

PD-AAA-878
 Ms May Huntington
 50-4

AGENCY FOR INTERNATIONAL DEVELOPMENT
PROJECT PAPER FACESHEET

1. TRANSACTION CODE
 A ADD
 C CHANGE
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2. DOCUMENT CODE
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3. COUNTRY/ENTITY
 TUNISIA

4. DOCUMENT REVISION NUMBER

5. PROJECT NUMBER (7 digits)

6. BUREAU/OFFICE
 A. SYMBOL B. CODE

7. PROJECT TITLE (Maximum 40 characters)

8. ESTIMATED FY OF PROJECT COMPLETION
 FY

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

10. ESTIMATED COSTS (\$000 OR EQUIVALENT \$) -

A. FUNDING SOURCE	FIRST FY			LIFE OF PROJECT		
	U. FX	C. C	D. TOTAL	E. FX	F. C	G. TOTAL
AID APPROPRIATED TOTAL						
GRANT	820		820	4,900		4,900
LOAN						
OTHER U.S.						
HOST COUNTRY		230	230		1,500	1,500
OTHER DONOR(S)						
TOTALS	820	230	1,050	4,900		6,700

11. PROPOSED BUDGET APPROPRIATED FUNDS (\$000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH CODE		E. 1ST FY <u>79</u>		H. 2ND FY <u>79</u>		K. 3RD FY <u>80</u>	
		C. GRANT	D. LOAN	F. GRANT	G. LOAN	I. GRANT	J. LOAN	L. GRANT	M. LOAN
(1) FN	120	050		820		1,416		1,302	
(2)									
(3)									
(4)									
TOTALS				820		1,416		1,302	

A. APPROPRIATION	N. 4TH FY <u>81</u>		O. 5TH FY		LIFE OF PROJECT		12. IN-DEPTH EVALUATION SCHEDULED
	P. GRANT	Q. LOAN	R. GRANT	S. LOAN	T. GRANT	U. LOAN	
(1) FN	1,282				4,900		
(2)							
(3)							
(4)							
TOTALS	1,282				4,900		

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

1 = NO
 2 = YES

14. ORIGINATING OFFICE CLEARANCE

SIGNATURE
 Hermon S. Davis, Jr. *[Signature]*

TITLE
 Director, USAID/Tunis

DATE SIGNED
 MM DD YY
 07 12 78

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

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ABBREVIATION KEY

- DRFC - Direction de la Recherche et de la Formation
des Cadres
- INAT - Institut National Agronomique de Tunisie
- INRAT - Institut National de la Recherche Agronomique
de Tunisie
- ESGC - Ecole Supérieure des Grandes Cultures
(Institute for Field Crops)
- MIAC - Mid-America International Agriculture Consortium

2. DETAILED DESCRIPTION

a. Background

Agricultural development in Tunisia has been and continues to be severely limited by the shortage of well-trained personnel to plan, organize, implement, and manage the many kinds of activities necessary to produce a modern agriculture sector. For example, from about 1889 through independence in 1956, the French government operated one professional agricultural school in Tunisia. During this period, it produced some 2,000 graduates, of which 17 were Tunisian - all the others were French. Then too, prior to independence there had been few primary or secondary public schools for Tunisians, and as a result there were few students in the pipeline who were qualified to enroll in higher institutions, such as INAT (Institut National Agronomique de Tunisie). INAT had a two-year instructional program. After independence, it was expanded to a four year program, and in recent years some departments have added a fifth year. This upgrading of INAT has been limited in relation to an expanding need for trained manpower. Although the problem was concealed for some time after independence by the availability of foreign experts to serve in Tunisia under both bilateral and multi-lateral AID programs, there continues to be a general shortage of personnel with specialized training in agriculture, and in areas related to agriculture. This need has been described in the Tunisia FY 1975 DAP; the current Country Development Strategy Statement (CPSS); the World Bank Report of 1974, "Economic Development of Tunisia, Volume I"; and is also addressed in the GOT's current five year Development Plan (1977-1981).

Tunisia faces problems approaching crisis proportions for small farmers in the semi-arid and arid areas due to deterioration of the land resources from erosion under present tillage and grazing practices. National interests require development and greater productivity from agriculture in these regions. Studies and analyses including "A Survey of the Tunisian Agricultural Situation", William F. Johnson, USAID, 1974; "L'Agriculture Tunisienne en 1974", Dr. Gerald Ouellette, Ambassade du Canada, 1974; "Retrospective of Tunisian Agriculture", University of Minnesota, Series 13; "Tunisian Pre-Saharan Project", US/IBP Desert Biome, Utah State University, Reports 4, 5 and 6, 1975, 1976 and 1977; and "La Demande de Produits Agricoles en Tunisie 1966-1985", Ministry of Agriculture, while not dealing specifically with the proposed project, address and describe problems in agriculture and imply manpower needs that fall within the scope of this project (see also sections 1 and 2, PRP).

The emphasis in Title XII and in general world assistance programs has shifted to the rural poor, improved nutrition for poor people, rural women, and improving small farm agriculture. This project, by addressing the essential needs for trained manpower in achieving agricultural technology transfer, impacts on the target group in each of these aspects and on agricultural development in Tunisia's future.

The Central and Southern Regions (approximately three-fourths) of Tunisia, are semi-arid to arid with hot, dry summers and rainfall, erratic in amount and occurrence, through the fall-winter-spring seasons. These regions have most of the small-owner operated farms in Tunisia, having very low incomes fluctuating with annual rainfall. The land resources on which the 1-1/2 million isolated rural population depend are rapidly deteriorating due to wind and water erosion resulting from the cultural practices used on cropland and severe overgrazing of non-cropland. Much of this small farmer population faces crisis conditions in the next decade from desertification unless tillage and grazing practices are adopted that maintain protective cover on the land. The declining cereal and meat production potential of these regions is a serious threat to Tunisia's future. Major imports of these commodities are now necessary to feed its people. Tunisia badly needs the increased production from small farms that is possible in this area.

Cropping and grazing practices must be changed if erosion is to be controlled and efficient use of rainfall for crop production is to be achieved. Maintenance of residues and crop cover is paramount and will reduce runoff and evaporation, thus storing more rainfall in the soil to produce higher crop and forage yields. The technology and information base does not exist in Tunisia for making these changes. The present institutional structure through these regions lacks the capability for applied research, effective extension, functional credit and adequate supply services.

Relatively rapid changes are possible when the institutional structure can provide the necessary information (technology) base for guiding decisions, demonstrating viable alternatives and helping farmers adopt and benefit from the new technologies. But these changes must leave the small farmer on his land and be feasible in terms of his meager resources and inability to accept excessive risk. Encouraging and assisting small farmers to grow family gardens can contribute to improved nutrition. Economic enterprises need to be fostered in these rural communities to provide supplemental labor and income opportunities where farming requires only part-time attention of the farm family.

Necessary institutional development requires a greatly expanded number of highly trained agricultural scientists to plan and carry out various research and developmental programs that will reach small farmers effectively and give Tunisia the ability to train more of its own people to the levels required to hasten institutional development.

Limited areas through these regions involve small farmers in irrigation. They include the Sahel strip along the Mediterranean coast, oases, and scattered small areas where water supplies permit. The Sahel and oases have natural advantages for production of early vegetables and fruits for domestic and export markets. Efficient use of the limited water supply is very important. Production from these areas falls well below the potential because of lack of an information base to guide decisions and use of best technologies. Tunisian handlers and processors need technological guidance in handling and processing in order to achieve the high quality required to compete in export markets and to be desirable domestically.

There are no differences between the Grantee's application for Assistance (see Annex E) and the proposals as presented within this FP.

b. Project Description

1) The proposed project will provide 62 trained scientists to be distributed among ten Tunisian agricultural institutions within DRFC (Division of Research and Formation of Cadres) as follows:

INAT (Institut National Agronomique de Tunisie)	- 7
INRAT (Institut National de la Recherche Agronomique de Tunisie)	- 12
Field Crops Institute at La Kef	- 10
Arid Lands Institute at Medenine	- 7
Horticulture Institute at Chott Meriem	- 10
Food Technology Institute at Tunis	- 3
Livestock Production Institute at Mateur	- 3
Institute of Economics and Rural Development at Moghrane	- 2
Institute of Forestry and Pastures at Tabarka	- 2
Extension	- 4
Librarians	- 2

The 62 long-term advanced degree participants will be placed at qualified universities agreed upon with DRFC within and outside the MLAC Consortium with MLAC handling the contract funding requirements.

The 30 participants for Ph.D degrees will carry out their thesis research in Tunisia as part of the research program and on the payroll of their institutions but under the supervision of U.S. university advisors. An important product of the project will be the documented research results theses on 30 Tunisian problems selected to provide the needed information base for small farm agriculture in semi-arid regions.

An additional 8 theses prepared by U.S. graduate student assistants doing their Ph.D thesis research in Tunisia in cooperation with Tunisian Ph.D students on similar problems will add significantly. Since supervision, needed research equipment, a soil testing laboratory, and library resources required in thesis research will be provided under the contract, these 38 research studies will represent the establishment of on-going institutional research programs in place and operational when participants complete their degrees.

The 30 participants earning M.S. degree in agriculture in the United States will fit into important teaching and research roles among the several institutions. The two participants getting degrees in library science will fit into the National Center for Agricultural Documentation and Libraries of INAF and IIRAF. With the assistance of library consultants and commodity funding they will organize and improve the acquisition, documentation, retrieval and distribution functions of the agricultural library system in support of research, teaching and extension activities.

Since all long-term participants are to be integrated into the research program of their major advisor while they are in the U.S., each advisor's project will be provided \$1000 per year to cover costs of transportation, supplies and assistance needed to permit the advisor to spend the time needed with the participant to make this training experience as valuable as possible.

Consultants will be provided in problem areas such as soil testing and food technology and include administrators of agricultural programs in the MEAC institutions in order to build the institutional linkages that the GOT considers very important. The 30 M.S. faculty advisors in four trips each to Tunisia to supervise thesis research of Ph.D students will be a major consulting resource and also a stimulus to institutional linkage.

One full-time U.S. university thesis research supervisor is provided for 4 1/2 years (4 in Tunisia) to provide continuous supervisory contact and coordinate participant preparation and placement, purchase of commodities, and effective functioning of faculty advisors on their short-term visits to Ph.D students. Short-term training will be provided selected participants in areas such as food technology and extension. In-country seminars and conferences will be set up, if deemed necessary, to complement other training to meet overall objectives.

2) The project will be implemented through the DRFC (Division of Research and Formation of Cadres), Ministry of Agriculture. The institutes involved are administratively responsible to the Director of DRFC.

3) Participants will be selected according to agreed-upon criteria by DRFC. Careful selection is to be practiced so admission requirements of Graduate Colleges in U.S. universities will be met. Detailed descriptions of the training desired and the anticipated role he will play will be developed for each participant. Their admission applications will be presented to universities that offer excellent training in the various subject matter areas. All participants will be sent to the U.S. for 10 weeks of intensive English training before initial graduate college enrollment. Ph.D participants will be integrated into the research projects of their major advisor and function as graduate research assistants in order to build a background of experience before returning to Tunisia to undertake their thesis research.

Plans for thesis research will be developed by the advisor and Tunisian students in the U.S. in communication with DRFC in Tunisia. Equipment needs for thesis research will be identified and procurement initiated early enough so it will be on hand when Ph.D participants return to Tunisia to

initiate their research. Funds for a small professional library will be provided each participant to give essential supplementation to the limited library resources in Tunisia. Four trips to Tunisia are planned for each advisor to supervise thesis research and conduct final oral exams.

The 8 M.S. graduate student assistants programmed to carry out their Ph.D thesis research in association with the Tunisian Ph.D students will help create the research environment and improve liaison with the on-site thesis research supervisor and advisors in the U.S. The proposed library improvement elements of the program are important to the thesis research. The analytical capabilities of a soil testing laboratory will be essential to handling analyses from field research experiments. The ERFC will provide offices for the U.S. thesis research supervisor and 8 graduate student assistants in appropriate institutional locations to foster a desirable research and academic setting for the program.

c. Assessment of Agriculture in the Semi-Arid Lands of Tunisia

This assessment applies to the Central and Southern Regions of Tunisia. The Central Region includes a coastal area (part of the Sahel) where olive production is predominant but almonds, cereals, and livestock are also important, and an inland plateau area of steep hills and broad valleys of the Atlas Mountains. Rainfall varies from 400 mm at the northern edge of this region down to 200 mm in the south, being highly variable through the plateau region. Soils are often shallow, rocky and calcareous in the uplands and saline in the lowlands. Irrigation potential and the area now irrigated is small. Along the coast and in local inland locations it permits an expanding production of vegetables and fruits that provide much employment and are important in exports for foreign exchange as well as domestically.

The southern region includes a coastal area (also part of the Sahel) with about 200 mm annual rainfall and inland areas extending back to the Sahara desert and moving dune sands with less than 100 mm of rainfall. This assessment recognizes the existence of a specialized agriculture producing dates, citrus, and vegetables in scattered oases. Emphasis, however, is on the large area used largely for grazing sheep, goats and camels where increasing plants of cereals, olives and almonds are being made. Because of the limited and erratic rainfall, the ecology of this area is fragile. Overgrazing and cropping can readily produce desertification of large areas of the region. Water erosion and flooding are serious problems in the central mountain and plateau area.

Tunisia has 326,000 farm units, 82.9% of them being 20 hectares or less but representing only 34% of the farmland. Most units in these two regions are classified as small, less than 40 or 50 hectares. They have an increasing population which puts added pressure on the land. A large part of the farm population lives at the subsistence level. More marginal lands are continually being planted to trees and field crops. Rate of deterioration of land resource is increasing.

Present Situation

Tunisia has over 1.6 million hectares of tree crops and about 1.5 million hectares of cereals and field crops. This is the nation's most productive land. Much of it occurs in the central and southern regions. By present practices much of this is tilled repeatedly to keep it free of weeds and covered with a dust mulch, supposedly to save moisture but more likely wasting it. When crops are harvested, all straw and crop residue is removed for livestock feed and repeatedly grazed until little remains. All land not cropped is severely overgrazed so it is kept nearly bare.

There are areas in the central plateau region which already have bare rock exposed where soil has washed and blown away. The size of these areas is increasing. Severe wind and water erosion threaten to remove or destroy the soil resources through much of these regions. Early desertification is likely in much of the southern region if present practices are permitted to continue.

Even though annual rainfall is low, intense rains are common that beat and seal the soil surface so that run-off and soil erosion are high. Run-off from the large areas of bare soil is undoubtedly a factor contributing to the frequent, damaging floods experienced in the area. The most fertile part of shallow soils is being washed away. Heavy sediment loads will soon fill any water storage structures and limit their useful life and value.

Plants produce only by photosynthesis occurring in their green leaves. Closely grazed fields and pastures have so little area of green leaves that they cannot be productive. Cattle, sheep and goats throughout the semi-arid and arid zones get so little to eat from the closely grazed fields that they produce very little. Many are very thin and unproductive. Still they are exposing the land to erosion and deterioration.

Cropland now handled in a two-year rotation of a cereal crop followed by a year of grazing is universally grazed so closely that most of its production potential is wasted. Appropriate research should make this land profitable for field crop production or greatly increase its yield of forage so as to feed the livestock on farms better and make them more productive.

Most cereals grown throughout this area are planted by broadcasting the seed and stirring it into the soil with a plow, covercrop or other implement. This plants weed seeds just as well as the cereal seeds. If any fertilizer is used, it is also broadcast and stirred into the soil. It stimulates the weeds just as much as it stimulates the crop. Changing to planting with a drill that will apply fertilizer near the cereal seed will permit reducing the amount of seed planted, greatly improve the stands obtained, and permit getting greater crop response with less fertilizer.

The months of June, July and August throughout Tunisia are hot and dry. All annual weeds and plants dry up and die in non-irrigated lands. Weeds germinate again with the coming of fall rains. Cool-season weeds such as wild oats and mustard are serious problems. Extensive areas of field bindweed and other serious perennial weeds also exist.

Agricultural Potential of the Area

The agricultural potential of this area is much higher than is now being realized. Reaching its potential, however, will require the development and use of conservation production systems for all cropland and a great reduction and management of grazing by livestock along with extensive improvement and management of forage production on non-crop land. A well planned and conducted research program, both basic and applied, is needed to determine the crop and forage management systems that will give high and stable production while conserving land and water resources.

Water to support growth of plants is the principal limiting factor in this region. Fortunately, the rains come in the cooler months of fall, winter, and spring. This fits the growing season of such cool-season crops as wheat and barley as well as cool-season legumes and forage grasses.

First priority should be given to research on the soil moisture regime in the different areas of Tunisia. If rainfall is to be saved and used efficiently, the effects of different tillage and cultural practices must be determined so the best technological systems can be developed. Continuous cropping may be advantageous in some soils and areas. In others following to carry soil moisture from one winter to supplement that of the next may prove desirable.

Research should concentrate on developing varieties of these species that fit the various conditions through this region and the management practices for planting, fertilizing and weed control that best meet the growth requirements of each. Management of field crops, forages and livestock must be handled as an integrated system.

It is important to Tunisia that its limited amount of water available for irrigation be used as efficiently as possible. While progress is being made in raising production on irrigated land, it appears that there is still much opportunity to manage the use of water so as to gain more efficiency and to manage the crops grown so as to achieve still higher yields.

In the longer run exploiting the great cereal production potential of the drylands of the central and south should permit use of the limited irrigated lands now planted to cereals for higher value crops.

The climate of the Sahel is valuable to Tunisia because it offers the opportunity to produce early vegetables and fruits for the European market that can be sold at a premium price. This climatic advantage due to location should be exploited, but this requires careful marshalling and management of the limited water supply available for irrigation in the area.

Little fertilizer is used in this area. Significant increases in yields will probably require use of both nitrogen and phosphorus fertilizers. Trials to determine responses to different rates and kinds of fertilizer are needed to permit calibration of soil tests and provide a sound basis for fertilizer recommendations.

Conserving Rainfall and Protecting Land

Research in the United States has clearly established that rain falling on bare soil breaks down the soil structure so that pores are filled and sealed resulting in reduced infiltration and increased run-off. Crop residues on the soil surface or growing plants absorb the beating power of raindrops. Soil pores stay open, so the water infiltrates and is stored in the soil where it can be used by crop plants. The soil is held in place by the residues so both run-off and erosion are reduced. Research has indicated the amounts of different kinds of residues required to protect different kinds of soils. No alternative has been found to use of adequate crop residues and growing plants to protect soil from wind and water erosion.

Water stored in the soil can be wasted in two ways: (1) by weed growth and (2) by tillage. Any water that weeds use to grow is lost for the desired crop. Research shows that the most serious reductions in crop yields from weeds result from the weeds present in the first month to six weeks after planting. Early weed control is essential.

Tillage operations such as plowing and cultivating waste water by stirring and exposing moist soil to the air where the water evaporates. This is a direct water loss due to tillage. But tillage operations also bury or reduce crop residues, thus destroying the protective cover. Research has shown that soils protected by crop residues are cooler than bare soils. This indicates that some of the sun's energy is reflected. The more energy a soil absorbs the more water it will evaporate. Thus residues reduce evaporation from the soil surface and water losses.

Throughout Tunisia, repeated tillages are used to control weeds and create a dust mulch. Research in the United States, as explained above, indicates that dust mulches in most soils waste water and create conditions leading to serious erosion.

Many experiments have shown that the principal, and often only, benefit gained from tillage is weed control. The technology of using herbicides to control weeds makes tillage for weed control unnecessary where effective control can be achieved economically with herbicides. Weeds must be controlled, but new herbicide technologies can be developed to control them without tillage so crop residues can be preserved to protect the land.

Most soils are self-mulching, that is, they dry on the surface rather quickly after a rain. Water then has to move slowly as vapor through the pores of the dry surface soil. It can move in much greater quantities by capillarity as long as the surface is moist. Tillage to create a dust mulch on self-mulching soils wastes water, time, and energy. Tillage may be necessary to control capillary flow of water in soils that do not self-mulch.

If tillage must be used for weed control, then "sweep" tillage machines should be used. The "sweep" is a sharp V-shaped blade run just below the soil surface. It will kill the weeds if pulled at a shallow depth below the soil surface. This will limit water lost by evaporation from the tilled layer and leave most of the crop residues on the surface to protect the soil. "Sweep" tillage machines are widely used in dryland farming systems of the

semi-arid parts of the United States.

George Novikoff in his research east of Medenine is demonstrating clearly that the principle of maintaining protective cover and residues as explained above must be applied in southern Tunisia to prevent desertification.

Effective use of crop residues for protecting the soil greatly reduces the need for expensive terraces and other run-off management structures by storing the water in the soil on which it falls. Thus, if generally used in Central Tunisia, it would help reduce the damage from floods. In addition, reducing run-off and getting more water infiltration into the soil will mean more replenishment of underground aquifers and more water available for irrigation.

Elements of Conservation Production Systems in Semi-Arid Regions

Soundly developed conservation production systems will maximize conservation and use of the rain that falls, protect the soil resources from wind and water erosion, and meet the growth requirements of the crop so that high, stable yields will be achieved for each specific soil and environment. The conservation element must include maintaining effective crop residues on the land to the full extent necessary for production and possible within the system. This means reducing tillage to the minimum possible in the system. No-tillage systems are being used in some places. It also means using herbicides effectively for weed control.

The production element of the system requires the following:

1. A productive variety developed and selected to fit the specific situation.
2. Proper planting in terms of rate, date, and method of seeding.
3. Applying fertilizer according to properly calibrated soil tests for the specific soil, crop, and yield goal.
4. Economical and effective weed control with herbicides and the minimum possible of tillage.
5. Timely and efficient irrigation under conditions which permit irrigation.
6. Protection from diseases, if required.
7. Protection from insects, if required.
8. Appropriate and timely harvesting.

Tunisia has much to gain from initiating the research programs needed to develop conservation production systems for the Central and Southern

Regions. When systems are available that have been tested with farmers in each area, then an intensive extension effort will be involved in helping all farmers work out the adaptation and implementation of appropriate systems on their farms. Attention must be given to credit and price policies that will encourage and help farmers make the necessary changes in technology.

Pasture and Feed for Livestock

Present grazing practices through the Central and Southern Regions threaten loss of the soil resource. Non-crop land continues to erode and deteriorate under this use. Cropland that is pastured is kept packed and bare so that rain runs off causing erosion and flooding. This threat is extremely serious to the future food production potential of the region. Thus, it is in the national interest for the GOT to address this threat promptly and adequately with an appropriate research program and such other legislation and extension efforts as are required to achieve land protection.

Major changes will be required in handling livestock in the farm economy to achieve land protection. Grazing systems of all land must be handled so plants can maintain enough leaf area to be productive and the land surface is protected by a cover of residues and/or growing plants.

Consideration should be given to seeding improved varieties of grasses and legumes in non-cropland. Breeding programs in forage grasses and legumes along with research programs to develop effective testing and establishment systems across these regions are needed. Such programs will result in little added forage unless grazing systems are drastically changed so the forage plants have a chance to grow and be productive.

Development of Small Farm Machines Essential

Cereal yields throughout the Central and Southern Regions can be improved by changing from the present methods of planting to planting with drills that will also place fertilizer near the seed. Tunisia must make this change. Much of the potential gains from all other possible technological improvements will be lost unless cereals are properly planted with drills. Research is needed to identify the optimum time for planting in the different areas. Timeliness will be important and may require all farmers in any area to plant in a short period, perhaps after a rain. Relying on rented tractors and drills may not achieve the timeliness that is necessary.

Small drills that can be pulled by animals or small tractors have been developed in other countries. They can be modified, if necessary, and built to plant through surface residues in minimum or no-tillage situations and apply fertilizer with the seed. There is an urgent need to get prototype models of such drills into Tunisia, test them, adapt them to local conditions in different areas and give priority to their manufacture here. Tunisia has the capability of manufacturing them. This is essential for improvement of small farmer agriculture.

Changes required in farming practices to protect Tunisian soil resources from deterioration must include greater use of herbicides so that tillage for weed control can be greatly reduced. Developing the capability of manufacturing suitable small sprayers in Tunisia seems possible so suitable spray equipment can be available.

In those situations where some tillage is still required for weed control, it should be done with "sweep" tillage machines with the blade operated just beneath the soil surface.

Suitable tractor or animal-drawn "sweep" machines can be manufactured in Tunisia.

Since harvest procedures must be modified to leave much of the straw on the field to protect the land, some simple mower or harvester to cut ripe cereals is needed. Perhaps an animal-drawn or small engine-driven mower that could also be used for cutting forages could be designed and manufactured to meet this need.

Many of the small, subsistence-level farmers still use livestock and the threshing floor to thresh their cereals. Small engine-driven threshers should be manufactured and available for threshing. One unit might well thresh grain for several farmers.

SUMMARY:

1. Tunisia merits commendation for the rapid progress made in increasing agricultural production and in developing the institutional base to achieve further improvements.
2. Pressures of population on the land and present crop production and grazing practices in the Central and Southern Regions, however, are causing deterioration of the soil resources by leaving soil bare and unprotected, thus exposed to wind and water erosion. "Dust mulches" are a major factor contributing to this deterioration.
3. While water is the primary factor limiting agricultural production, present cropping and grazing practices are restricting infiltration and causing run-off with serious flooding and soil erosion.
4. There is urgent need to develop an information base and technologies through research that will use the rain that falls more efficiently, protect the land from further deterioration, and increase production of grain and forage.
5. There is no alternative to developing systems of management of both cropland and non-cropland that will keep the soil protected with residues and/or growing plant cover. Fortunately such systems will also maximize the infiltration of rainfall and reduce runoff and flooding.

6. Conservation production systems must be developed through basic and applied research to fit the soils and special circumstances of each area. Such systems will save more of the rain that falls, protect the soil from erosion, and create improved conditions for crop growth, thus resulting in higher and more stable yields.

7. An important technology to be developed is increased use of herbicides for weed control so tillage for this purpose can be greatly reduced or avoided since tillage destroys soil cover and exposes land to wind and water erosion.

8. Present practices of planting by broadcasting seed is a major obstacle to improving crop yields. Development and manufacture of small, animal-drawn drills that will plant seed and place fertilizer near the seed are essential. Tunisia has the capability of manufacturing such drills and also "sweep" tillage machines, mowers, threshers, and sprayers needed to provide these regions with technologies that will greatly increase production while conserving their water and protecting their soil resources.

9. Further research to increase the efficiency of the limited supply of water available for irrigation in these two regions is very important so that the natural advantages of the Sahel for producing early vegetables and fruits can be further exploited.

10. The benefits to Tunisian agriculture and to the nation's economy from implementing the procedures recommended here for saving more of the rain where it falls on the land and effectively using it to increase and stabilize crop production from non-irrigated land greatly exceeds the potential gains Tunisia can expect from increased irrigation.

3. PROJECT ANALYSES

A. Economic Analysis

Since Independence in 1956, the GOT has been trying to improve agricultural production and the distribution of income within the agriculture sector. Former colonial farms have been converted to state farms, cooperative farm units, and private farm holdings. Irrigation programs have been undertaken, and a variety of production activities as well as institutional development efforts have been launched. In the process, the GOT has recognized that a severe constraint in meeting its development objectives is the lack of an ample institutional base for creating and guiding selection of appropriate technology. This is particularly relevant as regards small farm agriculture production on arid and semi-arid lands. The problem is reflected in the lack of adequately trained personnel to conduct research, provide appropriate education and extension training, and to manage and operate the wide variety of agricultural services and support activities.

To assist in the development of such an institutional capability, the GOT has requested USAID to provide the necessary technical assistance - primarily through a participant training program - and a limited amount of commodity support. The project will enable the GOT to compose domestically - especially in the case of the Ph.D candidates - an agricultural cadre of research, education, technical, and management and operational personnel. It is these personnel who will eventually perform the essential developmental and adaptive research in Tunisia; staff the educational institutions; and occupy positions in extension and other support services of the agriculture sector. Through their combined efforts, a Tunisian derived technology can be developed which addresses the production, management and distribution problems of smaller farmers in the arid and semi-arid agriculture zones.

Two basic approaches were considered in the design of this project. The less desirable alternative (primarily because of perceived lower qualitative benefits, but also because of slightly higher financial costs involved the traditional approach of carrying out all academic requirements at the U.S. university. This approach, while costing somewhat under 1/2 million dollars more than the other, did not have (in the case of Ph.D candidates who will spend the last two years of their training in Tunisia carrying out their thesis research on problems which confront smaller producers on arid and semi-arid soils) the additional advantages of: (1) performing research in a Tunisian environment under Tunisian conditions, instead of in a foreign environment with a different mixture of social, economic, technical, and physical conditions; (2) earlier return to and assumption of positions at sponsoring institutions which allows the participant to play a practical role, while conducting research on problems mutually agreed to by the participant and the institution; and (3) reduces the need for a considerable foreign and expatriate contingent, who due to their generally higher salaries and support requirements, limits alternative financial investment opportunities as well as contributes to foreign exchange and balance of payments deficits.

It is primarily for the above reasons that the approach described throughout the PP was selected. As proposed the project will ultimately lead to improved research and testing capability; improved planning and programming of inputs and services; more coordination between research, training, and extension services; and a flow of appropriate technical advice through the agricultural cadre to the farm clientele- the ultimate beneficiary. Improvements in the content, substance, and accuracy of the technical interventions delivered through this cadre can not only assist in raising agricultural output, but in consideration of other factors, promote conservation, reduce harmful production practices, etc., at a considerable savings to labor, materials, and natural resources - the latter being of extreme importance in Tunisia's efforts to increase agricultural production on small farm holdings in the arid and semi-arid zones.

The selected project will cost some \$4,900,000 (the cost components are further detailed in the Financial Plan, Section 4, PP). The rates used in calculating cost projections were derived from data furnished by the Office of International Training (for both long and short-term participant training), and the University support cost, including consultant and commodity costs, are based on data provided by the MIAC members of the design team.

B. Social Analysis

1. The target group, or beneficiaries, comprise two broad categories - those individuals actually engaged in animal and crop production; and those who through research, teaching, planning, extension or administration, serve and support the former. The first group totals some 326,000 farm units Tunisia-wide, of which approximately 197,000 are located in the center and southern parts of the country - the regional focus of this project. Much of this semi-arid and arid area is devoted to cereals (primarily durum wheat and barley), olive and almond production, and animal husbandry. During the agriculture campaign of 1976-77, over 52% of durum, some 26% of bread wheat, and over 71% of barley plantings were in the central and southern regions. However, because of erratic rainfall patterns, and deteriorating soil structure due to wind and water erosion, partly due to unimproved cultivation practices, cereal yields are extremely low. This region accounts for only about 30% of the country's cereal production. The target group is further delineated by the project focus on small farm units of fifty hectares or less, dependent upon type of crop and whether production under irrigated or rainfed conditions.

(a) Over 83% of all farms in the area of project focus report gross annual incomes of less than TD 500 (\$1,200). The average rural Tunisian family consists of 6.5 persons which means a per capita gross annual income of TD 77 (\$194.00), considerably less than the \$782.00 estimated for the Tunisian population in 1976 by the IBRD. Per capita net annual income for the area is even lower. Extrapolating from data on dry-land farms in the northern region of 50 hectares or less on marginal semi-arid soils - which indicate net incomes of less than half (49%) of gross incomes - per capita net annual incomes of farm families in the area of project focus would be approximately TD 38 or \$92.00. Of the total Tunisian population, approximately 81% have annual per capita expenditures greater than TD 60. Some 4% of the total have annual per capita expenditures of less than TD 30. Only 15% of the target group falls above the lowest 20% of the Tunisian population, while some 38% fall within range of the lowest 4% of the Tunisian population.

(b) This target group, i.e., small farmers engaged in rainfed crop and forage production and animal husbandry on arid and semi-arid soils, represents a substantial potential for raising agriculture production and increasing rural incomes. Present crop cultivation and livestock production practices of most farmers exacerbates deterioration of the soil base through wind and water erosion, as well as stimulates the invasion of weeds and other objectionable plant growth. The agricultural potential of the arid and semi-arid area is much higher than is now being realized. However, to reach this potential implies fundamental modification of the present production system. Tunisian farmers have already demonstrated a willingness to adopt and employ new technology when compatible to their agronomic conditions, and when recommendations do not subject them to unreasonable risks of loss in benefits. This is evident throughout Tunisia by the increased use of improved seed varieties (both in cereal and forage crops for example), fertilizers, herbicides, mechanized services, etc. Nevertheless, propagation

of this willingness depends largely upon effective and appropriate agricultural services and support. The development of manpower depends not only on increases or additions and improvements to the physical agriculture infrastructure, but also at least equally as important, on the appropriate training of additional educators, researchers, extension agents, planners, administrators, and others of the agricultural institution cadre who service the production, management, and marketing of agriculture commodities.

(c) The ultimate beneficiary group falls within the poorest strata of farm operators. The low productivity and income levels of this group is partly due to their previous neglect by the agriculture services and support institutions. In addition, it is on the smaller farms that the differential between potential and actual yields is greatest. It is, therefore, the smaller farms in the arid and semi-arid areas of the country which represent a substantial potential for productivity increases.

2. The project will provide both long and short-term training opportunities for Tunisia's agriculture cadre, i.e., those individuals who through research, teaching, planning, extension and administration, serve and support the nation's farmers. As mentioned above, it is the smaller farm units which represent the greatest potential for productivity gains - mainly because of the existing gap between potential and actual yields. This gap has been perpetuated to a large extent through inattention to the problems of small farmers (especially those in the arid and semi-arid areas of the central and southern regions) in production, management and marketing. It is these farmers - in contrast to the existing situation where primarily only large farmers are able to adapt the essentially academic research and extension output to their needs - who will ultimately benefit from the problem-solving practical solutions approach which the agricultural cadre can be expected to provide in the future.

(a) The integration of agricultural education, research, and extension efforts as incorporated in the concept of U.S. Land-Grant institutions - as well as the problem-solving approach - has become increasingly interesting to GOT officials. In addition, a number of Tunisians have received training in U.S. institutions under various AID projects and have introduced the concept into the country. It is expected that the participants to be trained can be carriers of an approach that will create a stronger relationship between the various service institutions, i.e., research, extension, education etc., as well as generate increasing concern for the smaller farmer problems of production, management, and commercialization under arid and semi-arid conditions.

(b) As small farmers constitute the vast majority of the farm population, a system which is oriented to the needs of the majority should inevitably respond to the needs of smaller farmers. As they also suffer most from the present inadequacy of supporting services, they stand to gain the most from the orientation and improvement of services arising from this project. The need to focus attention on small farm agriculture in the arid

and semi-arid regions has been emphasized as critical by the IBRD, FAO, the Rockefeller Foundation and in the current GOT five-year plan. The influence of government extends throughout the Tunisian societal fabric, in production, marketing, and in support and services to the agricultural sector. Channels for communication and dissemination of ideas, information, and materials exist, but improvements must be made. What is lacking is the development of technology appropriate to the needs of small farm agriculture in the arid and semi-arid regions. Existing weaknesses in the essential supporting and service institutions is directly related to inadequate and inappropriate technology, and the lack of an information base for guiding selection of appropriate technology.

(c) From its inception, this project, having as its objective, transfer of technology, has focused on the development of a core of highly trained and competent Tunisian agricultural scientists. The transfer of technology starts with people competent to carry on research and generate its needed technology appropriate to the needs of small farmers in the semi-arid and arid regions of Tunisia. Since this project recognizes that the generation of needed and appropriate technology can come about only through the development of an institutional infrastructure, the people selected for M.S. and Ph.D training under this project are being selected to fill specific staff assignments within Tunisia's network of agricultural teaching, research, training and extension.

3. Since the small subsistence farmers in the semi-arid and arid regions of Tunisia represent the primary target group to be served by this project, the family as a cultural unit and rural women in particular must assume a prominent place in planning for the agriculture and rural development of the region. Traditions today play a dominant role in minimizing risk and producing a sense of security for these small subsistence farmers.

This technological transfer project must first do the research and provide a basis of developing, and field testing alternative tillage and livestock practices, and then involving the family as a unit in understanding the implications of accepting tested tillage and livestock management practices which will concern both the soil and water and thereby provide the basis for increased yields and a more secure income and way of life. In this transition from the present tillage and grazing practices which leave the soil bare the year round and subject to continuous erosion, to methods that leave a residue on the soil making for greater absorption and retention of moisture for plant growth, the women can be expected to be powerful agents for change. But the women will function as change agents only when they can see how accepting and adapting new tillage and grazing methods will contribute to a higher level of family living and a more secure family life.

The small subsistence farmers in the semi-arid and arid regions of Tunisia will change their tillage and livestock practices only when there are alternatives which have been tested and proven to be applicable to the small farm. The family must understand how accepting and applying alternative tillage and livestock management practices will be in their own interest.

Tunisia continues to demonstrate leadership in the expansion of opportunities for women in all fields. Women hold responsible positions in the Ministry of Agriculture, receive officer training in the Army and Police force, and are included as faculty, students and staff personnel at all academic institutions - their presence at IMAT is especially notable. This project will improve the opportunity for women to fully participate in all of these and related efforts through consideration in selection of participants. AID sponsored training programs in wheat production and agricultural economics included women participants, and this effort will be continued.

C. Technical Analysis

There have been no unresolved issues identified with respect to the technical (i.e., inputs and outputs of goods and services) appropriateness of this proposal. The experience gained from two ongoing projects and one recently completed project, all of which provided for participant training and consultant services, will facilitate and enhance the management and operation of this proposal. In addition, the design of this project takes into account the recommendations, suggestions, and criticisms included in the final report of the Minnesota contract.

Several studies and analyses, including the World Bank Report for Tunisia (1974), the GOT's Five Year Development Plan (1977-1981), and USAID's FY 75 DAP for Tunisia have emphasized the need to expand and improve the level of trained manpower in Tunisia. Tunisia has already invested heavily in production infrastructure, especially in the Northern Region. It must now increase the number of agricultural scientists to assure the productivity of past investment. In addition, effectively addressing the deteriorating land resource and low productivity problems involving primarily small farmers in the Central and Southern Regions will require numerous, diverse well trained agricultural specialists to accelerate the development, adaptation, and adoption of appropriate technologies. The process will require improving and vitalizing its field research, extension and other institutions that have essential roles in motivating and helping small farmers make the kinds of major changes involved. Tunisia must expand its ability to train many of its own people to at least the M.S. level if staffing requirements of the institutions needed to reach and assist small farmers are to be met.

Within the areas of project focus, i.e., 1) Improved Technology for semi-arid lands; 2) Production, processing and marketing vegetable and fruit products; 3) Strengthening centers for acquisition and retrieval/dissemination of information on agricultural technology, some 1500 FM's of long and short-term training and approximately 20 FM's of consultant services will be provided over a five year period. The training and services will be in subject areas and fields related to the areas of project focus (see Annex H). In addition to the long and short-term training to be provided for approximately 62 selected participants, in-country conferences, workshops, and seminars (utilizing consultant services referred to above) will reach an even larger number of cadre, farmers, and others concerned with agriculture.

With this process feeding information into other ongoing and new programs and activities at INAT, INRAT, La KeF, Medenine, Chott Meriem and other agricultural institutions (as well as continuing AID projects, i.e., Livestock Feed Production and Utilization, and the Siliana Rural Development Project), new ideas, innovations, techniques, etc. will be extended to an additional sphere of users and consumers.

INAT and INRAT are long-established institutions each being provided major new physical facilities by GOT. Their principal limitations for serving Tunisian agriculture are number and level of training of their scientific staff. They are capable and ready to use the inputs provided under this project. Other institutions to be furnished assistance under this project can be expected to meet the same criteria since all (other than the Division of Agricultural Production which is responsible for field extension activities) are components of the Division of Research and Formation of Cadres (IRFC) which will be implementing the project and are all under the same Director.

The chart (see Annex G) shows the rationale of this project. The focus is on the small farmer, with emphasis on rainfed agriculture but recognizing the needs of small farmers with irrigation and the opportunities in vegetable and fruit production. Women must be involved and will necessarily be affected by modified work requirements, new economic enterprises that may arise, and opportunities for improved nutrition and family life, etc.

Because of the great need for more and better trained people in agriculture, INAT represents the outer ring on the chart, the primary source of additional trained manpower for all others in the institutional structure.

INAT is a college level institute offering training to the equivalent level of the B.S. in General Agriculture, and the M.S. level in limited specializations. It presently has capacity to graduate 50-60 students per year, under the 4 year curriculum, at the B.S. level. The overwhelming majority of its students are drawn from the graduates of regular "Lycées" where the student body is of a generally higher scholastic standing than those of the agricultural schools. The major criticism of INAT centers on a curriculum which has been too theoretical and academic in approach without adequate consideration of the practical problems of farming and farm management. It is felt that a high priority should be given to a curriculum reform that would 1) raise the level of scientific training by increasing the opportunity for specialization, and 2) conduct classes on the basis of a problem solving approach. These recommendations are to be found in the latest IBRD report for Tunisia, and in a 1972 USAID study of the INAT curriculum by Lee Martin, University of Minnesota. During the course of the current five-year plan, rural engineering and fisheries studies will be included in the school curriculum. INAT needs the ability to do M.S. training in several subject matter areas.

INRAT is the national institution responsible for agricultural research. It operates central laboratories in Tunis and a network of 20 experimental farms throughout the country. Most experimental farms are staffed only with technicians, all experimental designs and directions coming from INRAT scientists in Tunis. In addition to the fields of plant breeding, agronomy, and plant pathology, mostly in connection with cereals and tree crops, important research is in progress on irrigation, use of saline water, forage production, and animal science. Efforts have also increased in multi-disciplinary work - notably in the search for a suitable cereal/forage crop rotation. Applied research to solve practical problems has been inadequate. There is an obvious need for greater emphasis on applied research in key problem areas to develop improved production technologies. Although there are a limited number of scientists at INRAT capable of designing projects, conducting research, interpreting data and formulating recommendations suitable for improving agricultural production, the staff of INRAT is too small to carry out the range of research needed on critical problems of Tunisian agriculture including deterioration of soil resources due to serious wind and water erosion, denuded pasture and range, low crop yields, inadequate forage, unproductive livestock, capitalizing on natural advantages for producing early fruits and vegetables, and efficient use of limited irrigation water supplies. The number of Tunisian scientists at INRAT who have been trained to the M.D level is less than 10. Foreign experts of INRAT feel that with the exception of the plant genetics and plant pathology units, research in most fields will deteriorate upon the departure of expatriate staff unless more Tunisians are trained to a higher level.

In the ring (on the chart) just inside INRAT are shown eight institutes (or schools). Like INAT and INRAT, these are all in the INFC and are recently established secondary centers of college level teaching and applied research at locations distributed through Tunisia. These represent centers of areas with special problems that require adaptive research, both on-station and off-station, by competent staff operating in the area. It is envisioned that staff at these institutes will not only do adaptive research but will also function as subject matter specialists for extension, working with the extension personnel of the governocrats and delegations to reach small farmers and implement new technologies. Staffing these eight "area centers" will provide Tunisia with a strong applied research capability as active programs are established. Subject matter specialists at these centers will serve as primary sources of information and backup personnel for field extension staff.

The Institute for Field Crops at Le Kef is to serve the high plateau area of north-central Tunisia. It received its initial budgetary allocation of TD 60,000 in January, 1977, moving to TD 120,000 in 1978. It is under the direction of a former USAID participant who obtained his Ph.D in wheat breeding at Oregon State University. The first class of 27 started in 1977 and the second of 22 in 1978. There are only two permanent staff with three more to be added next year. Temporary and part-time staff are involved in teaching. The Institute's administrative functioning and facilities are adequate and sufficient for the students and staff planned. The institute has a farm of 1,500 hectares six kms from Le Kef. Plans include giving students practical training and field experience as well as

developing an on-station and off-station applied research program addressing problems of the area and serving as a primary information and backup for field extension workers.

The Arid Lands Institute at Medenine is to serve the large, arid southlands of Tunisia. As at Le Kef, its first class was admitted in 1977 (19 students). The second class in 1978 was 12. The staff of 8 Tunisians and 6 foreign teachers is headed by a USAID participant with a Ph.D in Animal Science. Institute facilities formerly served as an INRAT station. The first focus of research has been on pasture and range but oasis agriculture is being added. All teachers are involved in research studies suggested by the Ministry of Directions. This is widely distributed, some on government and some on private land. Staff are working with Extension personnel in the governorates to the extent possible to get information and technology transferred. They have field days and programs for farmers.

The Horticulture Institute at Chott Mariem is to serve the vegetable and fruit producing area of the Sahel. The facilities at Chott Mariem were built with AID funding, and designed as a secondary agricultural school under contract with Texas A&M. They are well adapted to this higher level need as Tunisia's agriculture advances. Irrigation became available in 1969 and the Institute was established in 1970. It began college level training in 1976 with both two-year and four-year programs. In 1978, it had a total of 220 students. Research is in progress with tomatoes, peppers, strawberries, melons, cucumbers, potatoes, and salad crops. The staff of 42 is about 1/4 Tunisian and 3/4 French, eight qualified as specialists and the rest generalists. Within the limits of present staff capability they work with Extension in the governorates and hold extension-type meetings with farmers.

The Food Technology Institute of Tunis is discerned as essential to handling and processing vegetables and fruits so as to achieve and maintain quality. Small temporary quarters have been remodeled for training facilities. The first class of 15 students started January 1, 1977. Lack of staff and facilities has limited the present program to two years of courses. Demand for students is high. There is little staff time and capability for research. Of a total staff of 23 most are technicians. Four are full-time and qualified for conducting research.

In Tunisia, the Forestry Institute has a major pasture and range component. Thus, it relates to the critical pasture and range problems of the semi-arid areas. Obviously the Livestock Institute relates to the livestock problems of Central and Southern Regions. The Rural Engineering Institute has responsibilities in both irrigation and farm machinery, also relating to important problems of small farmers in the semi-arid region. These three and the other five institutes are clearly a well integrated group of institutions that relate effectively to each other and to INRAT and INRAT.

The Division of Agricultural Production (DAP) in the Ministry of Agriculture is parallel in status with the DRFC. DAP consists of an office of crop production and an office of livestock production. It is responsible for the field extension program through the governorate delegations, and

local sectors to the farmers. The staff lacks both numbers and training for being effective in its mission. Participants from DAP will be considered in this project for training for subject matter specialists and leadership roles.

USAID experience in Tunisia clearly has demonstrated that the most effective way to develop and insure a continuing transfer of agricultural technology is through higher level training of agricultural technical and managerial staff, particularly in those areas where the existing staff is weak or non-existent, and use of well-qualified consultants. The combination of participant training, consultant services, and provision of selected scientific/professional references is a set of actions which should result in the transfer, or local development, of improved agricultural technology on a continuing basis. The project will also encourage a continuing linkage between US and Tunisian institutions.

The focus of training, services, and commodities toward the functional areas of semi-arid land technology, and processing and marketing of agricultural products, addresses areas and problems of increasing significance to Tunisia's efforts to raise agricultural production and improve rural income. The semi-arid area of Tunisia, while populated primarily by smaller farmers and families with lower incomes, has substantial growth potential in animal production, selected cereal production, and tree and vegetable crop production under small scale irrigation. However, the nature of soil and water resources, as well as geographic and climatic conditions, dictate judicious use of production practices and careful attention to soil and water conservation measures if output is to be maintained over the long term. Proper range management, forage production, and animal husbandry under semi-arid conditions is essential for increasing meat and milk production. Similarly, the development of small scale irrigation systems where water is available, vegetable and small fruit production under plastic, use of saline and alkaline soils and water, mixed crop production, or some combination of any of these, will assist in raising production levels and in improving rural incomes. Successful application of production technology and technological innovations developed by adaptive research under arid land conditions and with consideration for least-cost alternatives, will extend production capacity in an important geographic area of Tunisia. In all cases, the type of training, focus of consultant services, and kinds of commodities, should be selected on basis of recognized need and replicability by target group, and host country institutional capability for diffusion of technological innovations.

The provision that participants for Ph.D degrees will do their thesis research in Tunisia as a part of their institution's program makes this project more than a training project. It is also an agricultural research development project for the several institutions involved. The 30 theses developed on significant problems of the semi-arid and arid regions will provide badly needed information on the technologies that will fit the situation and benefit small farmers. This is vital to effective technology transfer. When the Ph.D degrees are completed, the participants will already be involved in the ongoing program of their institutions.

The proposed INAT Faculty Development Project, under which 6 participants will receive Ph.D training in agricultural subjects, can easily be administered within the design of this project. Such collaboration will be considered in planned project implementation.

D. Administrative Feasibility

1. Recipients and AID's Administrative Arrangements

(a) Recipients. The Director de la Recherche et de la Formation des Cadres (DRFC) will be the Tunisian organization through which the project will be implemented. The DRFC will be responsible for developing liaison arrangements between the Tunisian institutions to be assisted and the Mid-America International Agricultural Consortium (MIAC) which will have management and supervisory responsibility for implementing the project in U.S. universities, including supervision of thesis research in Tunisia.

The DRFC will coordinate all project activities related to selection of Tunisian trainees and will make liaison with MIAC having the coordinating and supervisory responsibilities within the U.S. It will be DRFC's responsibility in cooperation with the Tunisian agriculture teaching and research institution to coordinate the return of the trainees to play roles of their assigned institutes as full members of the staff, providing for at least half of their time to be devoted to thesis research for approximately two years. In close cooperation with DRFC it will be the responsibility of MIAC to supervise the thesis research in Tunisia.

The DRFC is responsible for all agricultural research, training, and educational needs. This includes Agricultural schools, research stations, and training centers for Ministry employees as well as non-employees seeking careers in agriculture. The activities proposed in this project are compatible with the role of DRFC, and have been endorsed by both lower and higher levels within the Ministry.

The personnel and staff of DRFC and its link institutions, i.e., INAT, INRAT, ESGC du Kef, etc., perceive in this project benefits of increased credibility; a more solid foundation for decisions and recommendations of a technical nature; and individually, expanded responsibilities, promotional opportunities, additional exposure, etc.

The DRFC and its link institutions are adequately staffed and equipped to utilize and build upon project activities. These activities will be used to complement and reinforce regular resource flows, and do not imply excessive or unmanageable resource expansion or follow-on expense. There are no known difficulties in terms of salary structure, working conditions, etc., which impede obtaining qualified and competent personnel. Current budget allocations and development plans indicate that the DRFC is both politically and bureaucratically important to the Ministry and the GOT.

The GOT through the Ministry of Agriculture, and in particular the DRFC and its link institutions, has the institutional structure and a talent base capable of sustaining project inputs and diffusing such to a

wider audience of both initial and ultimate beneficiaries. Linkages exist for involvement of both target groups. This project seeks to improve Tunisia's agricultural scientific manpower competence and institutions to more effectively serve the needs of small farmers in the semi-arid and arid regions of Tunisia.

MIAC is a legal entity. It is a registered corporation and includes four U.S. Land Grant Universities (University of Nebraska, Iowa State University, Kansas State University and University of Missouri). MIAC has established relations with AID/Washington and the Title XII Board (BIFAD). When resources appropriate to the needs of the trainees cannot be met by one of the member universities, MIAC will seek the cooperation and participation of universities outside the Consortium.

(b) AID. The project is designed to utilize a land grant university Consortium. The Consortium, working through and in collaboration with the DSFC, will be responsible for the provision of all project inputs - to include training of participants, both long and short-term; and arranging for consultant services and commodity procurement. The Consortium within the scope of the project focus, and in agreement with host institutions, will help determine training needs and types and amounts of commodities and consultant services.

No unusual role or major staff commitment by AID is planned in the administration of this project. Normal monitoring and evaluation of project progress will be retained by USAID, as will all other authority usually applicable to intermediary agent contracts.

E. Environmental Analysis

The Initial Environmental Examination (IEE) recommending a negative determination, was included in the approved PRP, as amended. It is attached as Annex B. As required by Section 611(a) and (b) of the Federal Assistance Act (FAA), information included in Part II B and Part III A and B indicates that adequate financial and technical planning for this project has been completed, and that the estimate of cost to the U.S. Government is reasonably firm. Section 611(b) of FAA is not applicable.

4. FINANCIAL PLAN

The following table summarizes the financial plan for the four year fiscal period 1978 through 1981. The U.S. contribution will be a grant of \$4,900,000 to provide participant training, consultancy services, selected commodities, and contractual support of the U.S. University Implementing Agent. Subject to the availability of funds, AID will finance the project each fiscal year on an incremental funding basis in accordance with the financial plan indicated below. For participant training, the financial schedule has been constructed so that incremental funding in appropriate fiscal year covers the full cost of the planned training period.

An amount of \$2,914,000 has been projected for both long and short-term participant training costs. Long-term participant training costs include tuition and board, language training at a U.S. University, material and equipment for Ph.D thesis research, required field work, and procurement of a nucleus library for each returning participant. Approximately 45 MM of short-term training will be provided to study specific problems, acquire technical skills, attend dryland farming conferences, seminars, etc.

For procurement of commodities, \$200,000 has been budgeted. These commodities will be used in connection with the strengthening of an integrated national agricultural library system and the development of an operational soil testing laboratory. Professional and technical references, reference aids, subscriptions, and other equipment will be provided for the national library. Soil-testing and other related research equipment will be provided for the soil-testing laboratory.

Although most of the short-term institutional consulting needs will be covered by visiting faculty advisors and thesis supervisors in Tunisia, \$100,000 is provided for consulting needs that they cannot meet. Two consulting requirements already identified are for library development and assistance in clarifying the role, staff needs, and priority facilities of the newly created Food Technology Institute. Other consulting needs are the specific commodity requirements of the library and soil-testing laboratory which will be determined by a special committee within the Ministry of Agriculture.

An amount of \$1,636,000 is provided for the University Consortium to carry out the project. This amount is projected to cover servicing costs over the life of project and it includes financing of a U.S.-based Coordinating Director; a Tunisia-based Coordinating Supervisor, consultation of faculty advisors; graduate student advisors; and periodic evaluation costs. Funds budgeted for the U.S. Coordinating Director include salary of the Director and secretary, travel, supplies, equipment, and operational expenses. The budget for the Tunisia-based Coordinating supervisor includes salary, international transportation, per diem, movement of household effects, housing, and other support costs. Funds budgeted for the faculty advisors are primarily for travel associated with thesis supervision and consultancy. Funds are also provided to assist in training of selected U.S. graduate students who will assist faculty advisors as well as conduct research in Tunisia. Funding provisions are also made for periodic evaluation. U.S. financing does not include operating cost of any GOT entity involved in the project or recurring costs - except for subscription of scientific, technical, or professional literature which can be easily absorbed by the GOT.

The GOT contribution of some \$1,598,000 (dinar equivalency) will be used to provide participant international travel, salaries of participants and GOT counterparts, in-country transportation, office facilities and supplies and other in-country project related services and support.

The total cost of the project is \$1,498,000, of which \$1,905,000 will be provided by AID grant funds, and the dollar equivalent of \$1,598,000 (approximately 25% of total project costs) will be provided by the GCT. The GCT Trust Fund Contribution to this U.S. Assistance Project is estimated as follows: FY 1978, \$51,000; FY 1979, \$80,000; FY 1980, \$94,000; and FY 1981, \$70,000. Proposed AID fiscal year appropriations are: FY 1978, \$820,000; FY 1979, \$1,416,000; FY 1980, \$1,382,000; and FY 1981, \$1,282,000.

FINANCIAL PLAN
(OOO U.S. Dollars)

	FY 1978	FY 1979	FY 1980	FY 1981	TOTAL
<u>U.S. Component</u>	<u>820</u>	<u>1,416</u>	<u>1,382</u>	<u>1,282</u>	<u>4,900</u>
<u>Participants</u>	<u>765</u>	<u>1,180</u>	<u>949</u>	<u>20</u>	<u>2,914</u>
Long-term training	765	1,140	909	-	
Short-term	..	40	40	20	
<u>Commodities</u>	<u>-</u>	<u>50</u>	<u>150</u>	<u>-</u>	<u>200</u>
Library development	-	50	50	-	
Soil-testing equipment	-	-	100	-	
<u>Consultants</u>	<u>-</u>	<u>20</u>	<u>20</u>	<u>60</u>	<u>100</u>
<u>Consortium Support</u>	<u>55</u>	<u>166</u>	<u>238</u>	<u>1,177</u>	<u>1,636</u>
Coordinating Director - U.S.	55	55	55	133	
Coordinating Supervisor - Tunis	-	80	100	270	
Faculty advisors	-	15	40	425	
U.S. graduate assistants	-	16	43	349	
Evaluation	-	-	25	25	50
<u>GOT Component</u>	<u>230</u>	<u>521</u>	<u>567</u>	<u>280</u>	<u>1,598</u>
1. Trust Fund	51	80	94	70	
2. Budget Support *	179	441	473	210	
TOTAL PROJECT	1,050	1,937	1,949	1,562	6,498

* Does not include GOT capital budget and other in-kind contributions to the project. It does include that portion of DERC salaries and other operating costs related to this project.

INPUT SCHEDULE

	FY1978	FY1979	FY1980	FY1981	FY1982	FY1983	FY1984
<u>Ph.D Participants (#)</u>	7	13	10	-	-	-	-
Cumulative	7	20	30	30	23	10	
<u>M.A. Participants (#)</u>	10	12	10	-	-	-	-
Cumulative	10	22	22	10	-	-	-
<u>Graduate Assistants (#)</u>	2	3	3	-	-	-	-
Cumulative	2	5	8	8	6	3	
Short-term participants (MM)	-	20	20	10	-	-	-
<u>Director U.S. (MM)</u>	-	12	12	12	12	12	
<u>Supervisor - Tunis (MM)</u>	-	12	12	12	12	12	
Faculty Advisors (MM)	-	-	7	20	23	10	
<u>Consultants (MM)</u>	-	4	4	4	4	4	
<u>Commodities (OCO U.S.\$)</u>	-	50	150	-	-	-	

5. IMPLEMENTATION ARRANGEMENTS

Prior Action

1. Project Paper approved.
2. Project Agreement, MIAC contract, and initial obligating documents signed.

Upon completion of above prior action, MIAC in collaboration with DRFC will implement and carry out project action along the following tentative schedule.

September 1978 - December 1978

1. University Director-Coordinator appointed.
2. First participants depart for English and degree training.

January 1979 - December 1979

1. U.S. University thesis supervisors appointed.
2. Participants depart for English and degree training (June or October).
3. Library, soil testing laboratory, food technology institute, two MIAC agriculture administrator consultants on site.
4. Project commodities ordered for thesis research, library and soil testing laboratory.
5. Short-term participants depart for training (optional).
6. Appoint U.S. graduate assistants (3).

January 1980 - December 1980

1. Participants depart for intensive English and degree training.
2. Short-term participants depart.
3. Library, soil testing, food technology and two MIAC agricultural administrator consultants on site.
4. Project commodities for thesis research ordered.
5. U.S. University thesis supervisor in Tunisia on site.
6. U.S. Graduate assistants (5) appointed.
7. Refine project and work plan.
8. Annual review of project.

January 1981 - December 1981

1. Short-term participants depart for training (optional).
2. Consultants on site (optional).
3. U.S. University faculty supervisors on site.
4. Second returning participants and U.S. graduate assistants on site.
5. Project commodities for thesis research ordered.
6. U.S. University faculty supervisors on site.
7. Consultants on site (optional).
8. Refine project and work plan.
9. Annual review of project.

January 1982 - December 1982

1. Short-term participants depart (optional).
2. U.S. faculty supervisors arrive.
3. Annual Review.
4. Consultants on site.
5. Plan for project evaluation.

January 1983 - December 1983

1. U.S. faculty supervisors on site.
2. Annual Review.
3. Implement Project Evaluation.

6. EVALUATION ARRANGEMENTS

An evaluation schedule is included in Section 5, above, Implementation Arrangements. Periodic reviews will be conducted as an element of the monitoring process, with provisions for modification of performance indicators (see Annex A, Logical Framework Matrix) - including financial plans. Although the monitoring process is continuous, structured reviews are planned each year beginning after the initial two years of project execution. A full project evaluation will take place during the final year of project life.

All reviews and evaluations will be jointly carried out by USAID, MEAC, and the GOT, represented by the DRFC.

The evaluation program will include: (a) Assessment of progress toward attainment of the project objectives; (b) Identification of problems or constraints which may inhibit such attainment; (c) Recommendations as to how problems or constraints should be addressed; and (d) Evaluation, to the degree feasible, of the overall development impact of the project. Attention will be given to the success in selecting participants and their academic progress and the functioning of advising, equipment procurement, and progress of thesis research. Activities in short-term training and use of consultants to achieve the objectives of the program will also be reviewed.

7. CONDITIONS, COVENANTS, AND NEGOTIATING STATUS

All project negotiations have been concluded. Proposed conditions and covenants, if any, are included in a draft Project Agreement which is attached as Annex C.

ANNEX A

LOGICAL FRAMEWORK MATRIX

TITLE: Agricultural Technology Transfer

NUMBER: 664-0304

LIFE OF PROJECT: From FY 1978 to FY 1981

TOTAL OF US FUNDING: \$4,900,000

DATE PREPARED: July 1978

SECTOR GOAL

To increase agricultural production and rural incomes through more efficient management of production systems and utilization of agricultural resources.

MEASURES OF GOAL ACHIEVEMENT

1. Agricultural production and income levels of small and medium size farmers in arid and semi-arid zones at the end of the five year plan commencing after completion of the project, exceed that of current plan period (1977-1981) after adjustment for external factors, such as weather.

VERIFICATION

1. Official statistics and analyses and evaluations.

ASSUMPTIONS

1. That appropriate GOF policies and programs, combined with physical inputs and capable administration and management will increase output and income in the agriculture sector.

2. That skilled and knowledge derived through academic training can be transformed into improved management and resource allocation decisions.

3. That the GOF will continue to support the development of a well trained, skilled, and technically knowledgeable agriculture cadre.

4. That existing and planned physical infrastructure investments combined with improved management and use of agricultural resources will increase productivity of the agriculture sector.

PROJECT PURPOSE

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.

END OF PROJECT STATUS

1. Completion of long and short-term training of selected agricultural cadre.
2. Provision of consultant services accomplished.
3. Appropriate technological innovations being applied in the delivery of management, educational, research, training, extension and operational services and support to the agricultural sector.
4. Linkages established for the continued availability of current agricultural technology.
5. Soil-testing laboratory established, equipped, staffed and operational.
6. All project commodities delivered.

VERIFICATION

1. Official documents of the USAID and the GOT.
2. Interviews; site visits; analyses; and evaluations.

ASSUMPTIONS

1. That sufficient numbers of personnel are trained and subsequently assigned to strategic positions in the agricultural system.
2. That the necessary consultant services can be acquired and that the advice and counsel is of such logic and evident priority that their recommendations are favorably received by Tunisian policy-makers.
3. That the agriculture cadre will have the authority and policy endorsement as well as the knowledge and motivation to introduce technological innovations into the managerial, educational, research, training, extension and operational services and support provided to the agricultural sector.

OUTPUTS

1. Trained personnel to the Ph.D and M.S. level in selected branches of agriculture.
2. Trained personnel in specific skills, technologies, and research methodology.
3. Professional and technical studies, analyses, and reports.
4. A library of professional and technical references, and reference aids.
5. A soil testing laboratory.

MAGNITUDE OF OUTPUTS

1. Approximately 30 participants at the Ph.D level.
2. Approximately 32 participants at the M.S. level.
3. Approximately 40 MPH of short-term training.
4. An equipped, staffed, and operational soil-testing laboratory.
5. An improved and equipped library with trained personnel.

VERIFICATION

1. USAID records; official documents; and site visits.

ASSUMPTIONS

Sufficient inputs are provided in a timely manner.

INPUTS

a. USAID

1. Long-term training
2. Short-term training
3. Consultants
4. Commodities
5. U.S. University contractor support

b. GOT

1. Participants and salaries
2. Facilities and logistic support
3. Commodities
4. Project Trust Fund contribution

IMPLEMENTATION TARGET

a. USAID

- | | |
|---|---------------|
| 1. 2160 MM of long-term training | - \$2,814,000 |
| 2. 40 MM of short-term training | - \$ 100,000 |
| 3. Consultant services | - \$ 100,000 |
| 4. Professional and technical references | - \$ 100,000 |
| 5. Soil-testing equipment & commodities | - \$ 100,000 |
| 6. U.S. University contractor support
and evaluation | - \$1,685,000 |

b. GOT

1. All participants, including salaries, for long and short term training.
2. Facilities, transportation translation services, administrative support, etc..
3. Equipment and supplies as required for 2, above
4. Participant travel and participant pre-departure costs.

ANNEX E

INITIAL ENVIRONMENTAL EXAMINATION

NARRATIVE DISCUSSION

1. Project Location: Tunis, Tunisia
2. Project Title: Agricultural Technology Transfer
3. Funding (FY and Amount): FY 1978 - 1981; \$4,900,000
4. Life of Project: FY 1978 through FY 1984
5. IEE Prepared by: Ernest F. Gibson, Agricultural Economist, Food and Agricultural Div. USAID/Tunis July 1978
6. Action Recommended: Mission recommends a Negative Determination
7. Mission Director's concurrence:

_____, Director

8. Discussion:

This is a training and skills development project which will have no impact on the environment. The project is designed to develop a highly trained, well-skilled agriculture cadre to efficiently deliver agricultural services and support to Tunisia's rural population. Its outputs will consist of long-term academic trained personnel and short-term non-academic trained technicians in skills development and agricultural technology. A soil testing laboratory will be established under this project along with improved professional and technical library resources, and expert consultant services will be provided as requested for specific analyses, studies, and recommendations.

As the general nature of this project will not produce environmental effects, and for the reasons described above and in the attached IEE form, the Mission recommends AID/W action as indicated in item 6, Negative Determination.

IMPACT IDENTIFICATION AND EVALUATION FORM

Impact
Identification &
Evaluation 1)

Impact Areas and Sub-areas

A. LAND USE

- | | |
|--|--------------------------|
| 1. Changing the character of the land through: | |
| a. Increasing the population | <u> N </u> |
| b. Extracting natural resources | <u> N </u> |
| c. Land Clearing | <u> N </u> |
| d. Changing soil character | <u> N </u> |
| 2. Altering natural defenses | <u> N </u> |
| 3. Foreclosing important uses | <u> N </u> |
| 4. Jeopardizing man or his works | <u> N </u> |
| 5. Other factors | |
| <u> NONE </u> | |
| _____ | |
| _____ | |

B. WATER QUALITY

- | | |
|-----------------------------------|--------------------------|
| 1. Physical state of water | <u> H </u> |
| 2. Chemical and biological states | <u> H </u> |
| 3. Ecological balance | <u> H </u> |
| 4. Other factors | |
| <u> NONE </u> | |
| _____ | |

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

IMPACT IDENTIFICATION AND EVALUATION FORM (Page 2)

C. ATMOSPHERIC

1. Air additives

N

2. Air Pollution

N

3. Noise Pollution

N

4. Other factors

NONE

D. NATURAL RESOURCES

1. Diversion, altered use of water

N

2. Irreversible, inefficient commitments

N

3. Other factors

NONE

E. CULTURAL

1. Altering physical symbols

N

2. Dilution of cultural traditions

N

3. Other factors

NONE

F. SOCIO-ECONOMIC

1. Changes in economic/employment patterns

N

2. Changes in population

N

3. Changes in cultural patterns

N

4. Other factors

NONE

IMPACT IDENTIFICATION AND EVALUATION FORM (Page 3)

G. HEALTH

- | | |
|---|---------------------------------|
| 1. Changing a natural environment | <u> N </u> |
| 2. Eliminating an ecosystem element | <u> N </u> |
| 3. Other factors | <u> </u> |
| <u> NONE </u> | <u> </u> |
| <u> </u> | <u> </u> |

H. GENERAL

- | | |
|---|---------------------------------|
| 1. International impacts | <u> N </u> |
| 2. Controversial impacts | <u> N </u> |
| 3. Other factors | <u> </u> |
| <u> NONE </u> | <u> </u> |
| <u> </u> | <u> </u> |

I. OTHER POSSIBLE IMPACTS (not listed above)

<u> </u>	<u> </u>
<u> </u>	<u> </u>
<u> </u>	<u> </u>

Prepared by: Ernest F. Gibson Date: July 1978

Project Location: Tunis, Tunisia

Project Title: Agricultural Technology Transfer

ANNEX C

A.I.D. Grant No.
A.I.D. Project Number 664-0304

GRANT AGREEMENT

DATED _____

BETWEEN

The Republic of Tunisia (Cooperating Country)

AND

The United States of America, acting through the Agency for International Development ("A.I.D.")

ARTICLE 1: The Agreement

The purpose of this Agreement is to set out the understandings of the parties named above ("Parties") with respect to the undertaking by the Cooperating Country of the Project described below, and the financing thereof by the Parties.

ARTICLE 2: The Project

SECTION 2.1. Definition of Project. The Project, which is further described in Annex 1, will consist of a Participant Training program to assist the Government of Tunisia in development of an agricultural cadre to identify, select, and manage the future agricultural technology of the country. Annex 1, attached, contains the detailed project description cited in this Section and identifies those elements of the Project for which Grant financing will be employed. Within the limits of the above definition of the Project, elements of the description contained in Annex 1 may be changed by written agreement of the authorized representatives of the Parties named in Section 7.2, without formal amendment of this Agreement.

ARTICLE 3: Financing

SECTION 3.1. The Grant. To assist the Cooperating Country to meet the costs of carrying out the Project, A.I.D. pursuant to the Foreign Assistance Act of 1961, as amended, agrees to allot four million nine hundred United States (\$U.S.) dollars (\$ 4,900,000) in grant funds for technical assistance over the life of the project, of which eight hundred twenty thousand dollars (\$ 820,000) will be released in fiscal year 1978. Subsequent releases will be made on a yearly bases subject to the availability of funds. The Grant may be used to finance foreign exchange costs, as defined in Section 5.1. and services required for the Project.

SECTION 3.2. Cooperating Country Resources for the Project

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

(b) The resources provided by the Cooperating Country over the life of the Project are estimated to be approximately the equivalent of U.S. \$ 1,598,000 including costs borne on an "in kind" basis, but not less than 25% of the total cost of the Project.

SECTION 3.3. Project Assistance Completion Date.

(a) The "Project Assistance Completion Date" (PACD), which is August 31, 1985, or such other date as the Parties may agree to in writing, is the date by which the Parties estimate that all services financed under the Grant will have been performed for the Project as contemplated in this Agreement.

(b) Except as A.I.D. may otherwise agree in writing, A.I.D. will not issue or approve documentation which would authorize disbursement of the Grant for services performed subsequent to the PACD or for goods furnished for the Project, as contemplated in this Agreement, subsequent to the PACD.

(c) Requests for disbursement, accompanied by necessary supporting documentation prescribed in Project Implementation Letters, are to be received by A.I.D. or any bank described in Section 6.1. no later than nine (9) months following the PACD, or such other period as A.I.D. agrees to in writing. After such period, A.I.D. by giving notice in writing to the cooperating country, may at any time or times reduce the amount of the Grant by all or any part thereof for which requests for disbursement, accompanied by necessary supporting documentation prescribed in Project Implementation Letters, were not received before the expiration of said period.

ARTICLE 4: Special Covenants

SECTION 4.1. Project Evaluation. The Parties agree to establish an evaluation program as part of the Project. Except as the Parties otherwise agree in writing, the program will include, during the implementation of the Project and at periodic points thereafter: (a) evaluation of progress toward attainment of the objectives of the Project; (b) identification and evaluation of problem areas or constraints which may inhibit such attainment; (c) recommendations as to how such problems or constraints should be addressed; and (d) evaluation, to the degree feasible, of the overall development impact of the Project.

ARTICLE 5: Procurement Source

SECTION 5.1. Foreign Exchange Costs. Grant funds disbursed pursuant to Section 6.1. will be used exclusively to finance the costs of services required for the Project having their source and origin in the United States (Code COO) of the A.I.D. Geographic Code Book as in effect at the time orders are placed or contracts entered into for such services, except as A.I.D. may otherwise agree in writing.

ARTICLE 6: Disbursements

SECTION 6.1. Disbursement for Foreign Exchange Costs

After the execution of this Agreement, the Cooperating Country may obtain disbursements of funds for the Foreign Exchange Costs of services required for the Project in accordance with the terms of this Agreement by submitting to A.I.D., with necessary supporting documentation as prescribed in Project Implementation Letters, requests for A.I.D. to procure services on Cooperating Country's behalf for the Project.

SECTION 6.2. Other Forms of Disbursement

Disbursements of the Grant may also be made through such other means as the Parties may agree to in writing.

SECTION 6.3. Date of Disbursement

Disbursements of the Assistance by A.I.D. will be deemed to occur on the date on which A.I.D. makes a disbursement to the Cooperating Country or its designee, or to a bank, contractor or supplier pursuant to a Letter of Commitment, contract, or purchase order.

ARTICLE 7: Miscellaneous

SECTION 7.1. Communications

Any notice, request, document or other communication submitted by either Party to the other under this Agreement will be in writing or by telegram or cable, and will be deemed duly given or sent when delivered to such party at the following address:

To the Cooperating Country:

Ministere des Affaires Etrangeres
Direction de la Cooperation Internationale
Avenue Mohamed V
Tunis, Tunisia

To A.I.D.:

Agency for International Development
c/o American Embassy
144 Avenue de la Liberte
Tunis, Tunisia

Alternate Address for cables: Director, USAID
AmEmbassy Tunis

All such communications will be in English or French. Other addresses may be substituted for the above upon the giving of notice.

SECTION 7.2. Representatives

For all purposes relevant to this Agreement, the Cooperating Country will be represented by the individual holding or acting in the office of Minister of Foreign Affairs and A.I.D. will be represented by the individual holding or acting in the Office of Director, USAID to Tunisia, each of whom, by written notice, may designate additional representatives for all purposes other than exercising the power under Section 2.1. to revise elements of the detailed description in Annex 1. The names of the representatives of the Cooperating Country, with specimen signatures, will be provided to A.I.D., which may accept as duly authorized any instrument signed by such representatives in implementation of this Agreement, until receipt of written notice of revocation of their authority.

SECTION 7.3. Standard Provisions Annex

A "Grant Standard Provisions Annex" (Annex 2) is attached to and forms part of this Agreement.

SECTION 7.4 Language of Agreement

This Agreement, its annexes and Project Implementation Letters are prepared in both English and French. In the event of ambiguity or conflict between the two versions, the English Language version will control.

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

Republic of Tunisia

By: Mohamed Fitouri,
Ministry of Foreign Affairs

United States of America

By: Herman S. Davis Jr.,
Director, USAID

By: Edward W. Mulcahy,
Ambassador

GRANT AGREEMENT

ANNEX 1

THE PROJECT

The project will provide, through participant training of 62 M.S. and Ph.D students, a major input of scientific agricultural leadership where trained personnel are lacking, to greatly increase Tunisia's ability to train Tunisians to the M.S. level. Directly and indirectly this will strengthen staffing of both the national centers of agricultural teaching and research and the regional institutes that have been established recently to permit effective addressing of problems of small farms throughout the semi-arid regions of the nation through an effective adaptive research and extension program. Both the institutional capability and the information (technology) base for sound technology transfer in the Central and Southern Regions are lacking. Changes in village and grazing systems are essential to arrest the rapid deterioration of the land resources through these regions which threatens the existence of multitudes of small owner-operated farms and to begin to realize the much higher production potential for cereals and meat, two commodities now being imported. Some participants will be trained in horticulture and food technology to provide the science base and technology to use limited irrigation resources to capitalize on climatic advantages in early vegetable and fruit production and to improve grading, packaging, processing, and marketing of these products both domestically and for export. It is vital to develop and provide to small farmers alternative technologies tested in the local areas that will permit a shift from existing practices that are causing ever more rapid deterioration of land by wind and water erosion.

Short-term training, consultants, faculty thesis research advisers and commodities including library materials are provided in support of the participant training and program efforts of the ten agricultural institutions involved.

The project funding is expected to be carried out over a four-year period beginning in FY 1978 and will consist of an AID contract with the MIAC Corporation (The Mid-America International Agricultural Consortium of Iowa State, Kansas State, Missouri and Nebraska Universities) totaling approximately \$ 4,900,000.

1. U.S. Contribution

a. Contract

- | | |
|---|---------|
| (1) Long-term training | 1464 EM |
| (2) Short-term training | 40 EM |
| (3) U.S. university thesis research supervisor and faculty advisors of thesis research in Tunisia | 100 EM |

GRANT AGREEMENT

ANNEX 1
THE PROJECT

Page 2

- | | |
|---|-------|
| (4) Consultants | 20 FM |
| (5) Commodities to support thesis research, including strengthening library and soil testing capabilities | |
| (6) Administrative and coordinating support | |
| (7) Support for periodic project evaluation | |

2. GOT Contribution

The GOT contribution will consist of direct budget support of salary of GOT counterparts, in-country transportation, office, workshop, laboratory, and conference facilities, supplies and services. The GOT will also provide through Trust Account Funds to be used for participant international travel, medical examinations, and other participant processing, and in-country transportation for the full time U.S. thesis research supervisor, U.S. thesis advisors, and U.S. graduate student assistants.

3. Detailed Description

(1) The proposed project will provide 62 trained scientists to be distributed among ten Tunisian agricultural institutions within DRFC (Division of Research and Formation of Cadres) as follows:

INAT (Institut National Agronomique de Tunisie)	- 7
INRAT (Institut National de la Recherche Agronomique de Tunisie)	. 12
Field Crops Institute at Le Kef	- 10
Arid Lands Institute at Medenine	- 7
Horticulture Institute at Chott Meriem	. 10
Food Technology Institute at Tunis	. 3
Livestock Production Institute at Mateur	. 5
Institute of Economics and Rural Development at Moghrane	- 2
Institute of Forestry and Pastures at Tabarka Extension	- 4
Librarians	- 2

GRANT AGREEMENT

ANNEX 1
THE PROJECT

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The 62 long-term advanced degree participants will be placed at qualified universities agreed upon with DWF within and outside the MIAC consortium with MIAC handling the contract funding requirements.

The 30 participants for Ph.D degrees will carry out their thesis research in Tunisia as part of the research program and on the payroll of their institutions but under the supervision of U.S. university advisors. An important product of the project will be the documented research results in theses on 30 Tunisian problems selected to provide the needed information base for small farm agriculture in the semi-arid regions.

An additional 8 theses prepared by U.S. graduate student assistants doing their Ph.D thesis research in Tunisia in cooperation with Tunisian Ph.D students on similar problems will add significantly. Since supervision, needed research equipment, a soil testing laboratory, and library resources required in thesis research will be provided under the contract, these 38 research studies will represent the establishment of on-going institutional research programs in place and operational when participants complete their degrees.

The 30 participants earning M.S. degrees in agriculture in the United States will fit into important teaching and research roles among the several institutions. The two participants getting degrees in Library Science will fit into the National Center for Agricultural Documentation and libraries of INAT and ENRAT. With the assistance of library consultants and commodity funding they will organize and improve the acquisition, documentation, retrieval and distribution functions of the agricultural library system in support of research, teaching and extension activities.

Since all long-term participants are to be integrated into the research program of their major advisor while they are in the U.S., each advisor's project will be provided \$1000 per year to cover costs of transportation, supplies and assistance needed to permit the advisor to spend the time needed with the participant to make this training experience as valuable as possible.

Consultants will be provided in problem areas such as soil testing and food technology and include administrators of agricultural programs in the MIAC institutions in order to build the institutional linkages that the GOT considers very important. The 30 M.S. faculty advisors in four trips each to Tunisia to supervise thesis research of Ph.D students will be a major consulting resource and also a stimulus to institutional linkage.

One full time U.S. university thesis research supervisor is provided for 4 1/2 years (4 in Tunisia) to provide continuous supervisory contact and coordinate participant preparation and placement, purchase of commodities, and effective functioning of faculty advisors on their short-term visits to Ph.D students. Short-term training will be provided selected participants in areas such as food technology and extension. In-country

GRANT AGREEMENT

APPENDIX 1
THE PROJECT

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Seminars and conferences will be set up, if deemed necessary, to complement other training to meet overall objectives.

(2) The project will be implemented through the DRFC (Division of Research and Formation of Cadres), Ministry of Agriculture. The institutes involved are administratively responsible to the Director of DRFC.

(3) Participants will be selected according to agreed-upon criteria by DRFC. Careful selection is to be practiced so admission requirements of Graduate Colleges in U.S. universities will be met. Detailed descriptions of the training desired and the anticipated role he will play will be developed for each participant. Their admission applications will be presented to universities that offer excellent training in the various subject matter areas. All participants will be sent to the U.S. for 10 weeks of intensive English training before initial graduate college admission. Ph.D participants will be integrated into research projects of their major advisor and function as graduate research assistants in order to build a background of experience before returning to undertake their thesis research.

Plans for thesis research will be developed by one advisor and Tunisian students in the U.S. in communication with DRFC in Tunisia. Equipment needs for thesis research will be identified and procurement initiated early enough so it will be on hand when Ph.D participants return to Tunisia to initiate their research. Funds for a small professional library will be provided each participant to give essential supplementation to the limited library resources in Tunisia. Four trips to Tunisia are planned for each advisor to supervise thesis research and conduct final oral exams.

The 8 M.S. graduate student assistants programmed to carry out their Ph.D thesis research in association with the Tunisian Ph.D students will help create the research environment and improve liaison with the on-site thesis research supervisor and advisors in the U.S.. The proposed library improvement elements of the program are important to the thesis research. The analytical capabilities of a soil testing laboratory will be essential to handling analyses from field research experiments. The DRFC will provide offices for the U.S. thesis research supervisor and 8 graduate student assistants in appropriate institutional locations to foster a desirable research and academic setting for the program.

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ANNEX 1
THE PROJECT

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4. Project Evaluation

Annual evaluations will be jointly conducted by MLIC, AID and the DFPC. Attention will be given to the success in selecting participants and their academic progress and the functioning of advising, equipment procurement, and progress of thesis research. Activities in short-term training and use of consultants to achieve the objectives of the program will also be reviewed.

In the last six months of the project an evaluation will be carried out by the same agencies.

Project Grant StandardProvisions Annex

Definitions: As used in this Annex, the "Agreement" refers to the Project Grant Agreement to which this Annex is attached and of which this Annex forms a part. Terms used in this Annex have the same meaning or reference as in the Agreement.

Article A: Project Implementation Letters

To assist Grantee in the implementation of the Project, A.I.D., from time to time, will issue Project Implementation Letters that will furnish additional information about matters stated in this Agreement. The parties may also use jointly agreed-upon Project Implementation Letters to confirm and record their mutual understanding on aspects of the implementation of this Agreement. Project Implementation Letters will not be used to amend the text of the Agreement, but can be used to record revisions or exceptions which are permitted by the Agreement, including the revision of elements of the amplified description of the Project in Annex 1.

Article B: General Covenants

SECTION B.1. Consultation. The Parties will cooperate to assure that the purpose of this Agreement will be accomplished. To this end, the Parties, at the request of either, will exchange views on the progress of the Project, the performance of obligations under this Agreement, the performance of any consultants, contractors, or suppliers engaged on the Project, and other matters relating to the Project.

SECTION B.2. Execution of Project. The Grantee will:

(a) carry out the Project or cause it to be carried out with due diligence and efficiency, in conformity with sound technical, financial, and management practices, and in conformity with those documents, plans, specifications, contracts, schedules or other arrangements, and with any modifications therein, approved by A.I.D. pursuant to this Agreement; and

(b) provide qualified and experienced management for, and train such staff as may be appropriate for the maintenance and operation of the Project, and, as applicable for continuing activities, cause the Project to be operated and maintained in such manner as to assure the continuing and successful achievement of the purposes of the Project.

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Article B: General Covenants (Continued)

SECTION B.3. Utilization of Goods and Services.

(a) Any resources financed under the Grant will, unless otherwise agreed in writing by A.I.D., be devoted to the Project until the completion of the Project, and thereafter will be used so as to further the objectives sought in carrying out the Project.

(b) Goods or services financed under the Grant, except as A.I.D. may otherwise agree in writing, will not be used to promote or assist a foreign aid project or activity associated with or financed by a country not included in Code 935 of the A.I.D. Geographic Code Book as in effect at the time of such use. [See HB 18.

SECTION B.4. Taxation.

(a) This Agreement and the Grant will be free from any taxation or fees imposed under laws in effect in the territory of the Grantee

(b) To the extent that (1) any contractor, including any consulting firm, any personnel of such contractor financed under the Grant, and any property or transaction relating to such contracts and (2) any commodity procurement transaction financed under the Grant, are not exempt from identifiable taxes, tariffs, duties or other levies imposed under laws in effect in the territory of the Grantee, the Grantee will, as and to the extent provided in and pursuant to Project Implementation Letters, pay or reimburse the same with funds other than those provided under the Grant.

SECTION B.5. Reports, Records, Inspections, Audit.

The Grantee will:

(a) furnish A.I.D. such information and reports relating to the Project and to this Agreement as A.I.D. may reasonably request;

(b) maintain or cause to be maintained, in accordance with generally accepted accounting principles and practices consistently applied, books and records relating to the Project and to this Agreement, adequate to show, without limitation, the receipt and use of goods and services acquired under the Grant. Such books and records will be audited regularly, in accordance with generally accepted auditing standards, and maintained for three years after the date of last disbursement by A.I.D.; such books and records will also be adequate to show the nature and extent of solicitations of prospective suppliers of goods and services acquired, the basis of award of contracts and orders, and the overall progress of the Project toward completion; and

Article B: General Covenants (Continued)

(c) afford authorized representatives of a Party the opportunity at all reasonable times to inspect the Project, the utilization of goods and services financed by such Party, and books, records, and other documents relating to the Project and the Grant.

SECTION B.6. Completeness of Information. The Grantee confirms:

(a) that the facts and circumstances of which it has informed A.I.D., or cause A.I.D. to be informed, in the course of reaching agreement with A.I.D. on the Grant, are accurate and complete, and include all facts and circumstances that might materially affect the Project and the discharge of responsibilities under this Agreement;

(b) that it will inform A.I.D. in timely fashion of any subsequent facts and circumstances that might materially affect, or that it is reasonable to believe might so affect, the Project or the discharge of responsibilities under this Agreement.

SECTION B.7. Other Payments. Grantee affirms that no payments have been or will be received by any official of the Grantee in connection with the procurement of goods or services financed under the Grant, except fees, taxes, or similar payments legally established in the country of the Grantee.

SECTION B.8. Information and Marking. The Grantee will give appropriate publicity to the Grant and the Project as a program to which the United States has contributed, identify the Project site, and mark goods financed by A.I.D., as described in Project Implementation Letters.

Article C: Procurement ProvisionsSECTION C.1. Special Rules.

(a) The source and origin of ocean and air shipping will be deemed to be the ocean vessel's or aircraft's country of registry at the time of shipment.

(b) Premiums for marine insurance placed in the territory of the Grantee will be deemed an eligible Foreign Exchange Cost, if otherwise eligible under Section C.7(a).

(c) Any motor vehicles financed under the Grant will be of United States manufacture, except as A.I.D. may otherwise agree in writing.

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Article C: Procurement Provisions (Continued)

(d) Transportation by air, financed under the Grant, of property or persons, will be on carriers holding United States certification, to the extent service by such carriers is available. Details of this requirement will be described in a Project Implementation Letter.

SECTION C.2. Eligibility Date. No goods or services may be financed under the Grant which are procured pursuant to orders or contracts firmly placed or entered into prior to the date of this Agreement, except as the Parties may otherwise agree in writing.

SECTION C.3. Plans, Specifications, and Contracts. In order for there to be mutual agreement on the following matters, and except as the Parties may otherwise agree in writing:

(a) The Grantee will furnish to A.I.D. upon preparation,

(1) any plans, specifications, procurement or construction schedules, contracts, or other documentation relating to goods or services to be financed under the Grant, including documentation relating to the prequalification and selection of contractors and to the solicitation of bids and proposals. Material modifications in such documentation will likewise be furnished A.I.D. on preparation;

(2) such documentation will also be furnished to A.I.D., upon preparation, relating to any goods or services, which, though not financed under the Grant, are deemed by A.I.D. to be of major importance to the Project. Aspects of the Project involving matters under this subsection (a)(2) will be identified in Project Implementation Letters;

(b) Documents related to the prequalification of contractors, and to the solicitation of bids or proposals for goods and services financed under the Grant will be approved by A.I.D. in writing prior to their issuance, and their terms will include United States standards and measurements;

(c) Contracts and contractors financed under the Grant for engineering and other professional services, for construction services, and for such other services, equipment or materials as may be specified in Project Implementation Letters, will be approved by A.I.D. in writing prior to execution of the contract. Material modifications in such contracts will also be approved in writing by A.I.D. prior to execution; and

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Article C: Procurement Provisions (Continued)

(d) Consulting firms used by the Grantee for the Project but not financed under the Grant, the scope of their services and such of their personnel assigned to the Project as A.I.D. may specify, and construction contractors used by the Grantee for the Project but not financed under the Grant, shall be acceptable to A.I.D.

SECTION C.4. Reasonable Price. No more than reasonable prices will be paid for any goods or services financed, in whole or in part, under the Grant. Such items will be procured on a fair and, to the maximum extent practicable, on a competitive basis.

SECTION C.5. Notification to Potential Suppliers. To permit all United States firms to have the opportunity to participate in furnishing goods and services to be financed under the Grant, the Grantee will furnish A.I.D. such information with regard thereto, and at such times, as A.I.D. may request in Project Implementation Letters.

SECTION C.6. Shipping.

(a) Goods which are to be transported to the territory of the Grantee may not be financed under the Grant if transported either: (1) on an ocean vessel or aircraft under the flag of a country which is not included in A.I.D. Geographic Code 935 as in effect at the time of shipment, or (2) on an ocean vessel which A.I.D., by written notice to the Grantee has designated as ineligible; or (3) under an ocean or air charter which has not received prior A.I.D. approval.

(b) Costs of ocean or air transportation (of goods or persons) and related delivery services may not be financed under the Grant, if such goods or persons are carried: (1) on an ocean vessel under the flag of a country not, at the time of shipment, identified under the paragraph of the Agreement entitled "Procurement Source: Foreign Exchange Costs," without prior written A.I.D. approval; or (2) on an ocean vessel which A.I.D., by written notice to the Grantee, has designated as ineligible; or (3) under an ocean vessel or air charter which has not received prior A.I.D. approval.

(c) Unless A.I.D. determines that privately owned United States-flag commercial ocean vessels are not available at fair and reasonable rates for such vessels, (1) at least fifty percent (50%) of the gross tonnage of all goods (computed separately for dry bulk carriers, dry cargo liners and tankers) financed by A.I.D. which may be transported on ocean vessels will be transported on privately owned United States-flag commercial vessels, and (2) at least fifty percent (50%) of the gross freight revenue generated by

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Article C: Procurement Provisions (Continued)

all shipments financed by A.I.D. and transported to the territory of the Grantee on dry cargo liners shall be paid to or for the benefit of privately owned United States-flag commercial vessels. Compliance with the requirements of (1) and (2) of this subsection must be achieved with respect to both any cargo transported from U.S. ports and any cargo transported from non-U.S. ports, computed separately.

SECTION. C.7. Insurance.

(a) Marine insurance on goods financed by A.I.D. which are to be transported to the territory of the Grantee may be financed as a Foreign Exchange Cost under this Agreement provided (1) such insurance is placed at the lowest available competitive rate, and (2) claims thereunder are payable in the currency in which such goods were financed or in any freely convertible currency. If the Grantee (or government of Grantee), by statute, decree, rule, regulation, or practice discriminates with respect to A.I.D.-financed procurement against any marine insurance company authorized to do business in any State of the United States, then all goods shipped to the territory of the Grantee financed by A.I.D. hereunder will be insured against marine risks and such insurance will be placed in the United States with a company or companies authorized to do a marine insurance business in a State of the United States.

(b) Except as A.I.D. may otherwise agree in writing, the Grantee will insure, or cause to be insured, goods financed under the Grant imported for the Project against risks incident to their transit to the point of their use in the Project; such insurance will be issued on terms and conditions consistent with sound commercial practice and will insure the full value of the goods. Any indemnification received by the Grantee under such insurance will be used to replace or repair any material damage or any loss of the goods insured or will be used to reimburse the Grantee for the replacement or repair of such goods. Any such replacements will be of source and origin of countries listed in A.I.D. Geographic Code 935 as in effect at the time of replacement, and, except as the Parties may agree in writing, will be otherwise subject to the provisions of the Agreement.

SECTION C.8. U.S. Government-Owned Excess Property. The Grantee agrees that wherever practicable, United States Government-owned excess personal property, in lieu of new items financed under the Grant, should be utilized. Funds under the Grant may be used to finance the costs of obtaining such property for the Project.

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Article D: Termination; Remedies.

SECTION D.1. Termination. Either Party may terminate this Agreement by giving the other Party 30 days written notice. Termination of this Agreement will terminate any obligations of the Parties to provide financial or other resources to the Project pursuant to this Agreement, except for payment which they are committed to make pursuant to noncancellable commitments entered into with third parties prior to the termination of this Agreement. In addition, upon such termination A.I.D. may, at A.I.D.'s expense, direct that title to goods financed under the Grant be transferred to A.I.D. if the goods are from a source outside Grantee's country, are in a deliverable state and have not been offloaded in ports of entry of Grantee's country.

SECTION D.2. Refunds.

(a) in the case of any disbursement which is not supported by valid documentation in accordance with this Agreement, or which is not made or used in accordance with this Agreement, or which was for goods or services not used in accordance with this Agreement, A.I.D., notwithstanding the availability or exercise of any other remedies under this Agreement, may require the Grantee to refund the amount of such disbursement in U.S. Dollars to A.I.D. within sixty (60) days after receipt of a request therefor.

(b) If the failure of Grantee to comply with any of its obligations under this Agreement has the result that goods or services financed under the Grant are not used effectively in accordance with this Agreement, A.I.D. may require the Grantee to refund all or any part of the amount of the disbursements under this Agreement for such goods or services in U.S. Dollars to A.I.D. within sixty days after receipt of a request therefor.

(c) The right under subsection (a) or (b) to require a refund of a disbursement will continue, notwithstanding any other provision of this Agreement, for three years from the date of the last disbursement under this Agreement.

(d) (1) Any refund under subsection (a) or (b), or (2) any refund to A.I.D. from a contractor, supplier, bank or other third party with respect to goods or services financed under the Grant, which refund relates to an unreasonable price for or erroneous invoicing of goods or services, or to goods that did not conform to specifications, or to services that were inadequate, will (A) be made available first for the cost of goods and services required for the Project, to the extent justified, and (B) the remainder, if any, will be applied to reduce the amount of the Grant.

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Article D: Termination; Remedies (Continued)

(e) Any interest or other earnings on Grant funds disbursed by A.I.D. to the Grantee under this Agreement prior to the authorized use of such funds for the Project will be returned to A.I.D. in U.S. Dollars by the Grantee.

SECTION D.3. Nonwaiver of Remedies. No delay in exercising any right or remedy accruing to a Party in connection with its financing under this Agreement will be construed as a waiver of such right or remedy.

SECTION D.4. Assignment. The Grantee agrees, upon request, to execute an assignment to A.I.D. of any cause of action which may accrue to the Grantee in connection with or arising out of the contractual performance or breach of performance by a party to a direct U.S. Dollar contract with A.I.D. financed in whole or in part out of funds granted by A.I.D. under this Agreement.

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SUBJECT: PRP AGRICULTURAL TECHNOLOGY TRANSFER 0304

5 MAY 1977

REF: (A) TUNIS 2645 (B) STATE 074154 (C) STATE 080342.
PRP AS AMENDED BY REFTEL A HEREBY APPROVED.

MISSION AUTHORIZED TO DRAFT PP ACCORDINGLY. VANCE

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VANCE	
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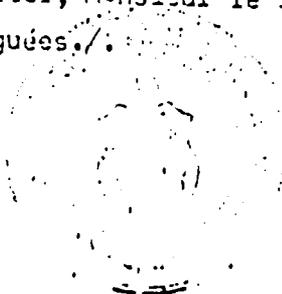
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Monsieur le Directeur

Suite aux recommandations de la troisième session de la Commission Mixte Tuniso-Américaine (Washington- 19-21/10/1976) et aux discussions tenues entre les responsables Tunisiens et ceux de l' U.S./A.I.D. concernant le projet visant le transfert de Technologie au sein du Ministère de l'Agriculture, j'ai l'honneur de réitérer le désir des Autorités Tunisiennes Compétentes de faire activer l'aboutissement de cette action.

L'accord de principe de l'A.I.D., pour le financement dudit projet, étant déjà acquis, je vous saurai gré des dispositions que vous voudrez bien prendre en vue de la finalisation de l'Accord y afférent.

Veillez agréer, Monsieur le Directeur, l'expression de mes salutations distinguées. /



R. B. Bouwaly

Organisation Spéciale Américaine

venue de la Liberté

TUNIS -

ANNEX F

STATUTORY CHECKLISTS

I. Country Checklist

A. General Criteria for Country

1. FAA Sec. 116. Can it be demonstrated that contemplated assistance will directly benefit the needy? If not, has the Department of State determined that this government has engaged in consistent pattern of gross violations of internationally recognized human rights?
2. FAA Sec. 481. Has it been determined that the government of recipient country has failed to take adequate steps to prevent narcotic drugs and other controlled substances (as defined by the Comprehensive Drug Abuse Prevention and Control Act of 1970) produced or processed, in whole or in part, in such country, or transported through such country, from being sold illegally within the jurisdiction of such country to U.S. government personnel or their dependents, or from entering the U.S. unlawfully?
3. FAA Sec. 620 (a). Does recipient country furnish assistance to Cuba or fail to take appropriate steps to prevent ships or aircraft under its flag from carrying cargoes to or from Cuba?
4. FAA Sec. 620 (b). If assistance is to a government, has the Secretary of State determined that it is not controlled by the international Communist movement?

STATUTORY CHECKLISTS

I. Country Checklist

A. General Criteria for Country

1. See Project Paper, Part 3, project analysis. The Department of State has not determined that the GOT has engaged in consistent patterns of gross violations of internationally recognized human rights.
2. No
3. No
4. Yes

5. FAA Sec. 620 (c). If assistance is to government, is the government liable as debtor or unconditional guarantor on any debt to a U.S. citizen for goods or services furnished or ordered where (a) such citizen has exhausted available legal remedies and (b) debt is not denied or contested by such government? 5. No

6. FAA Sec. 620 (e). If assistance is to a government, has it (including government agencies or subdivisions) taken any action which has the effect of nationalizing, expropriating, or otherwise seizing ownership or control of property of U.S. citizens or entities beneficially owned by them without taking steps to discharge its obligations toward such citizens or entities? 6. No

7. FAA Sec. 620 (f); App. Sec. 108. Is recipient country a Communist country? Will assistance be provided to the Democratic Republic of Vietnam (North Vietnam), South Vietnam, Cambodia or Laos? 7. No

8. FAA Sec. 620 (i). Is recipient country in any way involved in (a) subversion of, or military aggression against, the United States or any country receiving U.S. assistance, or (b) the planning of such subversion or aggression? 8. No

9. FAA Sec. 620 (j). Has the country permitted, or failed to take adequate measures to prevent the damage or destruction, by mob action, of U.S. property? 9. No

10. FAA Sec. 620 (1). If the country has failed to institute the investment guaranty program for the specific risks of expropriation, inconvertibility or confiscation, has the AID Administrator within the past year considered denying assistance to such government for this reason?
10. The GOT has an investment guarantee program with the United States of America.
11. FAA Sec. 620(o): Fisherman's Protective Act, Sec. 5.
If country has seized, or imposed any penalty or sanction against, any U.S. fishing activities in international waters,
11. Tunisia has not taken such action.
- a. has any deduction, required by Fishermen's Protective Act been made?
- b. has complete denial of assistance been considered by AID Administrator?
12. FAA Sec. 620(a): App. Sec. 504, (a)
Is the government of the recipient country in default on interest or principal of any AID loan to the country? (b) Is country in default exceeding one year on interest or principal on U.S. loan under program for which App. Act appropriates funds, unless debt has earlier disputed, or appropriate steps taken to cure default.
12. Tunisia is current on loan payments.
13. FAA Sec. 620(a). What percentage of country budget is for military expenditures? How much of foreign exchange resources spent on military equipment? How much spent for the purchase of sophisticated weapons systems? (consideration of these points is to be coordinated with the Bureau for Program and Policy Coordination, Regional Coordinators and Military Assistance Staff (PRC/RC.).
13. Approximately 7.5% of the GOT's budget is for military expenditures. This has not been determined to be an excessive amount.

14. FAA Sec. 620 (t). Has the country severed diplomatic relations with the United States? If so, have they been resumed and have new bilateral assistance agreements been negotiated and entered into since such resumption?
14. The GOT does have diplomatic relations with the U.S.A.
15. FAA Sec. 620 (n). What is the payment status of the country's U.N. obligations? If the country is in arrears, were such arrearages taken into account by the AID Administrator in determining the current AID Operational Year Budget?
15. The GOT payments are not in arrears.
16. FAA Sec. 620A. Has the country granted sanctuary from prosecution to any individual or group which has committed an act of international terrorism?
16. No
17. FAA Sec. 666. Does the country object on basis of race, religion, national origin or sex, to the presence of any officer or employees of the U.S. there to carry out economic development program under FAA?
17. No
18. FAA Sec. 669. Has the country delivered or received nuclear reprocessing or enrichment equipment, materials or technology, without specified arrangements on safeguards, etc..?
18. No
19. FAA Sec. 901. Has the country denied its citizens the right or opportunity to emigrate?
19. No

B. Funding Criteria for Country1. Development Assistance
Country Criteria

- a. FAA Sec. 102(c),(d). Have criteria been established and taken into account to assess commitment and progress of country in effectively involving the poor in development, on such indexes as: (1) small-farm labor intensive agriculture, (2) reduced infant mortality, (3) population growth, (4) equality of income distribution, and (5) unemployment.

- b. FAA Sec. 201(b) (5), (7) & (8); Sec. 208; 211 (a) (11), (7). Describe extent to which country is:

- (1) Making appropriate efforts to increase food production and improve means for food storage and distribution.

B. Funding Criteria for Country1. Development Assistance
Country Criteria

- a. The GOT has conducted sophisticated research into social and economic problems of health and nutrition, rural-urban migration income distribution, underemployment, and unemployment, population growth, rural development etc.. Findings have been incorporated into planned and current programs and projects in education agriculture, rural development schemes, social and welfare activities, and other development efforts. A major focus of the current five-year plan addresses employment, income equities, rural and small-farmer production, and improved health and educational services.

- b. (1) The GOT has undertaken major interegrated crop production programs in wheat which has resulted in significant and consistent increases. Production of durum (hard wheat) a staple food for all income classes - but especially the poor - has more than doubled during the period 1970-1975. Research to develop and adapt new practices and technologies is being expanded. This project, Agricultural technology transfer, is also designed to assist in improving food production.

- (2) Creating a favorable climate for foreign and domestic private enterprise and investment.
- (2) The GOT has a policy of encouraging both domestic and foreign private investment. Much domestic investment has been in tourism, and to a much lesser extent, small industrial and service activities. Last year, AFI, the Agency for the Promotion of Investments, approved more than 500 applications for new investment projects. Tunisia continues to be politically favorable for foreign investment.
- (3) Increasing the public's role in the developmental process.
- (3) The GOT has a number of programs emphasizing rural populations, urban poor, women, youth, unskilled and lesser educated classes, which are designed to increase the role of these and other marginal groups in the developmental process.
- (4) (a) Allocating available budgetary resources to development.
- (4) (a) Tunisia has a relatively high savings rate. These savings have financed a growth rate which averaged 5% per year during the last five years. A substantial amount of current or planned budgetary resources is devoted to developmental activities.
- (b) Diverting such resources for unnecessary military expenditure and intervention in affairs of other free and independent nations.
- (b) Tunisia maintains a very modest military establishment. It has not diverted resources into unnecessary military expenditures or intervention in affairs of other foreign nations.

- (5) Making economic, social and political reforms such as tax collection improvements and changes in land tenure arrangements, and making progress toward respect for the rule of law, freedom of expression and of the press, and recognizing the importance of individual freedom, initiative, and private enterprise.
- (5) The GOT has recently established new rates and procedures to improve income and excise tax collections from upper income groups. A new agency has been created to facilitate agricultural land distribution and title of ownership. Current economic policies encourage private business initiative, and the GOT is engaged in other social and political reforms.
- (6) Otherwise responding to the vital economic, political, and social concerns of its people, and demonstrating a clear determination to take effective self-help measures.
- (6) Among developing nations, the GOT has compiled an impressive record of economic growth during the seventies. Improved diets, reduced infant mortality, and declining birth rates have accompanied the improved economic performance. Inflation has remained manageable, efforts are being made to improve food and agriculture production, and the current five-year plan stresses the building of a capacity for self-sustaining, long-term growth potential.
- c. FAA Sec. 201(b), 211(a). Is the country among the 20 countries in which development assistance loans may be made in this fiscal year, or among the 40 in which development assistance grants (other than for self help projects) may be made?
- c. Yes
- d. FAA Sec. 115. Will country be furnished, in some fiscal year, either security supporting assistance, or Middle East peace funds? If so, is assistance for population programs, humanitarian aid through International organizations, or regional programs?
- d. No

II. A. GENERAL CRITERIA FOR PROJECT

1. App. Unnumbered: FAA Sec. 653(b)
 (a) Describe how Committees on Appropriations of Senate and House have been or will be notified concerning the project; (b) is assistance within (Operational Year Budget) country or international organization allocation reported to Congress (or not more than \$1 million over that figure plus 10%)?
2. FAA Sec. 611 (a) (1). Prior to obligation in excess of \$100,000, will there be (a) engineering, financial, and other plans necessary to carry out the assistance and (b) a reasonably firm estimate of the cost to the U.S. of the assistance?
3. FAA Sec. 611(a)(2). If further legislative action is required within recipient country, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purpose of the assistance?
4. FAA Sec. 611(b): App. Sec. 101. If for water or water-related land resource construction has project met the standards and criteria as per Memorandum of the President dated Sept. 5, 1973 (replaces Memorandum of May 15, 1962; see Fed. Register, Vol 38, No. 174, Part III, Sept. 10, 1973)?

II. A. GENERAL CRITERIA FOR PROJECT

1.
 - (a) Project will be included in AID's CP for FY 78.
 - (b) Yes
2. Yes - See project paper, part 4.
3. No further legislative action is required.
4. N.A.

5. FAA Sec. 611(c). If project is capital assistance (e.g. construction), and all U.S. assistance for it will exceed \$1 million, has Mission Director certified the country's capability effectively to maintain and utilize the project.
5. N.A.
6. FAA Sec. 209, 619. Is project susceptible of execution as part of regional or multilateral project? If so why is project not so executed? Information and conclusion whether assistance will encourage regional development programs. If assistance is for newly independent country, is it furnished through multilateral organizations or plans to the maximum extent appropriate?
6. The major thrust of this project is the transfer of U.S. Agriculture technology to Tunisia and the development of long-term links to U.S. institutional sources. For this reason, it is not readily susceptible for execution as a regional or multilateral effort. Tunisia is not a newly independent country, and as such, has established regional and international connections. However, to the extent that project objectives are attained, a closer relationship with regional and international organizations will be encouraged.
7. FAA Sec 601(a); (and Sec. 201(f) for development loans). Information and conclusions whether project will encourage efforts of the country to (a) increase the flow of the international trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce; and (f) strengthen free labor unions.
7. This project will encourage efforts to improve the technical proficiency of agriculture, commerce, and supporting institutions. Successful implementation implies improvements in (a) (b) and (c). The connection to (d) and (f) is less evident.

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8. FAA Sec. 601(b). Information and conclusion on how project will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).
8. U.S. University Contractor will provide almost all consultant services, all long-term participant training. Other inputs will be provided by other U.S. organizations and institutions through university contractor.
9. FAA Sec. 612(b); Sec. 636(h). Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the U.S. are utilized to meet the cost of contractual and other services.
9. All local cost will be financed by the GOT except for that amount most appropriately included in contracts with U.S. suppliers of technical services. For such costs, in accordance with standard provisions of the contract, the intermediary will be responsible for assuring maximum use of U.S. owned foreign currency.
10. FAA Sec. 612(d). Does the U.S. own excess foreign currency and, if so, what arrangements have been made for its release?
10. No

B. FUNDING CRITERIA FOR PROJECT

1. Development Assistance Project Criteria
- a. FAA Sec. 102(c); Sec. 111; Sec. 281(a). Extent to which activity will (a) effectively involve the poor in development, by extending access to economy at local level, increasing labor-intensive production, spreading investment out from cities to small towns and rural areas; and (b) help develop co-operatives, especially by technical

B. FUNDING CRITERIA FOR PROJECT

1. Development Assistance Project Criteria
- a. Concentration of project resources on semi arid and arid land technology taps geographical area and types of commodities closely associated with small and lower income farmers. The range of technologies and practices to be extended will reflect the

assistance, to assist rural and urban poor to help themselves toward better life and otherwise encourage democratic private and local governmental institutions?

need for labor-intensive production as well as development and investment requirements for rural areas. See Sections 2 and 3, FP.

- b. FAA Sec. 103, 103A, 104, 105, 106, 107. Is assistance being made available:
- (1) (103) for agriculture, rural development on nutrition; if so, extent to which activity is specifically designed to increase productivity and income of rural poor; (103A) if for agricultural research, is full account taken of needs of small farmers.
- (1) Project provides training specifically designed to focus on areas and regions primarily applicable to needs of small farmers and rural poor. See FP.
- c. FAA Sec. 110(a); Sec. 208(e). Is the recipient country willing to contribute funds to the project and in what manner has or will it provide assurances that it will provide at least 25% of the costs of the program, project, or activity with respect to which the assistance is to be furnished (or has the latter cost sharing requirement been waived for a "relatively least-developed country")?
- c. The GOT will contribute 25% of the cost of this project in the form of counterpart salaries, cost of participant transportation, and in the provision of facilities and logistic support. See Project Paper, Part 4.
- d. FAA Sec. 110(b). Will grant capital assistance be disbursed for project over more than 3 years? If so, has justification satisfactory to Congress been made, and efforts for other financing?
- d. No
- e. FAA Sec. 207; Sec. 113. Extent to which assistance reflects appropriate emphasis on; (1) encouraging development of democratic, economic, political, and social institutions; (2) self-help in meeting the country's food needs; (3) improving
- e. This project will contribute to the development of social and economic institutions; self-help in meeting the country's food needs; improving the availability of trained worker-power; and improving the

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availability of trained worker-power in the country; (4) programs designed to meet the country's health needs; (5) other important areas of economic, political, and social development, including industry, free labor unions, cooperatives, and Voluntary Agencies; transportation and communication; planning and public administration; urban development, and modernization of existing laws; or (6) integrating women into the recipient country's national economy.

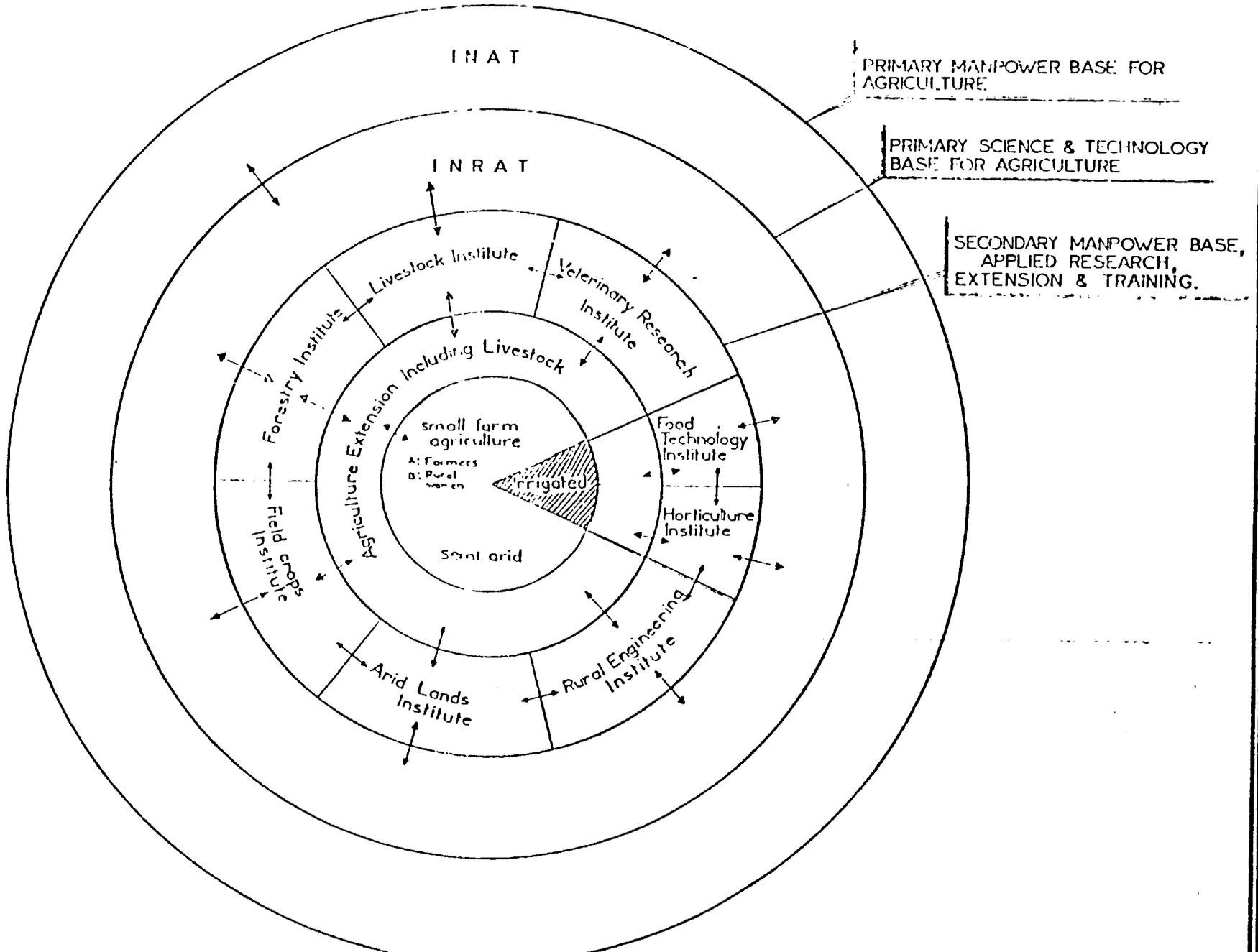
administration and quality of support extended to the agriculture sector.

- f. FAA Sec. 281(b). Describe extent to which program recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage institutional development; and supports civic education and training in skills required for effective participation in governmental and political processes essential to self-government.
- f. The project is designed to address the needs and capacities of Tunisia at this stage of development. It responds to studied needs as identified by the GOI, international organizations (i.e. IBRD), and bilateral donors, as well as farm families.
- g. FAA Sec. 201(b)(2)-(4) and -(8); Sec. 201(e); Sec. 211(a)(1)-(3) and -(8). Does the activity give reasonable promise of contributing to the development: of economic resources or to the increase of productive capacities and self-sustaining economic growth; or of educational or other institutions directed toward social progress? Is it related to and consistent with other development activities, and will it contribute to realizable long-range objectives? And does project paper provide information and conclusion on an activity's economic and technical soundness?
- g. Yes - See Project Paper Part 3.

- g. FAA Sec. 201(b)(6); Sec. 211(a)(5), (6). Information and conclusion on possible effects of the assistance on U.S. economy, with special reference to areas of substantial labor surplus, and extent to which U.S. commodities and assistance are furnished in a manner consistent with improving or safeguarding the U.S. balance of payment position.
- h. A little over .08% of total U.S. assistance to this project will not be used for the purchase of goods and services in the U.S.

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AGRICULTURE TRAINING & RESEARCH INSTITUTIONS OF TUNISIA



ANNEX G

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ANNEX E

I. Proposed Degree Training by General Problem Area:

	<u>Number</u>	<u>Total</u>
A. <u>Dryland Crop Production and Land Management</u>		25
1. Soil and water conservation	1	
2. Cultural practices, soil mangement and agroclimatology	2	
3. Crop improvement (including barley breeding)	4	
4. Weed control (and plant protection, pesticides)	4	
5. Soil Fertility and soil testing	2	
6. Cereal quality and nutritional value	1	
7. Crop disease control	2	
8. Insect control	2	
9. Farm machinery (for small farms)	2	
10. Farm management (agricultural economics)	5	
B. <u>Forage, Range and Animal Production</u>		15
1. Forage production and management	4	
2. Forage improvement	2	
3. Range management	2	
4. Livestock management	5	
5. Livestock improvement	2	
C. <u>Horticulture (Vegetables and Fruits)</u>		13
1. Vegetable production	3	
2. Vegetable improvement	1	
3. Vegetable disease control	1	

4. Tree fruit production	2	
5. Tree fruit improvement	1	
6. Fruit disease control	1	
7. Soil fertility and soil testing	2	
8. Horticultural machinery and irrigation equipment	1	
9. Grading, packaging, and marketing fruit and vegetables	1	
D. <u>Food Science and Technology</u>		2
1. Food processing equipment	1	
2. Steam supply equipment for food processing plants	1	
E. <u>Extension</u>		4
F. <u>Supporting Areas</u>		
1. Bicmetry	1	
2. Library	2	
		<hr/>
	Total	62

II. Proposed Short-Term Training

A. Horticulture

1. Grading, packaging, and marketing of vegetables and fruits

B. Food Science and Technology

1. Processing, manufacturing, and quality control
 - a. Milk
 - b. Sugar

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- c. Vegetable fats and oils
- d. Cereals
- 2. Market development
- 3. Market news and information
- C. General - optional as a special need or opportunity arises.

III. Proposed Consultants

- A. Dryland Crop Production and Land Management
 - 1. Soil testing laboratory operations
 - 2. Consultants roles of Ph.D thesis research advisors in their areas of expertise
- B. Forage, Range, and Animal Production
 - 1. Consultant roles of Ph.D thesis research advisors
- C. Horticulture
 - 1. Grading, packaging and marketing vegetables and fruits
- D. Food Science and Technology
 - 1. Food technology program development
 - 2. Food processing
 - 3. Market development
- E. Supporting Areas
 - 1. Library development: Acquisitions, retrieval, etc..

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national trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce; and (f) strengthen free labor unions.

implies improvements in (a) (b) and (c). The connection to (d) and (f) is less evident.

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