives completed (construction and equipping of soils analysis laboratory, and equipping and staffing of agricultural library). Satisfactory progress is being made on other outputs, notably long-term training.

These measures point to MIAC's effectiveness in fulfilling the terms of its agreements. These indicators of progress, however, do not reflect fully the resourcefulness which MIAC has also shown. For example, where a Tunisian candidate wished to pursue a specialized research interest, MIAC has searched for the best school for this interest, even if the school was not a member of the consortium. This has resulted in placements at 14 different universities outside the consortium including Cornell, University of California - Davis, Georgia, University of Florida, Oregon State, etc.

MIAC has also been particularly successful in building relationships with Tunisian counterparts and participants. The evaluation team noted the exceptional quality of the staff member appointed to serve as coordinating director. Likewise, the Minister of Agriculture, M. Ben Osman, visited the University of Missouri/MIAC in 1983 and expressed strong support for the development of linkages between U.S. and Tunisian teaching institutions. MIAC has demonstrated considerable care and initiative in the calibre of its response to this overture. The GOT has expressed its strong desire for continuing MIAC's involvement.

Ties between MIAC programs and the DERV institutions are also strong. Considerable time and effort have been put into these relationships from both sides. An investment has been made in faculty members who now know Tunisian agricultural practices, needs and conditions. Several faculty have travelled to Tunisia to observe the agricultural system first hand. Faculty sabbatical opportunities are being examined, and one sabbatical is underway. Ten cooperative research proposals have been developed by Tunisian principal investigators with U.S. collaborators. These are key elements in the accomplishment of a major dimension of this Project -- development of long-term linkages between U.S. and Tunisian agricultural teaching institutions. Thus it would be essential to extend these activities under this amendment; continuity of MIAC collaborators is vital to maintaining and increasing the linkages. The essence of linkages is this continuity. It would be difficult, if not impossible, to sustain the linkages which have just begun to be nurtured if there is an abrupt change of contractors.

Collegial relationships now exist between consortium faculty and returning participants. This network can quickly expand in numbers and disciplines involved, as the activities under this amendment begin, provided there is no need to break in a new contracting University. These faculty members, and the body of knowledge of Tunisia which has been built up, will make the study experiences of the new M.S. candidates immediately and richly relevant under the Project Amendment.

It should be noted that it would not be in the best interest of the U.S. to put the work under the amendment of this contact out for competitive bid. The additional work called for under the PP Amendment will overlap with and be a continuation of ongoing TA and training activities currently provided by MIAC under their host country contract with the GOT/MOA. With 7 years of experience on the Project MIAC will be able to move quickly and effectively to execute the additional work required. Any other contractor would require additional time and start-up costs to execute the same work. The delays would be detrimental to the

Project and make it more difficult to manage. Moreover, while the MOA has performed well on management of the existing contract, they have no desire nor could they be expected to effectively manage two Title XII contractors providing basically the same type of services to the same Project at the same time.

Finally, the proposed amendment to the MOA/MIAC contract will contribute to achievement of the Title XII legislation which calls for greater collaboration and partnership in a larger setting. In discussions with the executive director of BIFAD concerning possible contracting for this Project, he indicated that they favored, and believed AID strategy and the Title XII amendment supported, continuing with the same university as long as the host government, the university and the mission concurred.

All MIAC institutions have approved affirmative action programs that are monitored both internally and externally. MIAC has delegated day to day operations to the University of Missouri, termed the lead institution. This results in the project following University of Missouri policies except where AID regulations prevail. The University of Missouri is a constitutional body of the State of Missouri and does its own contracting. Subcontracting on behalf of university projects poses no problem. The University has policies requiring that minority owned and small business firms be given consideration when awarding all contracts. MIAC has and will continue to make Lincoln University, an 1890 Land Grant Institution, an associate member on specific projects. Faculty of Lincoln University are used frequently as consultants and short-term trainers in MIAC projects.

## ANNEX G - LOGICAL FRAMEWORK

| SECTOR GOAL | MEASURES OF GOAL ACHIEVEMENT | MEANS OF VERIFICATION | ASSUMPTIONS FOR GOAL TARGETS |
|---|---|---|---|
| To increase agric. production and rural incomes thru more efficient management of production systems and utilization of agricultural resources. | Changes in<br>-agric. production<br>-farm incomes, and agri-employment | GOT statistics on production manpower and income. | Political and economic stability, particularly of markets.<br>Low inflation.<br>Normal weather and normal growth in economy. |
| **PROJECT PURPOSE** | **CONDITIONS THAT WILL INDICATE PURPOSE HAS BEEN** | | **ASSUMPTIONS FOR ACHIEVING PURPOSE** |
| Enable a trained nucleus of the agric. cadre to identify, select and manage the future agric. technology of Tunisia and to introduce appropriate technological innovations which can be applied in the delivery of services and support to the agric. sector. | (1) cadre of trained researchers, faculty and agency staff responsible for technical production units in place in teaching, research and MOA positions.<br>(2) More responsive and effective action by production oriented institutions thru use of the most relevent technologies and appropriate management techniques and philosophies.<br>(3) Institutions strengthened thru use of the interdisciplinary approach, continuing relationships between Tunisian and US faculty and state-of-the-art content curricula and approaches. | Examination of job titles and payrolls to monitor return and deployment of trainees.<br>Observation of GOT/MOA programs to monitor technical and production areas; examination of indicators related to water management, post harvest technology and range management in particular.<br>Observation of PL 480 program in cereals development, weed control and soil testing.<br>Observation of linkages activities of interdisciplinary teams, sabbaticals and cooperative agreements.<br>Observation of short term and consulting activities. | -GOT commitment continues to agric. sector and improvement in production thru technology transfer.<br>-Qualified Tunisians made available for training and linkage activities.<br>-Appropriate positions maintained for returnees.<br>-Equivalency problem solved.<br>-Plane tickets for trainees budgeted.<br>-Coordinating mechanisms will work as planned.<br>-The GOT will enforce policy requiring trainees to return to agency.<br>-PL 480 program promptly implemented.<br>-GOT contributions made when needed.<br>-GCT will use short term TA and training opportunities. |

| OUTPUTS | MAGNITUDE OF OUTPUTS | |
|---|---|---|
| Personnel trained at the Master's level.<br>Administrative, technical and supervisory personnel trained in specific skills and technologies.<br>Linkage program between Tunisians and US scientists and institutions.<br>More efficient and effective use of facilities previously supported by AID (in soil testing labs).<br>More efficient and effective programs of field<br><br>farmers, particularly local currency funded, PL 480 Title I activities. | -20 persons completing the MS degree.<br>-6 person-months of short-term training in the US for approx. 9 Tunisians in 9 3-week programs.<br>-2 months of trainer time in Tunisia to train 50-75 Tunisians.<br>-Development of 10 new coop. agreements, 4 sabbaticals (2 for Tunisians in US and 2 for US faculty in Tunisia).<br>-Soil labs capable of providing up to 200 soil analyses/week.<br>-Contribution toward the solution of problems impeding delivery of technologies and services thru 6 months of technical assistance in Tunisia.<br>-Increased effectiveness of PL 480-funded ongoing programs of the GOT, by assisting in the planning and monitoring of soil testing laboratories and training personnel to conduct a large number of soil calibration trials and demonstrations; weed control trials and demonstrations; cereal and legume varietal trials; and related extension activities. | -Counts of training, consultation activities provided.<br>-Evaluation of trainee performance.<br>-Evaluation of training programs.<br>-Record of problem resolution activities in TA.<br>-Evaluation of linkage activities.<br>-Counts of US faculty/researchers working in Tunisia.<br>-Research and consultation reports from TA and linkage projects.<br>-Interviews with and visits to offices and agencies to observe operations.<br>-Monitoring of technical problems and work plans. |
| INPUTS | | |
| Training<br>Costs of Linkage Activities<br>Commodities and Logistical Support<br>Contingencies | | |

## ABBREVIATIONS

| | |
|---|---|
| ATT | Agriculture Technology Transfer |
| DAAF | Direction des Affaires Administratives et Financières |
| DERV | Direction de l'Enseignement, de la Recherche et de la Vulgarisation |
| ICARDA | International Center for Agricultural Research on Dry Areas |
| ICP | International Center for Potatoes |
| IFAD | International Fund for Agricultural Development |
| INAT | Institut National Agronomique de Tunisie |
| INRAT | Institut National de la Recherche Agronomique de Tunisie |
| MIAC | Midamerica International Agriculture Consortium |
| MOA | Ministry of Agriculture |
| OC | Office of Cereals |
| PCC | Project Coordination Committee |
| POC | Project Operation Committee |
| TA | Technical Assistance |