

APPENDIX D  
A.I.D. EVALUATION SUMMARY - PART I

PD-ABM-984  
90687

1. BEFORE FILLING OUT THIS FORM, READ THE ATTACHED INSTRUCTIONS.  
2. USE LETTER QUALITY TYPE, NOT "DOT MATRIX" TYPE.

IDENTIFICATION DATA

A. Reporting A.I.D. Unit: Mission or AID/W Office <u>India</u> (ES# _____)		B. Was Evaluation Scheduled In Current FY Annual Evaluation Plan? Yes <input checked="" type="checkbox"/> Stopped <input type="checkbox"/> Ad Hoc <input type="checkbox"/> Evaluation Plan Submission Date: FY _____ Q _____	C. Evaluation Timing Interim <input checked="" type="checkbox"/> Final <input type="checkbox"/> Ex Post <input type="checkbox"/> Other <input type="checkbox"/>
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D. Activity or Activities Evaluated (List the following information for project(s) or program(s) evaluated; if not applicable, list title and date of the evaluation report.)

Project No.	Project /Program Title	First PROAG or Equivalent (FY)	Most Recent PACD (Mo/Yr)	Planned LOP Cost (000)	Amount Obligated to Date (000)
386-0517	Energy Management Consultation and Training Project	6/91	12/99	\$27,000	\$17,000

ACTIONS

E. Action Decisions Approved By Mission or AID/W Office Director	Name of Officer Responsible for Action	Date Action to be Completed
<b>Action(s) Required</b>		
<b>I. EMCAT Supply Side Component</b>		
a. Prepare criteria for assessing PFC's performance	E <sup>3</sup>	5/30/96*
b. Finalize implementation arrangement to focus EMCAT activities in not more than two reforming State SEBs	E <sup>3</sup>	4/30/97
c. Provide TA and Training to PFC to strengthen institutional capacity	E <sup>3</sup>	4/30/97
d. Finalize arrangements to disseminate information on power sector reform process to states not pursuing reforms	E <sup>3</sup>	Ongoing
e. Decide on provision of TA to SEBs directly by USAID after review of PFCs performance	E <sup>3</sup>	4/30/97
f. Finalize procurement of U.S. services in view of the completion of Bechtel services	E <sup>3</sup> /RCO	7/31/97
g. Incorporate into implementation the recommendations of evaluators concerning participation of other SEBs, continuation of studies, design of TA/training package at a reforming SEB, involvement of Indian training institutions in training during implementation.	E <sup>3</sup>	Ongoing
<b>II. EMCAT Energy Efficiency/Demand Side Management</b>		
a. Decide on RMA contract extension or other procurement mechanisms	E <sup>3</sup> /RCO	3/15/97
b. Incorporate into implementation the evaluators recommendation on supply side management component as per decisions made at MRC.	E <sup>3</sup>	Ongoing
c. Extend the PACD of the project to 12/31/99	PDIT/E <sup>3</sup>	6/18/96*
d. Increase LOP to \$27 million	PDIT	6/10/96*
e. Incorporate evaluators recommendation on obligation of remaining funds for IDBI/PFC and dissemination.	E <sup>3</sup>	Ongoing
f. Analyze and decide on options for improving the performance of the supply component including participation of private sector in the Project Review Committee	E <sup>3</sup>	Ongoing
* Accomplished		

(Attach extra sheet if necessary)

APPROVALS

F. Date Of Mission Or AID/W Office Review Of Evaluation: (Month) (Day) (Year)

G. Approvals of Evaluation Summary And Action Decisions:

Name (Typed)	Project/Program Officer	Representative of Borrower/Grantee	Evaluation Officer	Mission or AID/W Office Director
	N.V. Seshadri		N. Ramesh	Linda Morse
Signature	<i>N.V. Seshadri</i>		<i>N. Ramesh</i>	
Date	7/5/96		7/2/96	

Clearance: PDIT:SNanda *Srinanda* 7/2/96  
EEE: Franteiga *Franteiga* 7/7/96

A B S T R A C T

H. Evaluation Abstract (Do not exceed the space provided)

The EMCAT project was designed to help address major management and technical problems, as well as inefficiencies in India's largely public power system owned and operated through State Electricity Boards (SEBs). USAID electrical supply sector support was intended to complement and integrate with power sector financing of the World Bank, Asian Development Bank (ADB) originally planned to amount to \$515 million. USAID support has been delivered through a relatively new GOI lending agency, Power Finance Corporation (PFC). The PFC is the leading public sector financing entity for SEB's, and was intended to be a major vehicle to stimulate management and operational reform, and institutional strengthening in general. PFC is assisted by USAID through a \$8.9 million, 4 year technical assistance contract executed in March 1993. End-use efficiency improvements in the electric and other sectors are being supported by EMCAT through efforts to promote conservation and related policy reforms with the Industrial Development Bank of India (IDBI) as the counterpart agency. A U.S. contractor is supplying assistance through a US\$2.563 million contract. This mid-term evaluation is intended to address the current relevance of project, project impact and sustainability, host country contribution, and consider potential extension of the PACD.

The major findings and conclusions are:

- o The project should be extended to December 31, 1999 and that the remaining funds for the IDBI and PFC components should be obligated.
- o Power Finance Corporation (PFC) not longer appears to be appropriate as the main implementing agent for the project, and has not been major vehicle for change.
- o EMCAT electricity supply activities should be retargeted to focus on reform-minded State Electricity Boards (SEBS).
- o Training in the US in the supply sector has not been cost-effective where it has not imparted something unique to the US experience.
- o Effective assistance to the SEB's and other utilities requires better planning, strong management, and close cooperation among all parties. as the project suffered from a lack of long range planning, weak management of activities, a very little constructive dialogue.
- o Inefficiency in the end-use of energy in industrial power consumption is still a major problem in India.
- o Demand-side management (DSM) activities have made an impressive start and are both very relevant and promise to be effective interventions to assist both the electric utilities and consumers.
- o Loan Portfolio Development (LPD) activities have significant potential for assisting and accelerating efficiency investments but have not been effectively promoted by EMCAT or IDBI.
- o EMCAT has effectively stimulated U.S. and Indian ESCO joint-ventures, and the ESCO business in general in India, however ESCO business has been slow to develop. Redirection of EMCAT ESCO support is required and should focus on small-scale power generation.
- o IDBI as a counterpart provides an excellent linkage with the financing-side "constraint" to efficiency, but EMCAT has a weak linkage with the industrial-sector itself.

Lessons Learned:

- o Major change in the way government does business comes about not because of outside forces, but when the players realize that they have no alternative than to reform the system.
- o It is more effective with limited funds to provide a few areas of assistance and to do so intensively than to provide a wide spectrum of assistance.
- o Problems may appear technical in nature but are really the result of poor management and organization.
- o Industry efficiency investment decisions are largely the result of market forces, making technical understanding of efficiency opportunities a necessary, but not a sufficient condition for effective conservation.
- o Success in DSM depends as much on the motivation and accountability of utility management as it does on the cost-benefit as technical feasibility of measures.

C O S T S

I. Evaluation Costs

1. Evaluation Team		Contract Number OR TDY Person Days	Contract Cost OR TDY Cost (U.S. \$)	Source of Funds
Name	Affiliation			
Matthew Addison	Management Systems International (MSI)	AEP-5451-1-00	\$99,200	Project (D.A.)
Mike Jones		2049-00,		
Shibhu Dar		Delivery Order		
S.V.R. Rao		35		
Rangarajan Vasudevan				
2. Mission/Office Professional Staff		3. Borrower/Grantee Professional		
Person-Days (Estimate) <u>35</u>		Staff Person-Days (Estimate) _____		

## A.I.D. EVALUATION SUMMARY - PART II

### SUMMARY

J. Summary of Evaluation Findings, Conclusions and Recommendations (Try not to exceed the three (3) pages provided)

Address the following items:

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|--|--|
| <ul style="list-style-type: none"> <li>• Purpose of evaluation and methodology used</li> <li>• Purpose of activity(ies) evaluated</li> <li>• Findings and conclusions (relate to questions)</li> </ul> | <ul style="list-style-type: none"> <li>• Principal recommendations</li> <li>• Lessons learned</li> </ul> |
|--|--|

Mission or Office:

India, PDIT

Date This Summary Prepared:

June 25, 1996

Title And Date Of Full Evaluation Report:

Energy Management Consultancy and Training Project (EMCAT) Evaluation 2/29/96

**Purpose of EMCAT:** India's power system is largely a public system owned and operated through State Electricity Boards (SEBs) is characterized by serious inefficiencies in power supply, transmission, and distribution. The heavy dependence on fossil fuels in India for power generation results in India being a major contributor to worldwide greenhouse gas production. At the end use level, energy use is also very inefficient, it is estimated that industrial savings of 25-30% in energy use are economically feasible. The goal of the EMCAT project is a response to these problems and is intended to improve the efficiency of both energy supply and its utilization in the industrial and other sectors. EMCAT is to improve India's technological and management capabilities for the supply of energy and for the efficiency of its end-use by private industry and other sectors.

This evaluation addresses two of the four components of EMCAT, that is, 1. energy supply and 2. end-use efficiency, while it does not address 3. renewable energy commercialization and 4. support to private power development.

**Purpose of Evaluation and Methodology:** This mid-term evaluation is intended to address: a) the current relevance of project as originally designed; b) the effectiveness and cost-effectiveness of the project with respect to alternatives; c) the impact with respect to the Logical Framework matrix; d) the sustainability of the impacts; e) the adequacy and reliability of the Host Country Contribution; and f) consideration of extension of the PACD. The mid-term evaluation of the EMCAT project has been highly field-oriented and stressed interviews, in key cases guided by questionnaires, and was supplemented by a review of project progress and technical reports.

#### Findings and Conclusions:

**Supply-Side Component:** The EMCAT project was designed in 1989/1990 based on the trends and needs of the 1980s. The World Bank, Asian Development Bank (ADB) with \$515 million in loans and USAID/India with a grant of \$14 million, agreed to work together with the relatively new GOI lending agency, Power Finance Corporation (PFC) to promote supply-side improvements in the SEB's. The PFC is the implementing agency for the power supply-side lending, reform and assistance in institutional strengthening. A \$8.9 million, 4 year technical assistance contract was executed in March 1993 for the EMCAT supply-side.

1. The objectives and many of the tasks of the project remain valid despite significant changes in the energy sector. However, the assumptions regarding the Power Finance Corporation as the central project implementing vehicle Power Finance Corporation (PFC) are no longer valid. Improved operating efficiency and utility restructuring is occurring to a limited extent in the Indian power sector. Yet, contrary to the project design PFC has not been a principal agent of change.
2. This component still has great potential to assist in meeting India's power needs. The project design was too ambitious by trying to offer assistance in a very wide range of subjects with very limited funds. More assistance in a few areas is needed rather than a little assistance in many areas.
3. Retargeting of EMCAT activities is needed to focus on reform-minded State Electricity Boards (SEBS). In the past assistance has been provided to all SEBS meeting the financial performance conditionality. In many cases the assistance did not directly contribute to efficiency as the participants were unable to put what they had learned to work in their SEBS.
4. Training in the US has not been cost-effective where it has not imparted something unique from US experience. Thus far US training has not imparted skills or experience which could not be otherwise imparted in India.
5. Effective assistance requires better planning, strong management, and close cooperation among all parties. The team found that the project suffered from a lack of long range planning, weak management of activities, a very little constructive dialogue.

**End-Use Efficiency and DSM Program:** The objectives of this component are to promote end-use efficiency in selected energy-intensive Indian industries, and promote conservation and related policy reforms. The Indian counterpart agency is the Industrial Development Bank of India (IDBI). A U.S. contractor is supplying assistance through a US\$2.563 million three year contract. Work on this component commenced prior to April 1994 with two major studies funded by EMCAT, "Cogeneration in the Sugar Industry" and a prefeasibility study for "Energy Service Companies"; and numerous small grants and service contracts through IDBI, totally in cost about \$1.34 million.

1. Inefficiency in the use of energy in industrial power consumption is still a major problem in India and limited EMCAT redirection is needed to make its efficiency activities more effective. Project activities have played a valuable role in several areas in contributing to improved energy efficiency, for example, in supporting demonstration DSM activities.

2. DSM activities have made an impressive start and are both very relevant and promise to be effective interventions to assist both the utility industry and consumer. EMCAT activities in DSM with the Ahmedabad Electricity Corporation (AEC) have been carried out effectively and with a great deal of enthusiasm by AEC and the contractor.

3. Loan Portfolio Development (LPD) activities have significant potential for assisting and accelerating such investments but have not been effectively carried out or promoted. EMCAT has identified significant efficiency opportunities at a preliminary study level, but its recommendations have not been implemented.

4. EMCAT has effectively stimulated U.S. and Indian ESCO joint-ventures, and the ESCO business in general in India, however these ESCOs are encountering market resistance in efficiency shared-savings projects, and redirection is called for. Several new Indian ESCO's and U.S.-Indian joint ventures have been established due to the project but business has been slow to develop. The market of joint-ventures in smaller scale power generation have not been well-explored yet by Indian ESCO's and EMCAT has not assisted in this area.

5. Sustainability of both DSM and ESCO activities appears promising, while energy auditing and LPD activities are not be implemented in a sustainable manner. Institutionally, the EMCAT project demonstrates that IDBI provides an excellent linkage with the financing-side "constraint" and the AEC with the utility sector, EMCAT however, has a weak linkage with the industrial "customer", that is, industry itself.

#### Recommendations:

##### *Supply-Side Component:*

1. USAID should obligate the remaining \$5 million for this component, however the project structure needs major changes for these funds to be effectively used, most importantly assistance should be concentrated at the SEB level on the needs of reforming SEBS.
2. The remaining funds should be divided between the PFC, Administrative Staff College of India (ASCI) and a few SEBs. Support to SEBs would be focused on those SEBs which are in the reform process such as Haryana, Andhra Pradesh, and Gujarat.

##### *End-Use Efficiency and DSM Program:*

1. The technical assistance contract should be extended for at least 1 year. Redirection and refocus will also be required, to among other things provide for greater involvement of sector-specific industry associations and industry "service" entities; and limit U.S. technical assistance to inputs where there is a high enough value-added to justify higher cost vs local inputs.
2. The EMCAT DSM program should give greater attention to DSM options at AEC with large-scale potential for peak demand reduction or conservation such as energy efficient lighting systems, as well as to give more emphasis to developing practical and effective financing and promotional schemes such as utility and third-party financing and installation.
3. Additional LDP studies currently planned should be reoriented, redesigned and rebudgeted. LPD studies should only be performed where they are part of a clear strategy to achieve investments.

#### Lessons Learned:

##### *Supply-Side Component:*

1. Major change in the way government does business comes about not because of outside forces. It comes about when the players realize that they have no alternative than to reform the system.
2. It is more effective to provide a few areas of assistance and to do so intensively than to provide a wide spectrum of assistance with limited funds.
3. Assistance may change minds but it has little impact if the minds it changes are not in a position to use that knowledge for change.
4. Problems may appear technical in nature but are really the result of poor management and organization.

##### *End-Use Efficiency and DSM Program:*

1. Industry efficiency investment decisions are largely the result of market forces, making technical understanding of efficiency opportunities a necessary but not a sufficient condition for effective conservation.
2. Linkage of energy efficiency to environmental, economic modernization and similar forces improves effectiveness and sustainability.
3. Success in DSM depends as much on the motivation and accountability of utility management as it does on the cost-benefit and technical feasibility of DSM measures.
4. Choosing the right counterpart is the most critical factor in sustainability services.

S U M M A R Y (Continued)

5. More effort must be given to dissemination of project activities, for example, through a quarterly newsletter circulated to the power sector.

GENERAL PROJECT RECOMMENDATIONS

1. It is recommended that the project be extended to December 31, 1999 and that the remaining funds for the IDBI and PFC components be obligated.
2. Although EMCAT contains four separate components, USAID management should be done in an integrated fashion to avoid duplication and lead components to reinforce each other's activities.
3. There is a need for strengthening USAID's role of supervising and supporting EMCAT project activities, particularly in the area of reviewing the Contractors

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ATTACHMENTS

K. Attachments (List attachments submitted with this Evaluation Summary, always attach copy of full evaluation report, even if one was submitted earlier; attach studies, surveys, etc. from "on-going" evaluation, if relevant to the evaluation report.)

Evaluation Report

COMMENTS

L. Comments By Mission, AID/W Office and Borrower/Grantee On Full Report

The evaluation team was very competent and did a very good job. The mission was satisfied with the quality of the output and the professional manner in which the team went about its task. The Indian consultants engaged for the assignment provided valuable inputs and worked as full members of the evaluation team. Overall, the mission was pleased with the evaluation output.

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