

PP-11-22

AGENCY FOR INTERNATIONAL DEVELOPMENT
PROJECT DATA SHEET

1. TRANSACTION CODE C A = Add
 C = Change
 D = Delete

Amendment Number 8

DOCUMENT CODE 3

2. COUNTRY/ENTITY
 TUNISIA

3. PROJECT NUMBER
664-0315

4. BUREAU/OFFICE
 ANE 34 03

5. PROJECT TITLE (maximum 40 characters)
Technology Transfer

6. PROJECT ASSISTANCE COMPLETION DATE (PACD)
 MM DD YY
09 30 92

7. ESTIMATED DATE OF OBLIGATION
 (Under 'B.' below, enter 1, 2, 3, or 4)

A. Initial FY 81 B. Quarter 4 C. Final FY 91

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

A. FUNDING SOURCE	FIRST FY <u>81</u>			LIFE OF PROJECT		
	B. FX	C. L/C	D. Total	E. FX	F. L/C	G. Total
AID Appropriated Total	1450		1450	45000		45000
(Grant)	(1450)	()	(1450)	(45000)	()	(45000)
(Loan)	()	()	(0)	(0)	()	(0)
Other						
U.S.						
Host Country	100		100	19521		19521
Other Donor(s)						
TOTALS	1550		1550	64521		64521

9. SCHEDULE OF AID FUNDING (\$000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE		D. OBLIGATIONS TO DATE		E. AMOUNT APPROVED THIS ACTION		F. LIFE OF PROJECT	
		1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan
(1) DA	750	870		1450				1450	
(2) ESF	750	870		23700		5250		43550	
(3)									
(4)									
TOTALS				25150		5250		45000	

10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each)
871 872 873 874 660

11. SECONDARY PURPOSE CODES
680

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

A. Code

B. Amount

13. PROJECT PURPOSE (maximum 480 characters)

To enhance Tunisia's capability to acquire and incorporate appropriate technology in its development process.

14. SCHEDULED EVALUATIONS

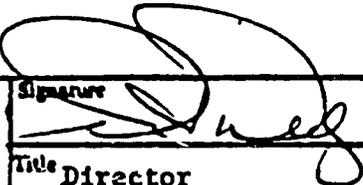
Interim MM YY 09 83 MM YY 04 84 Final MM YY 03 90

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

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

This amendment adds funds to continue AID support for training Tunisian students at U.S. schools of higher education and extends the Project Assistance Completion Date to 9/30/92.

17. APPROVED BY

Signature 

Title Director
USAID/Tunis

Date Signed MM DD YY
02 26 88

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

TABLE OF CONTENTS

	Page
Project Data Sheet	
Advice of Program Change	
List of Project Committee Members	
Project Authorization Amendment	
Action Memorandum	
I. Project Summary	1
II. Review of Project Progress to Date	2
A. Project Components	2
1. Manpower Planning	2
2. Institutional Strengthening	3
3. Student Placement	3
4. Student Training Program	4
B. Evolution and Present Status of Student Training Program	5
1. USAID Participation	4
2. Evolution of Fields of Study	4
3. Shift to a Graduate Program	5
4. Changes in Program Size	5
5. Student Performance	5
C. Project History	5
III. Purpose and Description of Amendment No. 8	7
A. Rationale for Proposed Change	7
B. Redesign Features	8
1. Size and Struction of Program	8
2. Duration of Program	9
3. Fields of Study	9
4. Student Maintenance Stipends	9
5. Project Management and Reporting	10
6. Employment of Returnees	10
7. Contractual Agreements (Bonding)	11
8. USAID Financial Contribution Ceiling	11
9. Student Tax Liability	11
10. Short Term Training	11
11. Degree Termination of Other Project Participants	11
C. Project Inputs	12
1. A.I.D. Inputs	12
2. G.O.T. Inputs	13

	Page
IV. Project Implementation	13
A. Implementation Plan	13
B. A.I.D. Disbursement Schedule and Projection	14
C. Evaluation	15
V. Financial Plan	16
A. U.S. Contribution	16
B. G.O.T. Contribution	16
C. Financial Implementation of the Project	16
D. Total Project Cost	18
E. Cumulative Total Project Cost	19
VI. ANNEXES	
A. Tunisian Student Training Program: Numbers in the United States	
B. Student Enrollment by University	
C. Fields of Study	
D. Projected Implementation Plan	
E. Program Completions by New Students	
F. Budget Computations	
G. Major Findings and Recommendations of Market Demand and Placement Services Study (TVT Associates, October 1987)	
H. Government of Tunisia Request for Assistance	

**EIGHTH AMENDMENT TO
PROJECT AUTHORIZATION**

Name of Country: Republic of
Tunisia

Name of Project: Technology
Transfer

Number of Project: 664-0315

1. Pursuant to Sections 106 and 531 of the Foreign Assistance Act of 1961, as amended, the Technology Transfer Project for Tunisia ("Cooperating Country") was authorized on August 31, 1981 and was amended on August 29, 1983, on April 23, 1984, on December 26, 1984, on August 23, 1985, on May 30, 1986, on September 29, 1986 and on April 15, 1987 (the "Authorization"), and is hereby further amended as follows:

a. The paragraph in quotation marks of Section 1.a. is deleted in its entirety and the following is inserted in lieu thereof:

"Prior authorization being valid for obligation not to exceed Twenty-five Million and One Hundred and Fifty Thousand Dollars (\$25,150,000), pursuant to Section 531 of the Foreign Assistance Act, as amended, I hereby authorize additional funding of up to Nineteen Million Eight Hundred Fifty Thousand United States Dollars (\$19,850,000) of ESF grant funds for a new life-of project total of not to exceed Forty-five Million Dollars (\$45,000,000) over a 133 month period from the date of the original authorization, subject to the availability of funds in accordance with the A.I.D. OYB allotment process, to help in financing foreign exchange costs for the project.

2. Except as hereby amended, the Authorization remains unchanged and in full force and effect

Julia Chang Bloch
Assistant Administrator
Bureau for Asia and Near East

Date

Clearances:

TRG:GCherchad(draft)
PM:MHKarns(draft)
PM:NMTumavick(draft)
PROG:JSperling(draft)
CONT:JWBuller(draft)
RLA:RMeighan(draft)
DIR:CFWeden(draft)

ACTION MEMORANDUM FOR THE ASSISTANT ADMINISTRATOR, BUREAU FOR ASIA AND THE NEAR EAST

FROM: ANE/PD, Ronald F. Venezia
SUBJECT: TUNISIA - Technology Transfer Project 664-0315,
Amendment No. 8 to The Project Authorization

ACTION:

Your approval is requested to amend the authorization for the Technology Transfer Project for Tunisia, increasing the life-of-project grant funding from Sections 106 and 531 of the Foreign Assistance Act of 1961, as amended, to \$45,000,000, and extending the PACD to September 30, 1992.

DISCUSSION:

The project amendment supports assistance to the Government of Tunisia for additional, as well as continuing support for scholarship training and technical assistance to the Washington-based Scientific Mission of Tunisia. This organization is responsible for the selection, placement and management of the scholarship project. The project will also provide for specialized short-term technical training as deemed appropriate.

This project was initially obligated in FY 81 for \$1,450,000 in DA funds to strengthen Tunisian engineering schools through linkages with U.S. universities. A host country contract with the Academy for Educational Development (AED) was signed on August 18, 1982. This TA contract constituted AIDs total original contribution to the project. The GOT's original contribution comprised the costs associated with beginning its Scholarship Program in the U.S. for 209 undergraduate and graduate students who began studies during the 1981/82 academic year.

To date seven amendments have been made to the Project Agreement, serving to increase funding, extend the PACD, and to expand support for the student training program in view of its financial importance to the Structural Adjustment Program of the GOT and furtherance of its goals to revitalize its economy through engineering, science, and management technology transfer to Tunisian students studying in the U.S.

Subsequent amendments Nos. 1 through 7 added additional funds to finance the direct costs of the scholarship program and expanded the degree fields studied. ProAg Amendment No. 1 added \$2 Million Dollars in FY 1983 ESF, and Amendment No. 2 added \$1.2 Million from FY 1984 ESF. Amendments Nos. 3 and 4 added \$4.8 million and \$5.2 million FY 85 ESF and extended the PACD to August 31, 1987. Amendments Nos. 5 and 6 added \$2.5 million and \$3.0 million FY 86 ESF. Amendment No. 7 added \$5.0 million of FY 87 ESF on September 30, 1986, and further extended the PACD to August 31, 1989.

During the development of the above amendments, several program design changes were made. The original focus on training engineering and science graduate students was enlarged to cover undergraduate study in these fields. Degree studies were expanded to cover management and economics.

A recent (October 1987) market demand and placement services study performed for the project revealed a number of findings which influenced the redesign of the project. In brief these are:

Supply and Demand for engineers - There is an oversupply in traditional fields such as civil, mechanical, electrical, and mining. There is a continuing need for higher technology fields at the Masters Degree level.

Supply and Demand for management and other non-engineering fields - Demand is increasing due to increased use of computers, emphasis on financial services and privatization, general decentralization/liberalization of the economy and emphasis on exports and marketing. The project is expanding training in these fields, especially in MBAs.

Institutional Strengthening - Project participants are moving into areas of need; Ph.D's are returning to strengthen educational faculties.

Placement Services - No present need found for establishment of either public or private services and current procedures are satisfactory.

Project Management - Selection of students is well organized and effective. The reorientation of student fields to support economic structural adjustment conforms to needs in the economy.

A number of program design/implementation issues have been negotiated with the GOT and which are incorporated in Amendment No. 8.

- The size of the project will be gradually reduced over the authorization period with the number of students studying in the U.S. dropping by approximately 50% from a present 500 students.
- Beginning with the 1987/88 school year, the project's structure has been changed to emphasize graduate degree training with new undergraduate training starts on an exception basis.

- Degree continuation has been limited to one degree (i.e. students may receive project financing only for two consecutive degrees).
- To accelerate the pace of student degrees, project financing has been extended to cover the summer semester of the school year as funding permits.
- The Fixed Amount Reimbursement (FAR), an AID-approved method of financing, will be increased for each school year semester to reflect increased costs of U.S. education and increased student support stipends.
- The GOT has agreed to provide increased and regularized reporting on project implementation to U.S.A.I.D. and U.S.A.I.D./W on student progress and degree output.
- The GOT has agreed to add additional staff to its Scientific Mission in Washington, D.C. (Section of Tunisian Embassy managing the project).
- Based on a recent project-financed study, the GOT has agreed to seriously consider more affirmative placement services for returned project-financed graduates.
- Students' fields of study will be shifted from the current large concentration on engineering and science to a more broad range of majors which are more orientated towards manpower needs of the Tunisian economy in the era of economic structural adjustment.
- The GOT has instituted a 5 year bonding contract for all new project-financed students starting with the Spring Semester of the 1987/88 school year.
- Due to the 1986 U.S. Tax Legislation reform which generates tax liability for foreign student scholarships, the project will add funds to cover the estimated tax liability.
- The project has had a pre-audit survey undertaken by RIG/A. No problems have been identified to the Mission since the pre-audit survey in September 1987, and a full audit is not expected.

The attached Project Authorization Amendment No. 2 requests an additional \$19.850 million ESF grant funding. Of this amount, it is requested that \$5.250 million be obligated in FY 1988 to provide funds to further support the GOT's on-going scholarship

program. The PACD is extended to September 30, 1992. The balance of funds will be obligated in subsequent FYs, subject to availability of funds.

AID's total LOP contribution will increase from \$25.15 million to \$45 million. The GOT's new total net LOP contribution is anticipated to be \$19.521 Million. Total LOP costs are \$ 64.521 Million.

RECOMMENDATION:

That you sign the attached Project Authorization Amendment adding \$19.850 million of ESF grant funds to the Tunisia Technology Transfer Project 664-0315.

APPROVED: _____

DISAPPROVED: _____

DATE: _____

Attachments:

Clearances:

PM:HMTumavick(draft)
PROG:JSperling(draft)
PM:MHKarns(draft)
CONT:JWButler(draft)
TRG:GCherchad(draft)
RLA:RMeighan(draft)
DIR:CFWeden(draft)

AGENCY FOR INTERNATIONAL DEVELOPMENT

Advice of Program Change

Country:	Tunisia	
Program Title:		Technology Transfer
Project Number:	664-0315	
FY 1988 CP Category:		Economic Support Funds (ESF) (Grant)
Life of Program Funding:		\$45,000,000
Intended FY 1988 Obligation:		\$ 5,250,000

This is to advise that A.I.D. intends to obligate \$5,250,000 in an FY 1988 Economic Support Fund Grant for this program activity and increase life of project funding by \$19,850,000 to a new total of \$45 million. This is a continuing activity and was included in the FY 1988 Congressional Presentation.

This program will continue to support the Government of Tunisia scholarship program in the U.S. Students will study for degrees in various disciplines of engineering, management, business and agriculture and other fields appropriate to Tunisia's development. Selection, placement and management of the scholarship program is completely under the direction of the Tunisian Government. The grant will also provide technical assistance support to the Washington-based Scientific Mission of Tunisia which is tasked with this responsibility. The grant will also provide for specialized short-term technical training as deemed appropriate.

PROJECT COMMITTEE MEMBERS

Joyce Burton, AID/W, ANE/TR/HR

Wayne Butler, Controller

Greta Cherchad, Training Officer

Mark H. Karns, Project Development Officer, Chmn.

Louis Macary, Assistant Program Officer

Patricia Payne, Resident Representative,
AMIDEAST/Tunis

Jonathan L. Sperling, Assistant Director for Program

Nancy M. Tumavick, Assistant Director for Project
Management

I. Project Summary

This Project Paper Amendment describes the eighth amendment to the Technology Transfer Project (664-0315) initially authorized on August 31, 1981. The action described will increase USAID grant funding for the project from \$25.15 million to \$45 million. The project purpose has not been modified, and the project description, budget and logical framework have been changed only to reflect increased USAID grant funding, the increased number of Tunisian students who will benefit from USAID funds, and funding for technical assistance, assessments, evaluations, and financial audits of project activities.

The GOT places the highest priority on the Technology Transfer Project. The first President of Tunisia, Mr. Habib Bourguiba, instituted the program at the start of the decade and mandated that the very best Tunisian students be sent to the U.S. to obtain engineering and science training in degree programs at the best U.S. universities. Another feature of the project particularly appreciated by the GOT in these times of economic reform is the quick disbursing aspect which assists the GOT's current stabilization efforts.

The new government of President Ben Ali continues this complete support for the program. The program's initial and continuing objective is to acquire and incorporate U.S. technology and approaches to problem solving through a critical mass of U.S. trained manpower. The program has been underway for seven years with approximately 700 students having been selected for U.S. training. Over 170 of these students have completed their degree programs. Returning students are now entering the economy.

Tunisia is unique in the Middle Eastern Region in its support for education. Over one-third of its federal budget is allocated to the educational sector. One of the longer term underpinnings of the economic structural adjustment process now underway is the trained human resource base of Tunisia. Graduates of the Technology Transfer Program are expected to be leaders in their respective fields and to forge changes in the way development problems are analyzed and addressed.

The project is congruent with approved U.S.A.I.D. strategy by providing a vehicle for technology transfer and exchange through U.S. technical degree training of the very best Tunisian students. Over time, this buildup of trained manpower should greatly assist Tunisia to both prepare for and sustain renewed economic growth. The project represents the basic thrust of the Technology Transfer component of U.S.A.I.D./W's four pillars by combining the best young human resource capital Tunisia has to offer with high quality university training available in the U.S. Additionally, the project offers Tunisia needed foreign exchange resources which are fast-disbursing in a developmental activity which is of the highest priority to the GOT.

11

The funds provided under this amendment will be used to finance the equivalent of approximately 1,350 additional person years of training as partial funding of Tunisian students at the graduate level in the United States from FY 1988 through FY 1991 in the fields of engineering, science, computer science, economics, agricultural economics, food processing, management science, related fields and others important to Tunisia's ongoing structural adjustment process. The authorization will also contain funding to cover special short-term technical training as needed, and will, in addition, provide a funding vehicle for the completion of student degrees begun under other separate USAID projects with terminating PACD's occurring prior to the expected termination of student degree study.

II. Review of Project Progress to Date

A. Project Components

Under the original grant agreement, the project contained several elements designed to assist Tunisia in strengthening its long-term technical training capability, to facilitate the training of technical students in the United States on a shorter term basis and to develop ties between US and Tunisian institutions of higher learning and other members of the technological communities. The separate project components consisted of:

1. Manpower Planning

A committee for manpower planning was established under the project composed of Ministry of Higher Education officials, representatives of academic institutions and of the Ministry of National Economy and of Plan. To assist in ascertaining training needs, two manpower studies were conducted by U.S. experts, one under the auspices of The Academy for Educational Development (AED) in 1983, and a second by TVT Associates Inc. in October 1987.

Closely related to manpower planning is the integration of returning students into the workforce. To date, 174 degree holders have completed their degree programs, and an in-country survey is presently being conducted by USAID to determine their employment status. (Thirty returnees previously contacted on a random basis either were employed or engaged in further advanced studies in other programs.) In view of the on-going importance of the question of employment, particularly with the expected sharp increase in numbers of returnees in 1988 and 1989, the GOT has agreed, under previous Amendment No. 7 and Project Implementation Letter (PIL) No. 18, to provide general job placement assistance through the Ministry of Higher Education and the Scientific Mission for Tunisia in Washington, D.C. (MUST).

Also linked to manpower planning is the placement and training of students in appropriate fields of study. Over the course of implementation, a gradual diversification of fields of graduate training under the project has taken place in response to indications of manpower needs. As a result, there has been a de-emphasis in training traditional engineering specialities such as civil, mechanical or electrical, and more emphasis on other fields such as industrial, ceramic, agricultural and computer engineering. Additionally, management sciences studies have been increased.

2. Institutional Strengthening

The aim of this component was to strengthen Tunisia's advanced technological institutions through the integration of US curriculae and modern teaching methods. The means envisaged were through bi-lateral short-term visits, faculty exchanges and professional and institutional linkages. Under the prime contract with AED (which expired on October 31, 1986) approximately 40 US study tours were undertaken by Tunisian officials and faculty members to become acquainted with the system of U.S. higher education and to develop professional linkages with U.S. counterparts. Also, between 1983 and 1986, more than 30 U.S. professors visited Tunisian institutions to give seminars and lectures, advise students and to have interchange with faculty members on research topics and other matters. No formal institutional linkages developed, but numerous individual and professional ties were established such as the linkage between the George Washington University School of Business and the Institute of Higher Management Studies (ISG) in Tunis.

3. Student Placement

During the 1981/82 academic year, the GOT established the Tunisian Scientific and University Mission (MUST) in Washington, D.C. to handle the placement and supervision of participants in the student training program. While MUST's capacity was being developed, the GOT requested AMIDEAST to place the first 135 undergraduate and all of the graduate students. MUST, however, was able to handle placement of more than 50 additional undergraduates that same year and, by 1982, undertook placement and monitoring of graduate students as well. By October of 1987, a total of 697 participants had been enrolled in a wide range of US institutions of higher education.

USAID has assisted MUST through the funding of an academic advisor for MUST staff in Washington and through the provision and installation of computer hardware and software to facilitate record keeping and information flow. AMIDEAST

consultative services have also been provided to the Ministry in Tunisia to advise on the preparation of student documents for submission to U.S. universities and institutional profiles.

4. Student Training Program

The student training program has developed into the largest and most important component of the Technology Transfer Project. Under the original project, this component was entirely funded by the GOT until 1983, when scholarship assistance was first provided for graduate level training by USAID under Project Amendment No. 1 and broadened to include undergraduate training in 1984 under Amendment No. 2. Subsequent amendments Nos. 3 through 7 added funding to cover annual scholarship costs. The program is further described in Section C. below.

B. Evolution and Present Status of Student Training Program

1. USAID Participation

By the inception of the Technology Transfer Project in 1981, the GOT had taken already a firm decision to train students in the United States in fields of engineering and technology. By 1980 the first three PhD candidates were sent. In the 1981/82 school year, the GOT embarked upon a full scale training program, sending a total of 209 students to the US, the majority undergraduates, to enroll in engineering and science fields. The costs were borne by the GOT..

Subsequently, however, because of structural problems in the economy and growing foreign exchange deficits, the Tunisian Government requested direct assistance for student scholarships by USAID, which was provided in Amendment No. 1 and in succeeding amendments, first at the graduate level and later, beginning with Amendment No. 2, at the undergraduate level. It became increasingly clear during the project's development that the student training component was the primary element of interest to the GOT and that it should be the basic target of project funding. It was also clear that the program was highly important to both US and GOT program interests and merited continued support.

2. Evolution of Fields of Study

Although the program was originally designed to produce engineers, there has been a steady increase in additional approved fields of study at the graduate level. By Amendment No. 7, the scope had been enlarged to include computer science, engineering, food processing, management, physics and other priority fields. Others have been added as their need has been indicated and as manpower studies have pointed to areas of need in the Tunisian economy as the structural adjustment process works through the economy.

3. Shift to a Graduate Program

A recent change in program structure has been the shift from undergraduate to graduate emphasis. In view of the long-range funding implications of an undergraduate program and of the need to structure the program at a level that could be maintained by the GOT when it assumes primary financial responsibility, a joint agreement was reached in PIL No. 16 to limit new entries to graduate level only. In the academic year 1987/88, only three undergraduates were admitted under special circumstances, and it is expected that--with rare exceptions--none will be enrolled in future school years.

4. Changes in Program Size

From 209 students in 1981/82, enrollment increased steadily to a high of 515 in 1986/87. In the beginning of academic year 1987/88, there were 474 students registered in 56 U.S. universities. As graduates leave the program, and as new entrants are reduced under Amendment No. 8, there will be a gradual reduction in the student pipeline to an expected 200 in 1992.

In all, it is expected that approximately 1,000 students will have participated by FY 1992. To date there have been 697 participants. Of those, 174 have completed their training programs and many have returned to Tunisia.

By June of 1989 a total of 527 will have received degrees although some will continue at a higher level of study in the program. (See Annex E)

5. Student Performance

Of the 474 students currently enrolled in 56 different universities (see Annex C), 443, or about 94%, have a 3.00 grade average or better on a scale of 4.00. Nearly all of the 31 remaining students have an overall average of 2.75 or better. Furthermore, only about 5% of the total students enrolled to date have returned without having completed their programs. These results are not surprising in view of the fact that program participants have been chosen by the GOT on the basis of their outstanding academic abilities and achievements.

C. Project History

The original grant agreement dated August 31, 1981, provided a grant of \$1.45 million to the GOT in response to the request for assistance in strengthening technical training capability, developing ties between the U.S. technological community and Tunisian higher education institutions and in training technical

students in the US. The project was to provide assistance with the placement of students in the U.S., with the development of Tunisian manpower planning for technically trained persons, and with the Tunisian university curricula in engineering and related technical disciplines.

Seven amendments have been made to the ProAg, serving to increase funding, extend the PACD, and to change the principal focus of the assistance to support for the student training program.

Amendment No. 1 to the original project grant added \$2.0 million on August 30, 1983 to provide direct scholarship support for the training of Tunisian students pursuing advanced degrees in U.S. universities. This action was in response to the GOT request for a direct contribution for this purpose because of the growing foreign exchange problems which threatened to limit the scope of the scholarship program. The PACD was extended to June 30, 1985.

On April 27, 1984, an additional \$1.2 million was added with Amendment No. 2 to provide direct scholarship support funding to graduate degree students in priority development fields (specified as management, computer science, engineering, architecture, food processing, physics and others to be agreed upon) and also to permit project financing for undergraduate (B.S. degree) engineering students.

In response to Tunisia's continuing foreign exchange problems and balance of payments deficits as well as with the rising costs of U.S. education, subsequent amendments also increased financial support to the student training program in the U.S. Amendment No. 3 (December 26, 1984) added \$4.8 million and extended the PACD to February 28, 1986. Amendment No. 4 (August 30, 1985) provided an additional \$5.2 million, and extended the PACD to August 31, 1987. Amendment No. 5 (June 26, 1986) further added \$2.5 million, and Amendment No. 6 (September 30, 1986) followed closely with \$3.0 million.

On April 23, 1987, the signing of Amendment 7 again added \$5.0 million for student training, bringing the total project costs to AID to \$25.15 million and extending the PACD to August 31, 1989. Included in this amendment were provisions to limit the total number of students in the program and to shift the

emphasis to graduate training in view of available financial resources and also of Tunisia's manpower needs. It was also agreed to expand the range of studies and to link Tunisia's labor market demands with appropriate fields of study in U.S. universities. Additionally, the GOT agreed to explore the provision of placement assistance to returned graduates and, where possible, make available to them practical training and summer intern programs.

III. Purpose and Description of Amendment No. B.

A. Rationale for Proposed Change

The essential purpose of Amendment No B is to add funds for the continuation of the student training program and to allow additional time to implement the design changes agreed to with the GOT.

The program is of the highest importance to the GOT. This is evidenced by the fact that it was initiated by the GOT which has used precious foreign exchange funds to support it and has made clear the intention to continue the program.

USAID began contributing to the scholarship program in 1983 and has continued support in subsequent years at the request of the GOT because of the severe economic and balance of payments constraints the country has faced.

Despite governmental changes, the project continues to be of high priority to the GOT and fits in with the country's Structural Adjustment Program's strategy to revitalize the workforce and make it more responsive to the needs of the economy. The U.S. is viewed as a leader in both technology and in methods of problem solving, and it is felt that the students trained in the US (an estimated 1,000 by the end of the authorization period) will form a critical mass capable of creating change and of assuming positions of importance and authority.

The U.S.G. gives high importance to the project, both for its immediate political value and for the qualitative long-term aspects considered beneficial to the U.S., such as the potential for personal and professional linkages contributing to future goodwill, increased trade and investment, and generally increased commercial ties.

The amendment is designed to provide financial assistance through FY 1991, when it is expected that the GOT will have completed its internal Structural Adjustment Program and may be in a better position to assume increased responsibility for the program. (See Section III.B.2.)

Changes under the amendment are also designed to reduce student numbers to render the program more manageable from both the financial and administrative standpoint. This is to be accomplished through limiting the numbers of entering students, restricting the program to graduate level and restricting the number of degrees financed by the project to two.

A further need addressed by this amendment is the improvement of the management and reporting capabilities of MUST, which will be accomplished through staffing additions and better reporting procedures.

New elements added to the project under Amendment No. 8 are: 1) a provision for the payment of student taxes, required under new U.S. tax legislation, since student stipends can not cover this additional expense, 2) a provision for the incorporation into the program of students from other USAID programs at the time the PACD's have expired, thus allowing a successful completion of training programs without extending project dates (funds for this training will probably be deobligated and reobligated from other project sources), and 3) a provision to include specialized technical short-term training and possible participant exchanges beginning with FY 89 according to identified needs.

B. Redesign Features

1. Size and Structure of Program.

As the number of students involved in the training program is a critical factor in project funding, budget and program management, certain limits and guide-lines have been set and agreed upon.

In Amendment No. 7, and in PIL No. 18, dated November 20, 1987, and in subsequent verbal agreements, the number of new program starts (from both entering students and those having completed a previous degree) has been limited to 60 entering MS students and 20 entering PhD students per year. No new undergraduate students, except in exceptional cases, will enter the program. Furthermore, under PIL No. 18, degree continuation will be limited to only two consecutive degrees in order to maximize the number of students benefitting from the project. In addition, a general limit per year of USAID program funding to \$5 million (see VIII below) has been set due to funds availability and other program considerations. The GOT has agreed to finance program costs beyond USAID contributions. (For FY 1988, the required project amount is \$5.25 million - see Section III. 8.9.)

2. Duration_of_Program

In view of the high importance the GOT places upon the student training program in the US, determining an appropriate cut-off date for USAID support to the project is a matter requiring careful consideration of all elements including political impact. The issue will be examined in 1990 during the next scheduled project evaluation along with the GOT and USG priorities. Continuation of the project beyond FY 91 will depend on a variety of considerations including the GOT foreign exchange position; accomplishments under the Structural Adjustment Program, and workforce requirements. Another factor of importance will be the future development of a Carthage Institute of Technology.

3. Fields_of_Study

The GOT began its U.S. student training program with the aim of training engineers in the US both for the workforce and as teaching staff for university level technical institutions. Virtually all undergraduates sent under the program have been placed in engineering fields. Since the participation of USAID, however, there has been an effort to diversify training at the graduate level, and approved fields of study have been enlarged to include management, computer science, economics, agricultural economics, food processing, physics, accounting, statistics, finance, MBAs and other fields of management science.

This move towards diversification of fields has been supported by a study conducted under the project in October 1987 on the manpower needs in the technical sector projected to 1992. This study pointed to the limited capacity of the Tunisian labor market to absorb more engineers, except in selected specialities, and recommended that training efforts be redirected to take into account the needs of the labor market and the development priorities of Tunisia. Under PIL No. 18, the GOT has agreed to consider the country's skilled manpower requirements in placing students in appropriate fields of study.

The results of this shift in policy will not be apparent in the immediate future given the number of undergraduate students still in the pipeline, but the guidelines have been set and the first steps taken with the entry of new students in the Fall Semester of the 1987/88 school year. (See Annex D, Fields of Study.)

4. Student_Maintenance_Stipends

The amount of the student monthly maintenance, presently set at \$550 has been closely reviewed and determined by MUST to be sufficient at the present time. In order to bring the

student stipend levels closer to those recommended in Handbook 10, USAID and the GOT negotiated the interim increase to \$550 for the Spring Semester of the 1988 school year. The level will be jointly reassessed periodically in the future.

5. Project Management and Reporting

Under the increasing demands of the substantial student training program requiring personnel for placement, supervision, financial disbursement, record keeping and reporting, etc., staff shortages at MUST have become apparent. To ensure proper program implementation, an increase in staff is clearly essential and will be provided according to the terms of PIL No. 18, under which the GOT has agreed to finance an additional Academic Advisor and USAID to fund another Academic Advisor as well as a Data/Information/Reports Manager, a post of particular importance since, in order to ensure the smooth functioning of the program, USAID must have complete and regular reporting from MUST on all aspects of the project. USAID has agreed to "second" one of its two supergrade FSNs to MUST to perform the role of Data/Information/Reports Manager.

6. Employment of Returnees

A basic concern has been the integration into the Tunisian workforce of those completing US training under the project. Steps are being taken to deal with this problem, and the Ministry has agreed (Amendment No. 7 and PIL No. 18) to provide employment placement assistance to returnees and, further, given the fact that practical work experience is valued in the Tunisian job market, to provide opportunities for practical training, including, where possible, summer intern programs. USAID commissioned a survey (December 1987) to take a census of those students who have returned to date in order to determine their employment status and needs for assistance.

Additionally, a recent study of the demand for engineering and other fields of study and placement assistance requirements was undertaken by TVT associates Inc. (October 1987). Initial findings revealed that students returning to Tunisia had found employment and no immediate requirements for placement services were indicated. However, USAID and the GOT remain concerned with the potential need for a placement service since the next several years' output from the project will greatly exceed current output. USAID has explored with the GOT the possibility of using private delivery of placement assistance. (See Annex G.) This will be investigated further under Amendment No. 8.

7. Contractual Agreements (Bonding)

To ensure the return to Tunisia of students financed under the project, the Ministry has agreed (PIL No. 18) to establish contractual agreements with students requiring their return for a five year period. Students entering the Spring Semester of the 1987/88 school year are now required to sign a contract requiring return to Tunisia upon completion of their terminal degree and residence in Tunisia for 5 years.

8. USAID Financial Contribution Ceiling

As set forth in PIL No. 18, the USAID contribution to the scholarship program for FY 1988 is set at a \$5 million level per FY. The GOT has agreed to cover any program expenses exceeding this amount.

9. Student Tax Liability

With the 1986 Tax Reform Act in the U.S., Tunisian students under the Technology Transfer Project are liable for United States income tax. Additional project funds will be made available to pay this tax.

10. Short-term Training

As short-term training offers a means to update skills and provides an area of opportunity for specialization and retraining responsive to Tunisia and Agency priorities, the amendment will include funding for this new component. Students currently enrolled in degree seeking programs will not be eligible for financing under this component. With the PACD expiration of the Transfer of Technology portion of the Private Sector Project 664-0328 on September 30, 1988, USAID will not have any training project for non-degree short-term training. Funds made available to the Technology Transfer Project for this component are expected to cover all short-term training needs generated by the USAID program in Tunisia. Examples of training include International Development Law Institute seminars and short courses in contract negotiation, leasing development, telecommunication and computer science courses related to completed projects and the ongoing Tunisian structural adjustment program.

11. Degree Termination of Other Project Participants

Under Amendment No. 8, the project will provide a funding vehicle for the selected deobligation and reobligation of funds under several USAID projects having reached their PACDs prior to degree termination of student participants' training programs. It is currently anticipated that students from three projects will be included in the project (The Range Management Project (664-0312.8), with a May 17, 1989 PACD, leaving 1 MS and 6 BS students to

terminate degrees requiring from 3 to 12 months; the Family Planning and Population Development Project (664-0331), with a June 30, 1989 PACD, leaving 1 Ph.D candidate requiring approximately 3 additional years for degree completion; and the Agriculture Technology Transfer Project (664-0304), with a December 31, 1990 PACD, leaving 3 MS and 4 Ph.D candidates requiring a maximum of 18 months to terminate degrees.). The total cost of these degree completions is estimated at \$625,000.

The timing and amounts of the deobligations required will be set as the three projects move closer to their respective PACDs and more precise funding needs for degree completion can be determined. No MUST or Ministry of Higher Education involvement will be required since the respective ministries involved (Ministry of Health and Family Planning and the Ministry of Agriculture) will retain their present management roles. Also it is anticipated that the existing procedures and funding arrangements, which differ somewhat from those of the Technology Transfer program, will be retained.

C. Project Inputs

The total cost of the project over the authorization period is estimated at U.S. \$64.521 million. Of this total, U.S. \$45 million will be funded by A.I.D. with the balance (equivalent to U.S. \$19,521 million) contributed by the Government of Tunisia (GOT).

The U.S.A.I.D. contribution for FY 1988 for this Project Amendment No. B will be \$5.25 million. Future FY contributions will be made subject to funds availability. A.I.D. will finance training costs, technical assistance and special studies and assessments. The Grantee will provide five percent of the direct training costs, Tunisian staff and office space in the U.S. and Tunisia, and the international roundtrip airfares for students under the scholarship program.

1. A.I.D. Inputs

a. Technical Assistance.

A.I.D. assistance presently includes funding for one long-term educational advisor at MUST headquarters in Washington, D.C. Under PIL No. 18, the GOT has agreed to add another advisor at GOT expense prior to U.S.A.I.D. funding two additional staff members: An additional academic advisor and a data/reports manager. The latter will enable MUST to comply with the continuous and complete reporting necessary to insure the timely flow of disbursements, will help with identification and solution of policy and implementation issues as they arise, and will ensure timely submission of reports to U.S.A.I.D. and AID/W.

24

b. Training

The largest portion of A.I.D. funding under Amendment No. 8 will cover direct training costs and will total \$4.75 million. Total training costs over the four year authorization period are projected to be \$16.625 million. Utilizing FAR procedures, A.I.D. will fund 95 percent of the direct scholarship costs for approximately 1,350 additional person years of training in the U.S. A.I.D. funding in the amount of \$95,000 will be used to support English language training in-country. Funds totaling \$380,000 are allocated for special studies, assessments, audits and evaluations.

c. Short-Term Training

This funding will provide A.I.D. with a mechanism to fund short-term specialized technical training in areas of particular interest. It will allow A.I.D. to take advantage of opportunities to up-date technical skills of people trained under earlier, completed A.I.D. funded projects, as well as to respond to both GOT and A.I.D. priority areas which cannot be funded under current on-going projects such as linkages development between selected U.S. and Tunisian schools of higher education.

d. Completion of Degrees

This component will provide A.I.D. with a funding vehicle whereby projects approaching a PACD, but with participants still in training, could have funds deobligated and reobligated to the Technology Transfer Project. This would allow on-going participants to complete their degrees without extending their respective project completion dates, simplifying U.S.A.I.D. management requirements.

2. Government of Tunisia Inputs

Under this amendment, the Grantee will provide five percent of the total direct training costs and will provide international roundtrip airfares for each student. The Grantee will maintain, staff and operate MUST in Washington, D.C. which will be responsible for selection, placement and management of all students funded under the project. The GOT has agreed to add one additional academic advisor to MUST staff financed from GOT sources.

IV. Project Implementation

A. Implementation Plan

AID funds will be used to reimburse the GOT for previously negotiated costs for scholarship students. The financing method will be a continuation of a Modified Fixed Amount Reimbursement (FAR) which has been used since Amendment No. 3. USAID has modified this method to finance scholarship training in the U.S. by the following:

11

- Prior to the start of each school year, USAID and GOT will negotiate a FAR based on an average of the estimated cost per student per academic term payable in two installments for each term.
- At the beginning of each semester, the GOT will provide information on each student to include name, identification number, name of university where enrolled and degree being pursued.
- Upon acceptance of documentation, USAID will advance to the GOT 90% of the "average student semester cost."
- Following the end of each semester, the Scientific Mission in Washington will provide "Certificates of Completion" for each student for whom reimbursement is sought.
- Upon receipt of MUST certification of the number of students actually enrolled in the semester and pursuing studies, USAID will reimburse the GOT the remaining 5% of scholarship costs according to the following formula: number of certified students x FAR Total average student term cost - FAR advance.
- Other expenses allowed under the terms of the Grant, i.e., English language training, assessments, etc., will be paid directly by USAID upon receipt of a bill or voucher or will be reimbursed to the GOT upon receipt of appropriate payment documentation.

Annex D provides a projected implementation plan for the project based on the redesign features described in Section III. B.

B. A.I.D. Disbursement Schedule and Projection

As of January 31, 1988, AID has disbursed funds under this project as follows:

- A.I.D. has disbursed \$22,966,919 toward scholarship costs for 697 Tunisian students.
- A.I.D. has funded a total of \$1,458,137 in Technical Assistance contracts.
- Other disbursements for training, studies, and assessments total \$137,103.
- Total disbursements are \$24,562,159.

Disbursement of the \$5.25 million to be obligated in FY 88 by Amendment No. B funds is projected as follows:

- \$4.750 million is set aside to cover allowable scholarship costs for the 1988/89 school year.
- \$245,000 is set aside to pay U.S. income tax for Tunisian students if the current ruling on taxes remains in force and the bi-lateral tax treaty is not signed by the GOT prior to April 15, 1988.
- \$225,000 will cover technical assistance to MUST and the Ministry of Higher Education for in-country English language training costs.
- \$30,000 will cover costs for studies, assessments, audits and evaluations.

C. Evaluation

The project was last evaluated in the first quarter of FY 1985 by Creative Associates Inc. Basic findings were all positive and indicated that project design was appropriate for the scholarship program and that project management by the GOT and USAID was both appropriate and effective.

A market demand study and placement services assessment for graduates of the project was undertaken by TVT Associates Inc. in October 1987. In many respects this study, in addition to focusing on demand and placement issues, provided an interim evaluation of the project. Basic findings regarding project management and administration were positive. The study found both GOT and USAID project management arrangements organized and effective. Also it found that the reorientation of the project toward producing graduates with degree training useful for the structural readjustment of the Tunisian economy was correct and conformed to manpower needs.

The project will be evaluated during the second quarter of FY 1990. This will allow approximately two years of implementation of the program design changes negotiated with the GOT. The evaluation will focus on (1) the adequacy of program design to meet the project purpose, (2) review the GOT's management framework for the project, (3) assess program size, structure and pace of student output, (4) the status of returned students' employment in the Tunisian economy and their impacts, (5) the efficiency of the project in training skilled manpower to match identified needs in the economy, and (6) to assess the financial requirements of the project in the out years.

22

V. Financial Plan

A. U.S. Contribution

The FY 1988 USAID contribution to this project is \$5,250,000, and will cover costs associated with direct long-term training in the U.S., income taxes payable by the students, technical assistance, English language training, studies, assessments, audits and evaluations.

B. GOT Contribution

The GOT contribution of \$1.12 million will consist of five percent of the direct training costs, personnel, logical support and management of MUST in Washington and in Tunisia, and the international travel for students under the scholarship program. In accordance with PIL No. 18, the GOT has agreed to cover any expenses of the scholarship program which exceed the annual U.S.A.I.D. contribution.

C. Financial Implementation of the Project

1. Controller Concurrence with Financial Implementation

The planned USAID contribution to the project for the years FY 1988 - FY 1991 is \$19,850,000. This will cover costs associated with short-term and long-term training in the U.S., technical assistance to the U.S.-based GOT agency managing the scholarship program (M.U.S.T.) and foreign exchange costs of in-country English language training, special studies, assessments, audits and evaluation. International travel costs, some scholarship program costs, project personnel costs and support costs for M.U.S.T. in Washington will be borne by the GOT.

The methods of financing outlined in this project amendment No. B are a modified Fixed Amount Reimbursement (FAR) and USAID Direct Payment. These are AID preferred methods of financing so a full justification for their use is not required. The planned use of the modified FAR method of financing is detailed in this amendment. The USAID Direct Payment method of financing will be used for Host Country and AID Direct Contracting. These methods of financing do not differ from the current methods utilized in the project. Based on prior experience with GOT Host Country Contracting in this project, the GOT appears to be fully capable to undertake adequate contracting actions for project needs.

2. Provision for Audit

This project provides over the four year authorization period \$380,000 for studies, assessments, audits and evaluations. Amendment No. 8 budgets \$30,000 which is considered adequate for needs. These funds are considered adequate for project audit coverage since a GOT audit of the project was performed in FY 1986, reviewed by USAID and found acceptable; and a pre-audit survey was conducted by AID's Regional Inspector General's Office (RIG) in the 4th quarter of FY 87 and in the 1st quarter of FY 88.

If the RIG pre-audit survey recommends a full-scale audit of the project, the audit will be conducted by RIG. Future project audit needs will be determined from the current RIG pre-audit survey and probable audit, and as a result of ongoing project monitoring. These are expected to be small scale and should not require significant financial resources.

D. Total Project Cost

AMENDMENT NO. B
SUMMARY PROJECT BUDGET
(\$ Million)

USAID CONTRIBUTION

Scholarship Components

	SY 88/89 EY 1988	SY 89/90 EY 1989	SY 90/91 EY 1990	SY 91/92 EY 1991	Total
FAR Payments for Direct Scholarship Costs 1/	\$ 4.750	\$ 4.000	\$ 3.000	\$ 3.500	\$15.250
Taxes	.245	.230	.190	.235	.900
Technical Assistance to MUST	.200	.200	.200	.200	.800
English Language Training	.025	.025	.025	.020	.095
Studies, Assess- ments, Audits, Evaluations, etc.	.030	.050	.150	.150	.380
*Contingency	-----	----.400	----.300	----.350	---1.050
Sub-Totals	\$ 5.250	\$ 4.905	\$ 3.865	\$ 4.455	\$18.475
Support Components					
Short-Term Training	-	.250	.250	.250	.750
Completion of Degrees	-----	---.050	----.325	----.250	---.625
Sub-Totals	-	.300	.575	.500	1.375
TOTALS	\$ 5.250	\$ 5.205	\$ 4.440	\$ 4.955	\$19.850

*Contingency includes anticipated increases in student stipends.

FY = Fiscal Year

SY = School Year

1/ See Annex F for Budget Computations

21

GOT CONTRIBUTION

	EY_1988	EY_1989	EY_1990	EY_1991	Total
Percentage of FAR Payments	.240	.200	.150	.175	.765
MUST Expenses	.200	.225	.250	.300	.975
Airfares	____.680	____.455	____.485	____.510	____2.130
Sub Totals	1.120	.880	.885	.985	3.870

E. Cumulative Total Project Cost

PROJECT BUDGET TO AND INCLUDING AMENDMENT NO. 8
(\$ Million)

Total Project Cost	GOT (\$)	AID (\$)	TOTALS (\$)
1. Technical Assistance 1981-89		1.450	1.450
2. Financed Scholarships 81-89	9.150	28.280	37.430
3. GOT Administrative, Logistic Support and Placement Costs 1981-89	1.346		1.346
4. GOT Airfares 1981-89	5.594		5.594
5. Project Assessments, Audits, Evaluation and Studies 1981-89		.200	.200
6. Technical Assistance to MUST		.200	.200
7. Taxes		.245	.245
8. English Language Training	_____	____.025	____.025
	\$16.090	\$30.400	\$46.490

STUDENT ENROLLMENT BY UNIVERSITY
(As of October 1987)

SCHOOLS	NUMBERS
1. Alfred University	3
2. Arizona State University	12
3. Carnegie-Mellon University	5
4. Colorado School of Mines	11
5. Colorado State University	25
6. Columbia University	2
7. Cornell University	5
8. Florida Institute of Technology	5
9. George Washington University	15
10. Georgia Institute of Technology	19
11. Illinois Institute of Technology	1
12. Iowa State University	2
13. Massachusetts Inst. of Technology	4
14. Michigan State University	28
15. Mississippi State University	1
16. Montana State University	1
17. New York University	1
18. Ohio State University	24
19. Oklahoma State University	10
20. Oregon State University	16
21. Pennsylvania State University	24
22. Princeton University	2
23. Purdue University	11
24. Rensselaer Polytechnic University	5
25. Stanford University	3
26. Syracuse University	2
27. Texas A and M University	1
28. University of Arizona	8
29. University of Arkansas	1
30. University of California/Berkeley	7
31. University of California/Davis	2
32. University of Calif./Los Angeles	4
33. University of Colorado/Boulder	9
34. University of Florida/Gainesville	6
35. University of Houston	8
36. University of Illinois/Urbana	14
37. University of Louisville	6
38. University of Maryland	2
39. University of Miami	1
40. University of Michigan	18

SCHOOLS	NUMBERS
41. University of Minnesota	39
42. University of Missouri	10
43. University of Missouri/Rolla	2
44. University of Nebraska/Lincoln	4
45. University of Oklahoma/Norma	2
46. University of Pennsylvania/Wharton	7
47. University of Pittsburgh	5
48. University of Rochester	1
49. University of Southern California	5
50. University of Tennessee	15
51. University of Texas/Austin	10
52. University of Tulsa	8
53. University of Wisconsin/Madison	30
54. Utah State University	1
55. Virginia Polytechnic Institute	9
56. Washington University/St Louis	2

25

MAJOR FIELDS OF ENGINEERING STUDENTS CURRENTLY ENROLLED IN U.S.
(As of October 1987)

	<u>Chemical</u>	<u>Mechanical</u>	<u>Civil</u>	<u>Electrical</u>	<u>Eng. Science</u>	<u>Computer</u>	<u>Industrial</u>	<u>Petroleum</u>	<u>Ceramics</u>	<u>Misc.</u>
* 1987										
BS	4	4	1	5			2			
MS		9	4	11	1	1	3	1		1
PhD			2							
1988										
BS	4	10	12	19		11	6	6	2	5
MS	5	9	3	7		5	4	2		2
PhD		10	2	12	3	4	11			1
1990										
BS		11	9	9		13	6	3		10
MS										
PhD	4	3	7	5		3	1	1		7
1991										
BS				2		1				
MS										
PhD				1						
	—	—	—	—	—	—	—	—	—	—
	20	91	65	104	4	43	35	16	3	34

Total: 415

* = expected graduation year

Students Currently in U.S.
Non-Engineering Fields of Study
 (As of October 1987)

BUSINESS DEGREES

	Mat	Finance	MIS	Miscellaneous	International
1987					
MS	3	1	1		
PhD					
1988					
MS	5	4	1	1	3
PhD	2	1		1	
1989					
MS	3	1		1	
PhD	<u>2</u>	<u>3</u>	<u>1</u>	<u>1</u>	<u>1</u>
	15	10	3	3	3

ECONOMICS

1987	
MS	1
1988	
MS	6
1989	
MS	1

FUNDAMENTAL SCIENCES

	Mathematics	Miscellaneous
1988		
MS	1	
PhD	1	1
1989		
MS	2	
PhD	1	1
1990		
BS	1	

Students_Currently_in_U.S.
Non-Engineering_Fields_of_Study

AGRICULTURE

	Economics	Agronomy	Animal Science	Rural Development	Plant Pathology
1987 MS	1				
1988 MS		1	1		
PhD	2				
1989 MS				1	
PhD			1		
1991 MS					1
PhD		1			

PROJECTED IMPLEMENTATION PLAN

As of 10/30/87: 474 Students in Program
 -185 Students to Complete Program by Fall
 Semester of 1988
 † 50 New Students Entering in Fall Semester 1988
 339 in Pipeline

	1988/89	1989/90	1990/91	1991/92
Pipeline	339	266	178	190
Students Completing Program	-153	-168	- 68	- 70
Students Entering				
MS	60	60	60	60
PhD	20	20	20	20
Continuing Studies	266	178	190	200
Attending Summer Session Calculated on 30% of Pipeline Students Continuing Studies	56	41	35	36

Assumptions

1. All students will complete degree programs
2. 50 new students will enter January 1988 - 40 MA and 10 PhD
3. No new undergraduates will be entered
4. 30% of continuing students will attend summer sessions
5. No extensions will be granted for 2 year MA and 4 year PhD
6. 7% annual increase used direct scholarship student costs.

ANNEX E

PROGRAM COMPLETIONS BY NEW STUDENTS

		1987/88	1988/89	1989/90	1990/91	1991/92
Enter	MS	+ 40	+ 60	+ 60	+ 60	+ 60
	PhD	+ 10	+ 20	+ 20	+ 20	+ 20
Leave	MS			-40 ('87)	-60 ('88)	-60 ('89)
	PhD					-10 ('87)

ANNEX F

BUDGET COMPUTATIONS
(\$ Million)

	<u>SY</u> <u>1988/89</u>	<u>SY</u> <u>1989/90</u>	<u>SY</u> <u>1990/91</u>	<u>SY</u> <u>1991/92</u>
Students Continuing Program	339 x 13,320 = \$4.516	266 x 14,250 = \$3.791	178 x 15,250 = \$2.715	190 x 16,320 = \$3.101
Summer Sessions	80 x 2,872 = <u>.230</u>	54 x 3,703 = <u>.200</u>	57 x 1,910 = <u>.109</u>	60 x 4,192 = <u>.252</u>
Total Training Costs	\$4,746	\$3.991	\$2.824	\$3.353

Costs per Session
Assumes 7% Annual Increase

<u>FAR Projections</u>	
88/89 - \$13,320,	Summer \$2,872
89/90 - \$14,250,	Summer \$3,703
90/91 - \$15,250,	Summer \$4,918
91/92 - \$16,320,	Summer \$4,192

SY = School Year

1/1

EXECUTIVE SUMMARY

The Technology Transfer Project (TTP) originated in 1981 as a modest 1.45 million dollar effort with a focus on institutional development. In the course of time, after six amendments, the emphasis has changed to supporting a major participant training initiative of the Government of Tunisia (GOT), and the USAID/Tunis expenditure has increased to almost 18 million dollars. This sum represents a significant proportion of the Mission's portfolio.

In preparation for developing the next set of program amendments, USAID and the GOT decided that it would be useful to determine if the project was continuing to be responsive to, and supportive of, the development needs of the country. The Government's seventh five-year plan (1987-91) and its economic adjustment policies suggested that development priorities may have changed, and it was unclear if the project in its present form was consistent with those new priorities.

TvT Associates was given the assignment to respond to these concerns. A four-person team conducted a six-week field study in Tunisia, followed by additional data analysis in Washington, DC. The assignment may be paraphrased as requiring a response to the following questions:

- (1) Is the Technology Transfer Project still meeting the development needs of Tunisia?
- (2) Is there a need for a program redesign that would address the employment needs of its graduates?
- (3) Is the program likely to contribute to an oversupply of engineers in view of the changed economic environment of Tunisia?

The complete work statement is provided in Appendix 3. In addition to the tasks in the statement of work, a number of related questions were examined:

- (1) An investigation was made of the status of TTP graduates since their return to Tunisia, and 30 returnees were interviewed.
- (2) A complete accounting (as of August 1987) was made of:
 - degrees granted under the TTP program,
 - individuals graduated from the program, with the number of their (program) degrees,
 - individuals currently enrolled in the program with the number of (program) degrees.

This reconciliation allows a complete accounting of the project's output and current load in both individuals and degrees.

MAJOR FINDINGS

The findings of this study are given in detail in Chapter 4. We summarize below the major findings.

Supply and Demand for Engineers

There will be a bifurcated labor market, with

- an oversupply of engineers in the fields of mechanical, electrical, civil, and mining engineering, especially at the "engineer" (BAC+4) level; and
- a continuing need for personnel in most other fields, especially the higher-technology fields and at the "principal engineer" levels.

Strengthening Tunisian Institutions

- The Technology Transfer Project has been shifting participants into areas of need, and continuing participants to higher degrees.
- In addition, the Technology Transfer Project is training selected participants to the PhD level, with a view to strengthening the faculties of Tunisian institutions.

Policy Analysis and Management Training

- Though no quantitative analysis of the demand and supply for these fields was performed, a qualitative analysis showed that a need in these areas will develop, due to:
 - increased use of computers in administration and for information systems,
 - increased emphasis on financial services,
 - privatization and increased emphasis on the private sector,
 - decentralization, and
 - increased emphasis on export marketing and foreign exchange earnings.

- Tunisian institutions are producing personnel in the policy analysis and management areas, but mainly at the BAC+4 level. The programs are limited.
- The Technology Transfer Project has already shifted toward these areas. While 21 percent of Master's degrees and 17 percent of PhDs who have completed the program were in policy/business fields, among current enrollees the proportions are 29 percent of Master's students and 21 percent of PhD students.

Placement Services

- No need was found for establishment of formal placement services in either the public or private sector. Current search methods for employment and employees are satisfactory to both employers and job seekers. Of thirty returned TTP graduates interviewed, twenty-seven were currently employed, two had severed previous employment to find better jobs, and one was unemployed.
- Provision of secretariat services to the "amicale" of returned foreign students would
 - strengthen returnees' networking efforts
 - provide an unobtrusive method to maintain contact with returned TTP graduates.
- In addition, there is a need for TTP skills in the private sector in the areas of
 - equipment maintenance and repair
 - computer support, and
 - consulting in specialty engineering fields.

TTP graduates could consider becoming entrepreneurs in these areas. Support from private sector development projects of USAID/Tunis in the form of

- provision of materials detailing opportunities and sources of support, and
- business development support

would help fill this need, and provide additional opportunities for TTP returnees.

Disposition of TTP Graduates

- The team was able to ascertain the status of sixty-seven TTP graduates who had finished prior to January 1987. Of these, 63 were in Tunisia and four were working abroad.
- In toto, 643 students have entered the program and 166 have completed their studies. Of the 477 currently enrolled, 121 already have one American degree and 24 of 105 PhD students have two prior American degrees. The retention of students past their first American degree contributes to the objective of the Technology Transfer Project to transfer American technology and private sector orientation.

Project Administration and Management

- The selection and management of TTP students is well organized and effective.
- The observed reorientation of degree and field objectives of participants conforms to the needs found in this study.
- Employers and returned participants expressed the opinion that employability of TTP graduates would be enhanced if their programs included summer cooperative work experience in the U.S. or Tunisia.
- USAID/Tunis has difficulty obtaining a satisfactory accounting of students and degrees from the Project. This problem could be alleviated by expanding the student tracking system used by MUST to manage individual students and their programs to a data base system.

MAJOR RECOMMENDATIONS

Project Continuation and Reorientation

The Technology Transfer Project is fulfilling its intended objective of transferring American technology and orientation toward technological, management and economic challenges to Tunisia. It should be continued at approximately its current level.

Flexible program goals should be formulated in the areas of:

- the distribution of Project output among degree levels, and the distribution of the number of degrees earned with Project support,

- the distribution (by degree level) of degrees among
 - various engineering and other technology fields,
 - policy analysis, and
 - management;

and a modality, involving MESRS, MUST and USAID/Tunis should be developed to continue to adjust these goals to GOT development needs.

Project Administration and Information

Support should be provided to MUST to convert the present student tracking system to a data base system which will routinely deliver information on:

- the number of graduates at each level and the number of American degrees for each,
- the number of students studying for each degree and the source (American or Tunisian) of their previous degrees, and
- field of study.

This information will allow a complete accounting of Project output in both individuals and in degrees.

Placement Service

We recommend that no formal placement service be initiated for Technology Transfer graduates; however, other support should be provided (see below).

Networking Support

An effort should be made to provide support in the form of a secretariat to the "amicale" of returned foreign students and/or the Order of Engineers. This secretariat could provide help in

- registration,
- preparation and mailing of resumes, and
- networking, and

it would furnish a method of maintaining contact with and supporting returned graduates.

A local company might provide these services under contract. The contractor could also supply support to local employers in locating personnel with scarce skills. At a small fee for such service the secretariat might become self-supporting.

Private Enterprise Support

An effort should be made to support returned TTP graduates who want to go into business for themselves, either as a service business or as manufacturers. This support could consist of

- material identifying
 - the need (potential clients) for such businesses, especially service businesses, in the Tunisian economy, and
 - the support available for entrepreneurs;
- distribution of such material, to
 - MUST, for inclusion in a "return kit," and
 - to returned graduates; and
- perhaps, financial and business development advisory support for aspiring entrepreneurs who are TTP graduates.

ANNEX_B

GOVERNMENT OF TUNISIA REQUEST FOR ASSISTANCE

(to be cabled by USAID/Tunis)