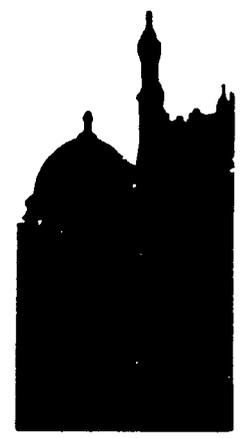


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**UNITED STATES
INTERNATIONAL DEVELOPMENT
COOPERATION AGENCY
AGENCY FOR INTERNATIONAL DEVELOPMENT**

**MANAGEMENT
REPORT**



**TUNISIA
RENEWABLE
ENERGY
PROJECT**

SEPTEMBER 1980

**LEVELS 2 & 3
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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION - LEWIS RESEARCH CENTER

**UNITED STATES
INTERNATIONAL DEVELOPMENT
COOPERATION AGENCY
AGENCY FOR INTERNATIONAL DEVELOPMENT**

**MANAGEMENT
REPORT**

**TUNISIA
RENEWABLE
ENERGY
PROJECT**

**AID/NASA
INTERAGENCY
AGREEMENT
DSB-5710-2-79**

Accomplishment: Larry R. Sudder October 21, 1980
Date

Approval: D.T. Bernatovic October 21, 1980
Date

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION - LEWIS RESEARCH CENTER

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RESPONSIBILITY:

APPROVAL D. BERNATOWICZ

ACCOMPLISHMENT L. SCUDDER

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ENERGY PROJECT

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- 6.0 FINANCIAL SCHEDULE
- 7.0 LERC MANPOWER SCHEDULE
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1.0 BACKGROUND

The Tunisia Renewable Energy Project is a cooperative program between the Government of Tunisia (GOT) and the United States Agency for International Development (AID). The Project goal "is to demonstrate the economic, social, and technical value of alternative energy resources and technologies in assisting the development and in improving the quality of life in Tunisia."

The Project consists of two major subprojects: (1) District Energy Applications and (2) Training. The District Energy Applications are being implemented jointly by the NASA Lewis Research Center (LeRC) acting for AID, and the Societe Tunisienne de L'Electricite et du Gaz (STEG) acting for the GOT. The Training Subproject is being managed by AID/W.

Project funding is shared by AID (75%) and GOT (25%). Amendments 1, 2, and 3 to a Participating Agency Services Agreement (5710-2-79) between NASA and AID provides a total funding authority of \$1,437,700.00 to cover the NASA managed phase of the Project. Counterpart funding is supplied by the GOT for the STEG managed phases of the Project.

Detailed roles and responsibilities of the participants are defined in the Project Implementation Plan which is being revised for final approval. Technical and management services, provided by NASA LeRC, are performed by the Development and Support Project Office in the Solar and Electrochemistry Division of the Energy Directorate.

2.0 OBJECTIVE

The objective of the District Energy Applications Subproject is to demonstrate the ability of solar and wind technologies to perform work and supply the minimum services necessary in a remote village and in rural agricultural settings.

3.0 ACTIVITIES

The village and district of Hammam Biadha have been selected as the site for the solar and wind technology demonstrations. The demonstrations consist of agricultural applications and village

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NARRATIVE ANALYSIS

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applications. The agricultural applications include four types of demonstrations as follows:

- o A solar greenhouse with thermal storage and a wind-powered water pump. (2 sites)
- o A photovoltaic-powered drip irrigation system for open field farming. (1 site)
- o A photovoltaic electrical system for domestic farm needs and for water pumping in conjunction with a solar greenhouse. (1 site)

The village applications include the following:

- o A central, 10-20 peak kilowatt photovoltaic system.
- o A solar hot water system for the village clinic.
- o A solar heating system designed to meet part of the space heating load of the clinic.

Details are contained in the Conceptual Design Report (TPPO No. 4210-052).

The major activities required to implement the Project consist of:

- (1) Planning and Studies
- (2) Procurements and Contracts
- (3) Site Preparation and Local Construction
- (4) Orientation and Instruction
- (5) Tests and Demonstrations
- (6) Project Management
- (7) Project Evaluation

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4.0 STATUS OF ACTIVITIES

4.1 Planning and Studies

The Implementation Plan revisions have been completed and the final draft is in the NASA approval cycle for submission to AID/T and STEG. Approval of the Plan by AID/T and STEG will complete the Planning and Studies Activity which previously included the initial site visit report, the baseline socio-economic study, and the conceptual design.

4.2 Procurements and Contracts

The major effort during September was directed toward completion of the Procurement Package for the three PV power systems. The Statement of Work was completed and is in the NASA review and approval cycle.

The milestone for contract award which was erroneously shown on the Master Schedule last month as March 1981 has been corrected to May 1981.

4.3 Site Preparation and Local Construction

No activity scheduled for this reporting period.

4.4 Orientation and Instruction

No activity scheduled for this reporting period.

4.5 Test and Demonstrations

No activity scheduled for this reporting period.

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4.6 Project Management

Discussions were held with MSFC regarding their continued participation in the Project for technical assistance with the solar heating systems and greenhouses. These arrangements will be finalized next month.

A cable was sent to STEG to determine their preference regarding a single phase or three phase inverter output for the village farmhouse systems.

STEG must decide as soon as possible what portions of the wind pumping systems will be procured in Tunisia. Procurement activities for these systems should begin in November to comply with the project implementation schedule.

4.7 Project Evaluation

No activity scheduled for this reporting period.

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ACCOMPLISHMENT <u>L. SCUDDER</u>		FY 1980					FY 1981					FY 1982																									
ACTIVITY/MILESTONES ¹		O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S
4.1 PLANNING & STUDIES (N,S)				V	E	V	V	W		X		C																									
4.2 PROCUREMENTS & CONTRACTS																																					
4.2.1 Wind Systems (N,S)																																					
4.2.2 Drip Irrigation (S)																																					
4.2.3 Greenhouses (S)																																					
4.2.4 Solar Hot Air System (S)																																					
4.2.5 Solar Hot Water System (S)																																					
4.2.6 PV Systems (N)																																					
4.3 SITE PREPARATION & LOCAL CONSTRUCTION																																					
4.3.1 Agricultural Systems (S)																																					
4.3.2 Village Systems (S)																																					
4.4 ORIENTATION & INSTRUCTION (N,P)																																					
4.5 TEST & DEMONSTRATION (S,N)																																					
4.5 PROJECT MANAGEMENT (S,N)																																					
4.7 PROJECT EVALUATION (S,N,P)																																					

NOTES: A - Award Contract E - Socio-economic Study P - Procurement Phase U - Trip Report □ - Evaluation Plan
 B - Begin Activity I - Installation R - Release RFP or IFB V - Site Visit ◇ - Periodic Project Eval.
 C - Complete Activity M - NASA/STEG Coord. Mtg. S - Ship to Site W - Conceptual Design (economic, social,
 D - Demonstration Phase ▲ - Monthly Report T - Testing Phase Y - Bidders Conference technical)

¹Responsibility: STEG (S) NASA (N) Peace Corps (P)

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7.0 IN-HOUSE PERSONNEL

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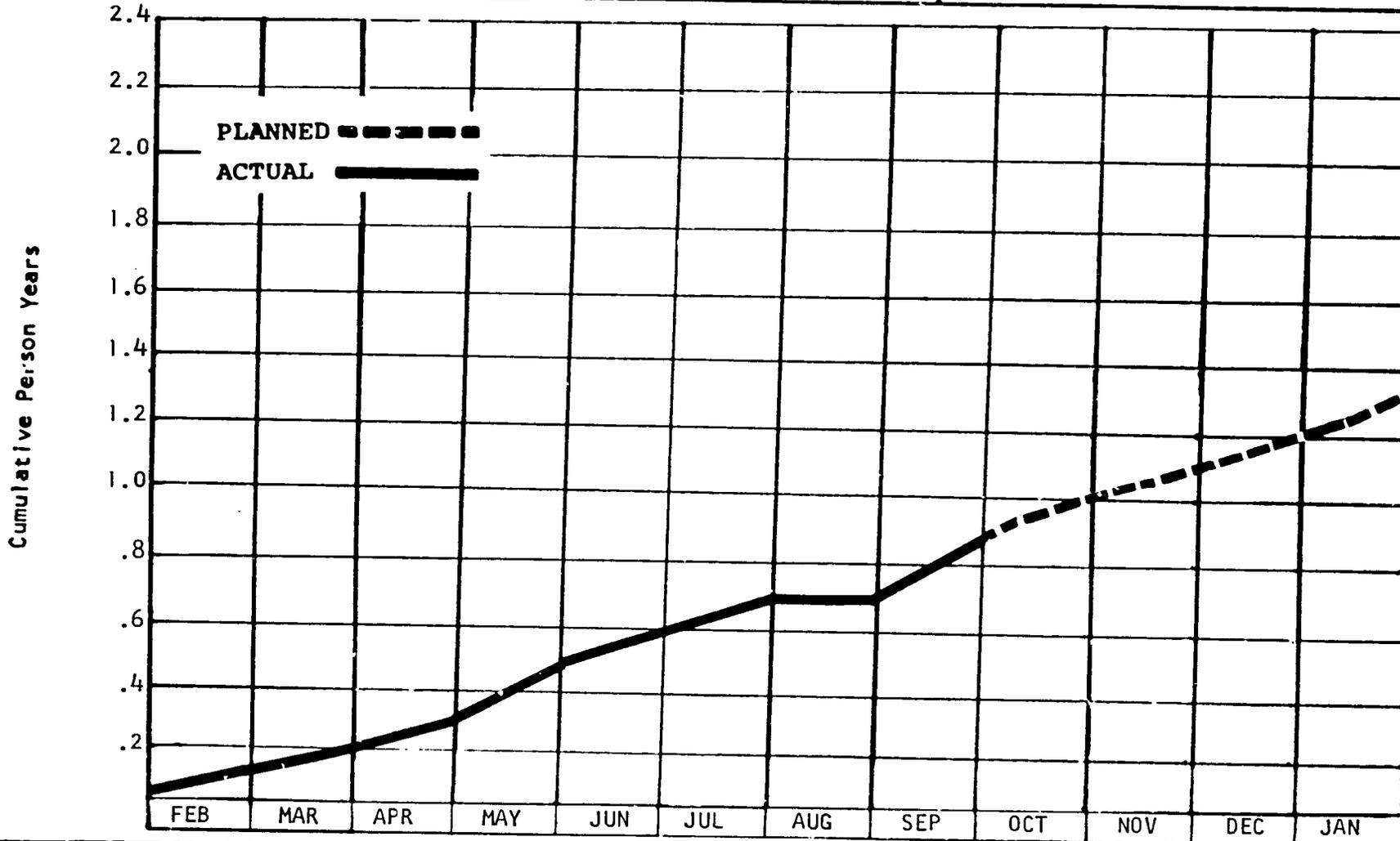
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ENERGY PROJECT

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Total	Planned	.2	.3	.4	.5	.6	.7	.8	.9	1.0	1.1	1.2	1.3
	Actual	.1	.2	.3	.5	.6	.7	.7	.9				

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