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PROJECT EVALUATION SUMMARY (PES) - PART I

Report Symbol U-447

1. PROJECT TITLE  <b>Technologies for the Rural Poor</b>	2. PROJECT NUMBER <b>386-0465</b>	3. MISSION/AID/W OFFICE <b>USAID/India</b>
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) <b>81-2</b> <input checked="" type="checkbox"/> REGULAR EVALUATION <input type="checkbox"/> SPECIAL EVALUATION		

5. KEY PROJECT IMPLEMENTATION DATES A. First PRO-AG or Equivalent FY <b>78</b> B. Final Obligation Expected FY <b>78</b> C. Final Input Delivery FY <b>85</b>	6. ESTIMATED PROJECT FUNDING A. Total \$ <b>2.7 million</b> B. U.S. \$ <b>2.0</b> (Grant)	7. PERIOD COVERED BY EVALUATION From (month/yr.) <b>7/78</b> To (month/yr.) <b>3/81</b> Date of Evaluation Review <b>March 1981</b>
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B. 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., airgram, SPAR, PIO, which will present detailed request.)	B. NAME OF OFFICER RESPONSIBLE FOR ACTION	C. DATE ACTION TO BE COMPLETED
<p>Extension of Project Assistance Completion Date</p> <p>Memo to AA/ASIA to be prepared by USAID and ASIA/PD</p>	<p>Jeffery Malick</p>	<p>April 10, 1981</p>

<p>9. INVENTORY OF DOCUMENTS TO BE REVISED PER ABOVE DECISIONS</p> <p><input type="checkbox"/> Project Paper    <input type="checkbox"/> Implementation Plan &amp; CPI Network    <input type="checkbox"/> Other (Specify) _____</p> <p><input type="checkbox"/> Financial Plan    <input type="checkbox"/> PIO/T    _____</p> <p><input type="checkbox"/> Logical Framework    <input type="checkbox"/> PIO/C    <input type="checkbox"/> Other (Specify) _____</p> <p><input checked="" type="checkbox"/> Project Agreement    <input type="checkbox"/> PIO/P    _____</p>	<p>10. ALTERNATIVE DECISIONS ON FUTURE OF PROJECT</p> <p>A. <input checked="" type="checkbox"/> Continue Project Without Change</p> <p>B. <input type="checkbox"/> Change Project Design and/or <input type="checkbox"/> Change Implementation Plan</p> <p>C. <input type="checkbox"/> Discontinue Project</p>
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<p>11. PROJECT OFFICER AND HOST COUNTRY OR OTHER RANKING PARTICIPANTS AS APPROPRIATE (Names and Titles)</p> <p><b>Peter J. Boughton</b> Chief, Office of Project Development</p> <p><b>John Westley</b> Deputy Chief, Program Office USAID/New Delhi, India</p>	<p>12. Mission/AID/W Office Director Approval</p> <p>Signature <i>P. M. Boughton</i></p> <p>Typed Name <b>Priscilla M. Boughton</b></p> <p>Date <b>April 9, 1981</b></p>
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USAID, NEW DELHI

PES - PART II  
Regular Evaluation

Project No. & Title: 386-0465 - Technologies for the Rural Poor

13. Summary

This project was designed to finance dollar costs of sub projects to support the application of science and technology for rural development. The initial impetus came from discussions which had been going on under different US-Indo Sub Commissions, particularly the Sub Commission on Science and Technology, to promote collaborative activities between the two countries generally endorsed by these Sub Commissions. The primary focus was to be on non-conventional energy projects with a smaller amount of the grant allocated to activities in agriculture, health and education plus related workshops and 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. A Government of India (GOI) mechanism for review and approval of sub projects was created in late 1978 and approved by USAID. While a substantial number of proposals were submitted for funding to the GOI Committee soon thereafter, most were ultimately rejected because of insufficient analysis and justification or as inconsistent with the grant objectives.

Extremely protracted delays occurred in the submission of sub projects that met the technical, economic and social requirements of the project and were consistent with the original intent of the grant to work primarily on energy matters. The major problems causing these delays were insufficiently specific guidance and criteria for sub project approval, inadequate staff attention both by the GOI and USAID officials and lack of a continuing dialogue to reach the necessary common understanding of the project purpose to move the project ahead effectively. A renewed dialogue between the GOI and USAID took place in mid 79 resulting in the issuance of the second set of more focused guidelines and more specific project manager assignments. Subsequent proposals submitted in late 1979 and early 1980 proved to be far more consistent with project objectives. Still, these required more thorough analysis and justification which warranted more guidance and assistance by AID and the GOI to the collaborative institutions to assist in their developing sub projects that could meet the criteria of the grant. Thus, it was only in the latter part of 1980 that a substantial dollar amount of sub projects were approved; several other proposals are in an advanced state of development and have been approved in principle by the two governments.

The prospects of meeting the project purpose and goals could only be judged if there had been sufficient sub project implementation activity (not yet undertaken) to determine how successful sub projects will be. Thus no such evaluation can be made at this time. The types of sub projects approved and those soon to be submitted, however, are consistent with the original project design.

The Project Assistance Completion Date (PACD) is currently September 30, 1981. Since sub projects accounting for only a portion of funds under the grant have recently been approved with others anticipated over the next six months, it is clear that this date will have to be substantially extended. Most sub projects have a planned implementation period of about 3 years. Accordingly, a new PACD should be established for December 31, 1984. The full rationale and background justifying this extension and events leading up to it are contained in the remaining sections of this Project Evaluation Summary.

#### 14. Background

In 1977, the decision was taken jointly by the Governments of India and the United States to resume a bilateral assistance relationship. In considering what projects should be included as part of the initial program, attention was focused on Indo-U.S. Commission activities where an interchange on subjects of mutual interest was already taking place. Discussions under certain of the Subcommissions, particularly the Subcommission on Science and Technology, were consistent with AID's mandate to include technology transfer as an essential ingredient of the program planning. Thus the origins of the Technologies for the Rural Poor Project (originally entitled "Application of Science and Technology for Rural Development") grew from meetings held under the 1977 Science and Technology Sub Commission.

While certain specific project activities had been discussed at the Subcommission, the lack of dollar financing appeared to be a constraint to permitting the implementation of these activities. Rupee funding in some instances was available from U.S. owned rupees allocated to certain U.S. agencies for differing programs in India. This project was designed in part to meet this dollar constraint and implement types of activities endorsed by the Subcommission. As all the early documentation (see primarily the PID) indicates, the focus under the AID grant was to be on non conventional energy development, e.g., solar, biomass conversion, wind energy, etc., with a small percentage of funds reserved for possible activities in the agriculture, education and health areas. Besides specific sub projects, funds were also reserved for workshops, exchange of scientists, etc. An essential part of the purpose of any of the specific sub project activities was to have as near a term impact as possible on benefitting the rural poor.

With the above background and parameters as guiding principles, a project design team including several scientists with specialties in the energy field and an AID loan officer was sent to India in February/March 1978 to develop a project paper incorporating these ideas and providing a criteria for project selection and approval, outlining GOI/USAID administrative arrangements and discussing an illustrative list of projects that might be eligible for financing (see Project Paper - India: Application of Science and Technology for Rural Development). At the time of writing of the Project Paper, a full Mission had not yet been established nor relationships developed with the counterpart GOI institutions, particularly in this case with the Department of Science and Technology (DST). It is important in considering the background of this project to recognize that it was developed in an environment of re-establishing relationships after a long hiatus.

The Asia Project Advisory Committee (APAC) approved the project during May 1978 with two major comments - (1) that it felt it was very important that a full time staff position be allocated for this project because of its complexity with different activities, that the number of sub projects likely to be included would take considerable attention notwithstanding the small dollar size, and because of the diversity, scope and range of implementation problems; and (2) that the project agreement as the formal document expressing the understanding of the parties set out as clearly as possible the guidance and criteria for considering and approving sub projects. Because of overall Agency staffing constraints, Embassy MODE limitations and the need to start up the new program quickly, it was not possible to initially allocate a staff position solely for this project in the new USAID. A project description containing guidelines, criteria, objectives, etc. was drafted and negotiated and forms Annex 1 of the Project Grant Agreement. One should note these two points in considering some of the further history of this project as outlined below.

The Project Agreement was signed on August 26, 1978 containing the project criteria as indicated above and requiring as an essential condition that a GOI inter-departmental committee be established and chaired by DST but include members from a variety of ministries such as Agriculture, Education, Health and Finance. The committee was established in November 1978 and procedures and guidelines submitted to AID in January 1979 which were approved at that time. These guidelines were consistent with the project description and Project Paper and were written in a way to permit a somewhat broad range of activities that would benefit the rural poor, although always with the intention to exclude basic research. While the guidelines were somewhat broad, it is evident from the background papers, including an initial background paper by DST, the PID and certain other

memorandum in the file that projects were intended to be essentially collaborative in nature and that the focus would be heavily on non conventional energy development. Some specific projects that were envisioned to be included had already been discussed prior to either PID or PP preparation in the Science and Technology Sub Commission. While this was the understanding of AID at the time, a reading of the guidelines would not necessarily reflect this direction.

Subsequent to the approval of the committee and its procedures in January 1979, a number of sub projects were presented to AID over the ensuing months, ranging from small individualized research projects of about \$10,000 to one or two very large projects costing more than \$1 million each; none were very consistent with the type of project that was envisioned in the initial project design. A number of these sub projects, while approved in principle by the committee, were sent back for further justification in terms of project criteria. At the same time they were informally given to AID for a review as to whether they would be approved if formally presented. The number, size and nature of these first submissions to the inter departmental committee indicated to USAID that perhaps the guidelines were not explicit enough in defining what was intended and what would be workable as sub projects under the program. In the first instance, there were far too many small projects which would become entirely unwieldy to manage in number; secondly there was very little technology transfer in some of these projects, usually including a request for equipment and personal study tours; thirdly, the major energy projects that were initially talked about did not surface; fourthly, the expensive projects seemed to be large equipment drops; and fifthly, the intended collaborative element was essentially missing.

It became clear to USAID after reviewing a number of these proposals that it would be necessary to discuss the origins and intent of this project again with DST to determine the best means to get the project back on its original track. It should be noted at this point that during the period between January 1979 and the summer of that year as sub projects were being forwarded, there was a shifting group in DST having responsibility for this project which made it extremely difficult to really identify counterpart personnel and have a continuing dialogue as to what was happening. In fact, it was extremely difficult to obtain information as to what was going on. The person who had played the primary role on the DST side concerning the need for and details of the project had been transferred to the Indian Embassy in Washington as its Science Counsellor. The USAID personnel involved feel that

had he stayed at DST, the project would have moved much the more smoothly and within the confines of its original intent. With his departure, there was a clear lack of focus at DST. At the same time, on the USAID side the project was not provided a full time project manager as suggested by APAC and one might conclude that insufficient attention because of lack of staff time was given to project implementation. Part of this resulted from other and seemingly higher priorities in starting a new Mission.

As a result of a number of discussions during July and August on why the project appeared to be going astray, and on USAID's urging to consider the origins of the project again, DST came up with revised guidelines for the project which were far more specific and focused than the earlier guidelines. The salient points which were included were (1) that the grant should only support U.S. dollar costs of collaborative projects falling under priority areas under Indo-U.S. joint sub commissions; (2) that such projects should be designed in a collaborative fashion by Indian and U.S. institutions; and (3) that it was the intention of the grant to take up only a few large sized collaborative projects meeting the above criteria rather than too many smaller sized projects. These revised guidelines which had been informally discussed and agreed to by USAID were formally submitted to USAID in October 1979.

In addition to the submission of new guidelines, a much improved dialogue took place between DST and USAID on the directions of the project with more focused staff attention from both agencies. More specific encouragement was given to projects that would satisfy the grant criteria and the intentions of the project design. Early in 1980, three major energy related projects which had been discussed during the early thinking of the grant were put forward. They were subject to a comprehensive review and several redrafts were undertaken. Ultimately they were submitted and approved by the Inter Departmental Committee and USAID. A summary description of these sub projects and their costs are attached as Annex A. The fact that it took some time to establish the acceptable technical, social and economic criteria should be reflected against the fact that these three projects were of a substantial size, totalling \$1.2 million and involving institutions in both countries that had to collaboratively develop and define the proposals. Perhaps initially because of the small size of the grant (\$2.0 million) within the India program, it was anticipated that sub projects could be easily developed and justified. Some have proved to be very complex with a somewhat long lead time to reach an acceptable design. Thus the original timeframe may have been (and certainly proved to be) quite unrealistic. This is not to understate other reasons for delay, but only to highlight what had been a lack of appreciation for the time necessary to work on the development of such collaborative activities.

Even with the greater focus on the project by both governments and a clearer understanding of project guidelines, sub projects utilizing remaining grant funds were not coming forward. Both DST and USAID concluded that some assistance was needed to identify institutions that could complement each other with interests that would permit the development of fundable sub projects. The National Academy of Sciences (NAS) had a long relationship with GOI institutions, including DST, and was considered by DST and USAID to be an appropriate institution to carry out this role. A proposal was drafted by NAS to conduct a series of workshops and meetings to develop sub projects on biomass and post harvest technologies under this project and a potential follow on project in energy. The proposal was submitted to DST to be funded under the grant and a subsequent request made to USAID to finance a contract with NAS for these purposes. A contract was signed on March 13, 1981 for \$225,000 bringing the total projects approved to date to \$1,425,000.

While the NAS proposal was evolving, three other sub projects, one on nutritional blindness, one on malaria and one on micro and low head hydro electric systems were actively discussed and considered priority proposals for approval by both USAID and DST. The total proposed funding for these additional projects is \$860,000 and if approved, would exhaust the total funds of the grant available. These sub projects should be submitted for formal approval by June or July 1981. Thus, the long standing problem of delays in utilization of the grant funds seems to have been resolved. At this stage, in order to accommodate each of these projects, DST and USAID are considering including the health projects and split funding the energy project by including part of its funding in a follow on fiscal year 82 energy project. Since funds appear to be fully accounted for, no financing would be available for activities developed under the post harvest technologies component of the NAS contract. Discussions are now taking place to delete this aspect of NAS's scope of work. Anything developed on biomass will be part of USAID's proposed FY 82 energy project.

This long background and history has been considered necessary to any understanding of why it has taken so long to get sub projects approved and initial disbursements started and to understand any of the further comments made in this PES under other headings.

## 15. Evaluation Methodology

The principal reason for this evaluation is to document the extreme delays that have occurred in project implementation and to provide AID with a full understanding as to why such implementation has lagged as it has. Secondly, at one point a follow on project similar in nature was being considered and any such consideration could only be made against some evaluation of the initial effort. (The new project now being considered by USAID will focus only on energy and have quite different guidelines and composition. However, the experience gained is relevant in considering project design issues.) Thirdly, since there have been such extreme delays, it is necessary to extend substantially the Project Assistance Completion Date (PACD) for which background and justification is required. The methodology has been quite simple and appropriate, given the status of the project at this time which has only a small number of sub projects recently approved without any substantial implementation of these sub projects. The review is basically a desk review by the USAID project officers who have been familiar with the project from its inception in late 1977. Any evaluation in a more traditional sense of project impact can only await substantial implementation of sub projects under the grant.

## 16. External Factors

As indicated under the background section, the project as originally conceived has not really changed. During its early implementation phase it seemed to drift from the intent of the initial planning perhaps because of the issuance of too generalized guidelines without the same understanding by the committee reviewing sub project submissions as held by USAID and DST officials who conceived the project. What became apparent was the need for a full review of the project by the involved USAID and GOI officials to reach agreement again on project direction. This resulted in the issuance of the revised guidelines and a project consistent with the early planning. There were no external factors warranting a change in approach and objectives.

## 17. Inputs

The major change in inputs has been the increased time given to the project by DST and USAID officials, with the assignment by USAID of a full time Foreign Service National (FSN) professional to work on the many detailed aspects of project implementation.

As indicated above, at the time of project approval APAC indicated their strong feeling that if the project were to be successfully executed, a full time project manager should be assigned. It was not done and certainly could be considered one of the factors, although not the only one, for the project delay. At this time, DST has also clearly allocated sufficient staff and responsibility to permit effective dialogue and project management.

#### 18. Outputs

There are no significant outputs at this point with the exception of the approval of four sub projects and the advanced development of an additional three sub project proposals, which could together account for total grant funding. The reasons for this lack of progress are clearly delineated in the background section. No changes in outputs are needed to achieve the project purpose.

#### 19. Purpose

The purpose of the project is to increase Indo-U.S. collaboration in the testing and application of science and technology to Indian rural development efforts. The purpose remains valid but cannot be easily assessed until sub projects are further implemented.

#### 20. Goal/Subgoals

Not pertinent at this time.

#### 21. Beneficiaries

Since the nature of this project has a strong research and testing element in it, it has always been considered difficult to be very specific about beneficiaries. However, the project is to benefit the rural poor. Benefits can evolve in agriculture, health and any other sector depending on the nature of the sub projects undertaken. To the extent the health projects are approved and successful, they will impact on nutrition and the decrease of malaria. The impact may be quite wide in the rural areas. The timeframe for the impact in these area will be somewhat long. Similarly the energy projects, if successfully developed and applied, could have a very substantial impact on agricultural productivity incomes and employment, rural industry, quality of life, etc., in village areas. Any wide-spread effect of sub project success has also to await the completion of the development period and thus it is very difficult to identify the number of those benefitting.

## 22. Unplanned Effects

The major unplanned effect of the project has been the difficulty in generating sub projects eligible for approval, causing substantial delays in moving the project forward. At this stage since sub project approvals have now progressed sufficiently through the readjusted design, nothing further need be done except to consider what lessons are to be learned as indicated under the next section.

## 23. Lessons Learned

A number of key lessons can be learned from the experience of this project. First, in designing any type of "umbrella" program where a number of sub projects are going to be developed at a later stage to meet agreed-upon criteria, the criteria should be as specific and clear-cut as possible to provide appropriate guidance and ensure that sub projects truly will meet the stated project purpose and goals. This may require a somewhat difficult balancing job to maintain flexibility within the guidelines yet sufficient stringency to assure the required results. Second, again in a project where all activities have not been fully specified in advance, it is especially critical that there is a full meeting of the minds of the project officers on both the host country and the U.S. sides and that this is well documented. One potential problem, and a danger that evolved from this project, was that while at the outset this condition of mutual understanding existed, in the host country ministry the individual who was the principal motivating force behind the project was reassigned out of the country. In addition to the fact that there was no effective initial project management from the host country side, those that ultimately assumed responsibility for project implementation were not sufficiently familiar with the background and intent of the project and a number of misunderstandings developed. This, of course, can also happen by changes within USAID. Thus it is important that to the extent successive project managers take over these projects, there is a full briefing on the origins and intents so that all parties are fully conversant with the background, goals, purposes, etc. Thirdly, as indicated above, one of the points raised by the APAC committee was that a project of this nature with potentially numerous sub projects of small amounts ought to have a full time project manager. Because of staffing constraints in the start up of the program in India, it was not possible to allocate such a position. However, experience has indicated that far more time was required on developing and implementing this program than was given in its initial stages. In that respect, the APAC point was well taken. It may not always be necessary or possible to have

a full time person but one should carefully consider the staff time needed and make sure that there is sufficient staff. USAID is fortunate in that it now has a professional Foreign Service National to provide the additional required time. It was also noted in the background section that DST on its side did not designate and assign clearcut project responsibility for a rather long period at the initial stages which made it difficult to carry on a continuous and close dialogue to move the project ahead. Perhaps if the DST official originally involved had remained, this would have gone a long way toward moving the project expeditiously along its original intentions. He had been fully involved with the Science and Technology Sub Commission and was familiar with the types of sub projects envisioned for financing. Fourthly, while one wishes to maintain some flexibility in these types of programs, the project designers must be very careful to shape the project in a manner to carry it out with available staff and institutions. There is considerable difference between financing a program with 40 or 50 small sub projects or 5 or 6 larger sub projects. The implications for project administration are enormous. If one is seeking to fund numerous activities then an administrative mechanism must be developed that can handle such a requirement. This is not easy and would be an absolutely critical project design issue. Given the nature of AID missions, we would recommend a more restrictive project containing a smaller number of large projects. Fifthly, in the context of developing a project when a new program is being introduced or resumed in a country, such as the one in India in 1978, relationships are not usually developed sufficiently so that there is adequate perception as to counterpart capability, possible problems, government requirements, etc. Thus, perhaps in the early stages of project development in new country programs, one should pursue more traditional projects with less pitfalls until the modus operandi of a particular government is better understood by the USAID.

Annexure 'A'

SUMMARY DESCRIPTION OF SUB PROJECTS

<u>Collaborative Institutions</u>	<u>Project Title &amp; Short Description</u>	<u>Date Approved</u>	<u>Amount (\$)</u>
BHEL/CEL/JPL	<u>"Development and Application of Decentralized Energy Systems Utilizing Non-Conventional Energy Sources"</u>	6/12/1980	600,000

The overall objective of the project is to design, develop and install systems for the efficient utilization of solar energy in Indian villages, emphasizing the provision of electrical energy. The project calls for the design and village testing of a solar thermal energy system (Bharat Heavy Electricals Limited (BHEL)/Jet Propulsion Laboratory (JPL)) and a separate photovoltaic system (Central Electronics Limited (CEL)/JPL). 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.

<u>Collaborative Institution</u>	<u>Project Title &amp; Short Description</u>	<u>Date Approved</u>	<u>Amount (\$)</u>
Annamalai/CSU	Annamalai University (Annamalai) and Colorado State University (CSU) jointly propose to design and develop solar dryers for small farmers in India and agricultural applications in U.S.A. The project will be oriented towards savings in conventional forms of energy as well as time and space. The project aims in developing (i) portable solar dryers for rural farmers and (ii) a large scale stationary solar dryer for food processing. Portable solar dryer will be fabricated and tested in India and a stationary solar dryer will be fabricated in U.S.A. with various agriculture produce so as to compare the design parameters and provide optimal design data for future designing of solar dryers.	12/4/1980	200,000

<u>Collaborative Institutions</u>	<u>Project Title &amp; Short Description</u>	<u>Date Approved</u>	<u>Amount (\$)</u>
IIS, Bangalore/ Houston	Indian Institute of Science (IIS), Bangalore and University of Houston (Houston) jointly propose 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 and there is 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.	12/5/1980	400,000