

3860465/15
 PD-445-833

CLASSIFICATION
 PROJECT EVALUATION SUMMARY (PES) - PART I

Report Symbol U 147

1. PROJECT TITLE Technologies for the Rural Poor		2. PROJECT NUMBER 386-0465	3. MISSION/AID/W OFFICE USAID/India
		4. EVALUATION NUMBER (Enter the number maintained by the reporting unit, e.g., Country or AID/W Administrative Code, Fiscal Year, Serial No. beginning with No. 1 each FY) 82-4	
		<input checked="" type="checkbox"/> REGULAR EVALUATION <input type="checkbox"/> SPECIAL EVALUATION	

5. KEY PROJECT IMPLEMENTATION DATES			6. ESTIMATED PROJECT FUNDING	7. PERIOD COVERED BY EVALUATION	
A. First FY 78	B. Final Obligation Expected FY 78	C. Final Input Delivery FY 85	A. Total \$ 2.7 million	From (month/yr.) April 81	To (month/yr.) March 82
			B. U.S. \$ 2.0 million Grant	Date of Evaluation Review April 82	

8. ACTION DECISIONS APPROVED BY MISSION OR AID/W OFFICE DIRECTOR

A. List decisions and/or unresolved issues; cite those items needing further study. (NOTE: Mission decisions which anticipate AID/W or regional office action should specify type of document, e.g., program, SPAR, PID, which will present detailed request.)	B. NAME OF OFFICER RESPONSIBLE FOR ACTION	C. DATE ACTION TO BE COMPLETED
Approval for revised budget estimates of counterpart rupee allocations from Indian Council of Medical Research for Sub-project No.7, Field Evaluation of Serological Tests of Malaria, still awaited.	R.K. Berry	May 31, 1982

9. INVENTORY OF DOCUMENTS TO BE REVISED PER ABOVE DECISIONS None

<input type="checkbox"/> Project Paper	<input type="checkbox"/> Implementation Plan & CPI Network	<input type="checkbox"/> Other (Specify)
<input type="checkbox"/> Financial Plan	<input type="checkbox"/> PID/T	_____
<input type="checkbox"/> Logical Framework	<input type="checkbox"/> PID/C	<input type="checkbox"/> Other (Specify)
<input type="checkbox"/> Project Agreement	<input type="checkbox"/> PID/P	_____

10. ALTERNATIVE DECISIONS ON FUTURE OF PROJECT

A. Continue Project Without Change

B. Change Project Design and/or Change Implementation Plan

C. Discontinue Project

11. PROJECT OFFICER AND HOST COUNTRY OR OTHER RANKING PARTICIPANTS

R.K. Berry
 R.K. Berry, Project Officer
 Office of Project Development

John R. Westley
 John R. Westley, Chief, Program Office

Clearances: PD:JAMalick
 PD:RWNachtryb

12. Mission/AID/W Office Director Approval

Signature *Priscilla M. Boughton*

Typed Name Priscilla M. Boughton

Date MAY 6 1982

USAID, New Delhi

PES - Part II
Progress Review

Project No. & Title: 386-0465, Technologies for the Rural Poor (TRP)

Summary

This project was designed to finance dollar costs of sub-projects to support the application of science and technology for rural development. The primary focus was to be on non-conventional energy projects with a small amount of grant allocated to activities in agriculture and health plus exchange of scientific visits. The project agreement was signed on August 26, 1978 containing general guidelines and criteria for the submission of proposed sub-projects. Protracted delays occurred in the submission of sub-projects that met the technical, economic and social criteria of the project. The major problems causing these delays were insufficiently specific guidance and criteria for approval of sub-projects, inadequate staff attention both by the Government of India (GOI) and USAID and delays in these GOI approval process. As discussed in the regular evaluation of the project (USAID/India PES No.81-2 dated April 9, 1981), these guidelines were revised and much improved dialogue took place between the Department of Science & Technology (DST) and USAID during 1979-80 on the directions of the project with more staff attention from DST and USAID. Consequently, as of December 1981, seven sub-projects totalling Dollars 1,940,000 have been committed and approved. The remaining Dollars 60,000 is retained for miscellaneous activities such as exchange of scientific visits out of which Dollars 30,000 have already been spent. A brief description of each of the sub-projects, current status and problems and constraints is attached (Attachment "A"). Since the average life of these sub-projects is three years, the Project Assistance Completion Date (PACD) has been extended from September 30, 1981 to December 31, 1984. Except for one sub-project all are proceeding on schedule.

SUMMARY DESCRIPTION OF SUB-PROJECTS

1. <u>Sub-Project Title</u>	<u>Collaborative Institutions</u>
"Development and Application of Decentralized Energy Systems Utilizing Non-Conventional Energy Sources"	Bharat Heavy Electricals Ltd./ Central Electronics Ltd. & Jet Propulsion Laboratories.

<u>Date Approved</u>	<u>Agreement Signed</u>	<u>Amount</u>	<u>Duration</u>	<u>Amount Disbursed</u>	<u>GOI Contribution</u>
6/12/80	8/29/80	\$600,000	3 years	\$100,826	Rs.5,012,000

Summary Description:

The objective of the project is to design, develop and install and test solar energy systems for the efficient utilization of solar energy in Indian villages. The total system is comprised of two sub systems: solar photovoltaic and solar thermal power generation. The total capacity of solar photovoltaic (CEL/JPL) will be 7 KW peak and the capacity of solar thermal (BHEL/JPL) will be approximately 12 KW.

The two parallel tests will proceed in two phases: Phase I will cover system design and will last about one year; and Phase II will cover system fabrication and village testing and last two years. Both systems will be used to generate electricity, primarily for water pumping and small-scale enterprises.

Current Status:

The implementing agencies, Bharat Heavy Electricals Ltd. (BHEL), Hyderabad, Central Electronics Limited (CEL), Sahibabad, U.P. and Jet Propulsion Laboratories (JPL), Pasadena, California had their first conference at JPL, Pasadena between May 16-30, 1981. During this conference the scope of activities, information exchange procedures, base line configuration of solar thermal and solar photovoltaic systems were discussed and systems components and design activities were initiated. Subsequent to the first conference several tasks have been accomplished, and engineers from BHEL have visited JPL to work on concentrator and receiver design, instrumentation and control systems for the solar thermal component.

In February 1982 a design review conference of the implementing agencies was held at CEL and BHEL to (1) review the status of tasks and of the overall project, (2) discuss design of the sub systems and components, (3) refine time schedules and milestones, (4) identify hardware and prepare a procurement plan, and (5) discuss future manpower schedule. On February 18 a meeting of

representatives from BHEL, CEL, JPL, USAID and Department of Science and Technology was held at DST to review the progress of the project. In that meeting DST's Energy Advisor mentioned that commissioning of tests on the solar thermal power generation system should be advanced to September 83.

Problems and Constraints:

The JPL representative indicated during his February visit that dollar costs for the project are likely to increase due to the unanticipated need for additional JPL staff to work on system design. USAID has mentioned that it would consider an increase of funds if justified but that JPL should make the maximum effort to remain within its original budget as detailed in the AID/NASA/JPL PASA. To date we have not received any material from JPL pertaining to cost increases.

<u>2. Sub-Project Title</u>	<u>Collaborative Institutions</u>
"Optimization of Solar Drying Systems for Agricultural Produce"	Annamalai University/Colorado State University

<u>Date Approved</u>	<u>Agreement Signed</u>	<u>Amount</u>	<u>Duration</u>	<u>Amount Disbursed</u>	<u>GOI Contribution</u>
12/4/80	5/13/81	\$200,000	3 years	\$33,312 ^{1/}	Rs.590,000

Summary Description:

Annamalai University (Annamalai) and Colorado State University (CSU) jointly propose to design and develop solar dryers for small farmers in India and for their possible application in the U.S. The project aims to develop (1) portable solar dryers for rural farmers and (2) a large scale stationary solar dryer for food processing.

The project will be completed in following three phases:

Phase I - Assessment of drying needs and conceptualization of solar devices which could meet these needs.

Phase II - Design and construction of these devices for side-by-side demonstration in Indian rural areas with the intent of securing comparative assessment of the schemes in terms of operational performance and farmers' opinions.

Phase III - Random deployment of a few top rated devices in villages to conform their utility and acceptability and to gain further information of performance and durability.

Current Status:

Phase I has been completed at the time of the visit of CSU investigator Dr. Charles Smith in November 1981. Annamalai representatives are currently visiting CSU and other U.S. institutions for Phase II activities and also to finalize the list of equipment to be procured from the U.S. The project is proceeding on schedule.

Problems and Constraints:

None.

^{1/} Includes advance \$30,000.

3. Sub-Project Title

Collaborative Institutions

"Medium Temperature, High Efficiency Tracking and Non-Tracking Solar Energy Collectors for Rural and Industrial Application"

Indian Institute of Science (IIS), Bangalore/University of Houston

<u>Date Approved</u>	<u>Agreement Signed</u>	<u>Amount</u>	<u>Duration</u>	<u>Amount Disbursed</u>	<u>GOI Contribution</u>
12/5/80	5/5/81	\$400,000	3 years	\$43,348 ^{1/}	Rs.887,000

Summary Description:

The Indian Institute of Science (IIS), Bangalore and University of Houston (Houston) jointly proposed a five year project in two phases for the design, testing, demonstration and commercialization of solar collectors suitable for the production of hot water and steam for small-scale agro-industries. Each phase will last for three years with a one-year overlap. Financing is provided for Phase I, which involves design, testing and development of prototypes appropriate for production in India. During Phase II (which may or may not require Houston collaboration) solar systems suitable for the production of process steam for sericulture will be demonstrated at two villages near Bangalore, and commercialization will begin, if warranted.

Current Status:

The project is moving according to schedule. Currently Dr. S. Mohan and Mr. A. Thomas of IIS, Bangalore are visiting the U.S. to have first hand knowledge of selective coating, testing facilities and to collect information and documentation of testing of collectors from all available sources in the U.S. They will be exposed to the current U.S. activities related to materials development. The equipment procurement list has been finalized and Houston University has been entrusted the responsibility for procurement on behalf of IIS, Bangalore.

Problems and Constraints:

None.

1/ Includes advance \$20,000.

4. Sub-Project Title

Collaborative Institutions

Identification and development of collaborative scientific sub projects to be supported under the project. The field of enquiry was primarily but not limited to that of energy from biomass.

National Academy of Sciences (NAS), Contract No.ASB-0465-C-00-1019-00

<u>Date Approved</u>	<u>Agreement Signed</u>	<u>Amount</u>	<u>Duration</u>	<u>Amount Disbursed</u>	<u>GOI Contribution</u>
12/31/80	3/13/81	\$225,000	thru 6/30/82	\$55,221	None

Current Status:

The rationale for the NAS contract was the provision of NAS services to USAID and DST for the identification and development of energy related projects for funding under the TRP. Since the sub-projects for the TRP were identified and approved prior to the completion of NAS services, it has been decided to amend the contract (1) to reduce level of funding, (2) to revise the scope of work to include services for the planning of an energy conservation workshop in India, and (3) to extend the termination date from January 30 to June 30, 1982. AID/W has extended the termination date to June 30, 1982. Action on reducing the level of funds and revision of scope of work is pending.

5. Sub-Project Title

Collaborative Institutions

Development of Micro and Low Head Hybrid Hydro Electric Systems for Rural Poor

Roorkee University/Colorado State University

<u>Date Approved</u>	<u>Agreement Signed</u>	<u>Amount</u>	<u>Duration</u>	<u>Amount Disbursed</u>	<u>GOI Contribution</u>
10/5/81	1/22/82	\$150,000	3 years	\$30,000 (Advance)	Rs.1,070,000

Summary Description:

The purpose of the project is to develop economically viable and technically feasible systems for (1) energy production, (2) energy storage and delivery, and (3) energy appliances in integration with low head and micro hydro electric systems for meeting overall energy requirements of a village system. Two typical hydroelectric prototype plants will be developed: (1) a low head hydro plant for installation on small canal falls, and (2) a medium head hydro plant for use in remote hilly areas. The total foreign exchange cost is \$429,000. Financing has been provided for \$150,000 out of the project to meet first year's requirement of the project. Savings realized from fall out under the NAS contract and a small amount from FY 82 Alternative Energy Resources Development Project will be allocated to meet total dollar costs.

Current Status:

Professor Joel B. Dubow and Dr. Rajeshwar Krishnan of CSU visited Roorkee during January/February 1982 to finalize the critical parameters of the project and also participated in a special course on micro hydro systems organized and conducted by Professor Thapar of Roorkee. A field visit to Sonepat (one of the proposed sites for the project) was arranged on January 28 for USAID official and Professor Dubow and Dr. Krishnan. USAID officials also attended the work shop on mini hydro systems held at Vigyan Bhavan on January 30, 1982. Professor Thapar is expected to visit the U.S. in June 1982 to (1) finalize the equipment list and civil design for micro hydel, (2) site requirements for hybrid systems, and (3) finalization of hybrid systems.

Problems and Constraints:

None.

<u>6. Sub-Project Title</u>				<u>Collaborative Institutions</u>	
Comprehensive Studies on Prevention of Nutritional Blindness				National Institute of Nutrition/ National Eye Institute	
<u>Date Approved</u>	<u>Agreement Signed</u>	<u>Amount</u>	<u>Duration</u>	<u>Amount Disbursed</u>	<u>GOI Contribution</u>
10/19/81	-	\$313,560	3 years	-	Rs.843,000

Summary Description:

The National Institute of Nutrition (NIN), Hyderabad and National Eye Institute (NEI), U.S.A. proposed to conduct a series of studies that will help to determine the adequacy of Vitamin A distribution in correcting Vitamin A deficiency and preventing nutritional blindness and also risk factors that may interfere with the effectiveness of India's Vitamin A distribution program in preventing blindness, a major public health problem in India. AID is financing the costs of imported equipment and exchange of scientific visits under the project.

Current Status:

Since NEI is a part of National Institute of Health (NIH), a U.S. government agency, AID/W will negotiate a PASA with NIH to procure the services of NIN. A PIO/T has been issued for negotiating a PASA with NIH. AID/W is in the process of signing a PASA with NIH. NIN has furnished NEI the specifications of the equipment to be imported from the U.S. under the project.

Problems and Constraints:

PASA yet to be executed with NIH.

7. Sub-Project Title

Collaborative Institutions

Field Evaluation of Serological Tests of Malaria

National Institute of Communicable Diseases/Centre for Disease Control

<u>Date Approved</u>	<u>Agreement Signed</u>	<u>Amount</u>	<u>Duration</u>	<u>Amount Disbursed</u>	<u>GOI Contribution</u>
11/6/81	-	\$51,000	2 years	-	Rs.1,121,300

Summary Description:

The National Institute of Communicable Diseases (NICD), Delhi and the Centre for Disease Control (CDC), Atlanta propose to conduct field research in the form of sero-epidemiological studies in support of an operational malaria control program. The aim of the project is to introduce, improve and evaluate antigen production and sero-epidemiologic techniques for use in surveillance and assessment of malaria in India. AID is financing the cost of imported equipment, study tours and a training workshop at NICD.

Current Status:

Because of delays in getting rupee counterpart funds, locally based research activities have been delayed.

Problems and Constraints:

NICD has submitted revised estimates for rupee requirements to its funding agency, the Indian Council of Medical Research (ICMR). ICMR's response is awaited.