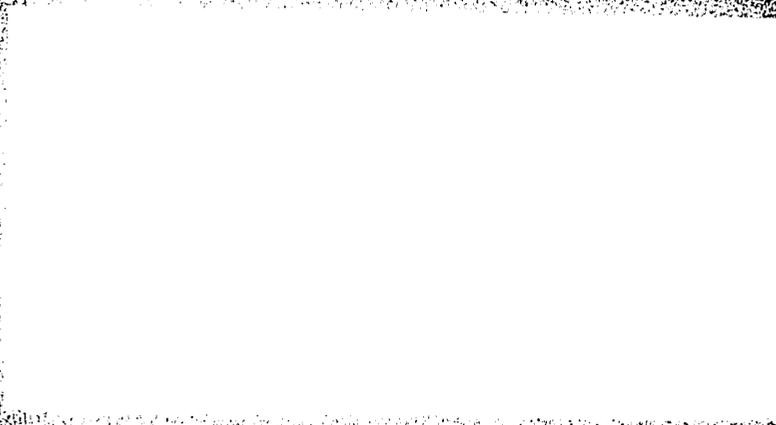


ENERCON

# The Pakistan National Energy Conservation Program



A Report of



# ENERCON

The National Energy Conservation Centre

Ministry of Planning & Development  
Government of Pakistan

PD-ABV-106

ENERCON TECHNICAL ASSISTANCE PROGRAM

FOURTH QUARTERLY REPORT

October 1 - December 31, 1986

Contract No. 391-0478-C-00-5065-00

Prepared for:

U.S. Agency for International Development  
Mission to Pakistan  
Islamabad, Pakistan

Prepared by:

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## 1. INTRODUCTION

The fourth quarter showed a decline in overall activity, with December's labor expenses approximately half of those in October. This decline resulted from the decision in the September 25, 1986, program review meeting to bring the rate of technical assistance more in line with the ability of the GOP ENERCON staff to absorb it. Hagler, Bailly was asked to revise its Detailed Work Plan in light of the continued absence of GOP counterparts and this revision was completed in December.

In spite of the show down, substantial progress was made in all functional areas. Most significant was the signing by the Prime Minister of resolution establishing ENERCON and the National Energy Conservation Council. In addition, recruiting was initiated in December for 8 professional GOP staff positions. Work proceeded rapidly on data base development and 9 detailed energy surveys were initiated. Overall, 17 technical reports were submitted in the quarter.

Expenditures for the quarter were \$ 421,018, a 45% decline over the previous quarter. Cumulative expenditures at the end of the quarter were \$ 1,763,279.79, or 19% of the contract budget.

## 2.0 SUMMARY OF ACCOMPLISHMENT

A complete summary of the accomplishments for the fourth quarter of the ENERCON Project is provided below by functional area.

### 2.1 Institutional Development Support

- o The resolution creating ENERCON was signed by the Prime Minister on December 20, 1986.
- o Position descriptions were prepared for 8 ENERCON GOP positions and advertised.
- o Started Monthly ENERCON Program Review Reporting System & presented Reports for October, November & December 1986.
- o 1 subcontract with Orient Advertisers, conducted Prequalification for another subcontractor.
- o Hiring of 2 local support staff
- o 31 task orders prepared, 15 approved
- o Procurement for 9 additional Computers was approved.

### 2.2 Planning/Legislation/Special Studies

- o A summary of the draft National Energy Conservation Law was transmitted.
- o The first phase of a special study on electricity conservation in the industrial and commercial sectors was completed with the publication of the report "Data Compilation for Determining Electricity Conservation Potential".
- o Field work for the second phase of a special study on electricity conservation was completed and a final report is being prepared.
- o Draft report on energy conservation in the agricultural sector was completed:
  - "Energy Use in Pakistan's Agricultural Sector: An analysis and proposed TEM Program".
- o Revised Detailed Work Plan for ENERCON was finalized.

### 2.3 Data Base Development

- o The following data base development reports were completed in draft:
  - "Energy Conservation Data Base Needs Assessment and Data Review"
  - "Building Sector Energy Data Base for Pakistan: Interim Report"
  - "Power Sector Energy Data base"
  - "Structure of Data Base Files for Industry Transport & Buildings Sector Energy Conservation Data Base"
  - "Energy Conservation Data Base Development for a Transport Sector"
- o 120 industrial data collection forms were sent out to industrial plant owners who had expressed interest in saving energy.
- o Programming of transport sector data base complete; preparation of documentation in progress.
- o Programming of buildings sector data base 95% complete; preparation of documentation in progress.
- o Programming of industry sector data base 90% complete; preparation of documentation in progress.
- o Coordination of industrial sector data collection effort continues between ENERCON and Ministry of Industries. Final contract in preparation. Discussions between ENERCON and Contractor Zelin underway to expand scope of work to include public sector industries.

### 2.4 Surveys/Technical Support/Applied Research

- o The following reports on prefeasibility studies completed:
  - "Selection of Initial Set of Private Sector Industrial Plants for Feasibility Studies".
  - "Selection of Private Sector Industrial Plants for Energy Surveys and Feasibility Studies".

- o Report on feasibility study process completed:  
"Feasibility Study Process for Industrial Sector Demonstration Projects".
- o 4 Transportation demonstration projects identified
  - Bus Fuel Efficiency Improvement
  - Railway Fuel Computerisation
  - Truck Fuel Efficiency Improvement
  - Airline Fuel Conservation

9 Surveys were initiated & Continued in the following plants:

- o Packages Ltd., Lahore
- o Baluchistan glass, Ltd. Hub Chowki
- o Prince Glass Works Ltd., Karachi
- o Mehran Sugar Mills Ltd., Hyderabad
- o Regal Ceramics, Gujranwala
- o Kohinoor Textile, Faisalabad
- o Crescent Textile, Faisalabad
- o Aga Khan Hospital, Karachi
- o Khazana Sugar Mill, Peshawar

8 Survey Reports were prepared for the following Plants:

- o Baluchistan Glass, Hub Chowki
- o Glaxo Laboratories, Lahore
- o Sampak Paper, Lahore
- o National Tanneries, Lahore
- o General Tyre & Rubber Co.
- o Nakshbandi Industries
- o Shabbir Tiles
- o Indus Jute

5 Feasibility studies are continuing in the following plants:

- o Kamran Steel, Lahore
- o Cee Bee Textile, Lahore
- o Pakland Paper, Karachi
- o Adamjee Paper, Nowshera
- o M. Farooq Textile, Karachi
  
- o Identification of plants for the next round of surveys and feasibility studies started.
- o Prepared an outline for buildings program for discussion/review. Commenced preparation of detailed buildings program.
- o Initiated task order to select computer software for calculating energy consumption in Pakistan buildings.
- o Initiated task order to conduct Needs Assessment to obtain energy conservation in buildings.
- o Prepared an outline for the Codes and Standards program for discussion/review.

2.5 Training and Curriculum Development

- o Six-week Energy Management Training Course was held in Lahore with 70 attendees.
- o Field work for an energy conservation education needs assessment completed and draft report prepared, "Energy Education in Pakistan".

2.6 Information and Outreach

- o Selected an ad firm to develop graphics and other material for ENERCON.
- o Total Energy Management information materials for industry prepared in draft.
- o A series of energy conservation fact sheets prepared in draft.

- o Negotiated cooperative effort with WAPDA on media information for load shedding seasons.
- o Developed contacts through the Federal Minister for Information and Broadcasting for continuing public information program.

#### 2.7 Investment Promotion

- o Completed financial assessment of bids on Hub Chowki project.
- o Continued work on 3 energy conservation project case studies.
- o Continued work on banking and financing study regarding energy conservation.

#### 2.8 Monitoring & Evaluation

Submitted Monthly Progress Reports for October, November & December 1986.

#### 2.9 TDY Trips During Fourth Quarter

Exhibit 2.1 provides a complete list of short-term consultants to the ENERCON Program during the fourth quarter.

#### 2.10 Technical Reports Submitted During Fourth Quarter

Exhibit 2.2 gives a complete listing of reports submitted to GOP and USAID during the fourth quarter.

#### 2.11 Task Orders Submitted and Approved

Exhibit 2.3 gives a complete list of the task orders submitted and approved during fourth quarter.

## EXHIBIT 2.1:

## TDY PERSONNEL TRIPS : OCT 1 - DEC 31, 1986

Name of Traveller	Trip	Arrival Date	Departure Date	Duration
=====	=====	=====	=====	=====
Tafweez Chauhan	First	30-Apr-1986	31-Oct-1986	183
Amin Lakhani	First	06-Jul-1986	12-Dec-1986	178
Paul Thorne	Third	16-Nov-1986	12-Dec-1986	26
Peter Bos	Second	04-Sept-1986	07-Oct-1986	34
Chris Hurst	First	15-Sep-1986	06-Oct-1986	22
Russel deLucia	First	22-Sept-1986	05-Oct-1986	14
Chris La Farge	First	22-Sep-1986	05-Oct-1986	14
Barry Tunnah	Second	22-Sep-1986	11-Oct-1986	20
Peter Miller	First	22-Sep-1986	26-Nov-1986	66
Henry Claude Bailly	Third	05-Dec-1986	12-Dec-1986	7

Sr. No.	Title	Prepared By	Task Order/ Task Ref.	Date Submitted
ENERCON-86-1	Detailed Work Plan, ENERCON Technical Assistance Project (Revised)	HBC	2.1	3/86
ENERCON-86-2	Selection of Initial Set of Private Sector Industrial Plants for Feasibility Studies	INTUS	86-005-INTUS-1	6/29/86/ 10/16/86
ENERCON-86-20	Preliminary Assessment of the Building Thermal Insulation Industry in Pakistan	HBC	86-012-HBC-7	10/2/86
ENERCON-86-21	Demonstration of Building Energy Conservation Approaches	HBC	86-012-HBC-7	10/2/86
ENERCON-86-22	Update Report on the ENERCON Outreach Program	HBC	86-012-HBC-7	10/2/86
ENERCON-86-23	Structure of Data Base Files for the Industry, Transport and Buildings Sector Energy Conservation Data Base (Draft)	HBC	86-069-HBC-23	10/16/86
ENERCON-86-24	Energy Conservation Data Base Development for the Transport Sector	HBC	86-035-HBC-9	10/16/86
ENERCON-86-25	Transportation Sector Energy Conservation Demonstration Projects Identification	HBC	86-065-HBC-19	10/21/86
ENERCON-86-26	Industrial Energy Survey: Indus Jute Mills	Techno/PES	86-014-TC-2	10/29/86
ENERCON-86-27	Industrial Energy Survey: National Tanneries	INTRAG PK	86-013-INTPK-1	10/29/86
ENERCON-86-28	Industrial Energy Survey: Shabbir Tiles	ZELIN	86-015-Z-1	10/29/86
ENERCON-86-29	Second Energy Efficiency Management Course at Lahore	HBC/EDI EK/TECHNO/ ZELIN	86-016-EH-1	11/06/86
ENERCON-86-30	Energy Use in Pakistan Agriculture Sector	deLucia	86-060-del-3	12/18/86
ENERCON-86-31	National Energy Conservation and Management Law for Pakistan	Walker Martineau	86-007-HBC-4/4A	12/22/86

Sr. No.	Title	Prepared By	Task Order/ Task Ref.	Date Submitted
ENERCON-86-32	Industrial Energy Survey: Sampak Industries Ltd.	EM Consultants	86-016-EM-1/1A	12/28/86
ENERCON-86-33	Counterpart Report: Training & Outreach	Zelin(Pvt.)Ltd.	86-062-2-7	1-13-87
ENERCON-86-34	Industrial Energy Survey: Glaxo Laboratories Ltd.	EM Consultants	86-016-EM-1	11/12/86

Description	T.O. Number	FA S T Consultant/ Subcontractor	LT	Date Responib Begin	Date End	Labor Budget	Expenses Budget	Total Budget	Task Order Transmitted	Task Order Approved
Project Management	86-002-DEL-1	1 deLucia & Associates	JA	6-6-86	7-31-90	\$ 10300	\$ 4680	\$ 14980	11-03-86	
Legislation Initiatives	86-007-H8C-4A	2 Walker Martineau	JA	10-15-86	11-30-86	Rs 90056		Rs 90056	10-22-86	11-17-86
Project Management	86-010-E/DI-3	1 E/DI Inc.	JA	6-2-86	7-31-90	\$ 12004.5	\$ 1400	\$ 13404.5	11-03-86	
Ener.Sur&Map Assist for Ind	86-015-2-1A	4 Zelin	RPS	8-9-86	11-30-86	Rs. 10 200	Rs. 1 250	Rs. 11430	10-22-86	
Feasibility Studies	86-020-2-2A	4 Zelin	RPS	8-15-86	10-31-86		Rs. 9728.60	Rs. 9728.60	10-29-86	
Manag.Suort&Proj.Managemnt	86-023-INTUS-2	1 INTRAG US	JA	2-6-86	7-31-90	\$ 17224.24	\$ 4630	\$ 21854.24	11-03-86	
Project Management	86-024-SW-2	1 Stone & Webster	JA	6-2-86	7-31-90	\$ 16065.5	\$ 1680	\$ 20745.5	11-03-86	
Energy Surveys Supervision	86-025-EDI-6	4 E/DI Inc.	RS	11-16-86	12-12-86	\$ 14970.25	\$ 4276	\$ 16246.26	10-21-86	11-17-86
New Office Energy Design	86-026-EM-3	4 EM Consultants	BOA	11-19-86	11-27-86	Rs.12624	Rs. 3724	Rs.16348	11-25-86	11-30-86
Energy Surveys	86-027-TC-4	4 Techno/PES	RS	8-9-86	11-30-86	Rs.262672		Rs.210532	12-23-86	
Equip Cost Dir	86-030-TC-5	Techno Consult	MO	1-1-87	3-31-87	Rs.45992	Rs.2740	Rs.48732	12-09-86	
Equip Cost Dir	86-031-2-3	Zelin	MO	1-1-87	3-31-87	Rs.40600	Rs.2740	Rs.43340	12-09-86	
Data Base-Industry	86-034-H8C-10	3 V. Zakaria	BA	7-1-86	12-31-86	Rs 322722	Rs 52865	Rs 375587	6-3-86	10-21-86
D Base Buildings (Amend)	86-036-H8C-12A	3 J.Stafurik	BA	5 days		\$ 3320	\$ 1113	\$ 4433	6-28-86	10-21-86
Feasibility Study Supvsn	86-042-EDI-4	4 ED/I Inc.	RPS	7-05-86	8-17-86	\$ 14 963	\$ 5 592	\$ 20555	6-3-86	10-21-86
Feasib.Study Supvsn(Amend)	86-042-EDI-4A	4 ED/I Inc.	RPS	7-14-86	8-20-86	\$ 14963	\$ 5592	\$ 20555	8-05-86	10-21-86
Feasib.Study Supvsn(Amend)	86-042-EDI-4B	4 ED/I Inc.	RPS	7-14-86	10-21-86	\$ 41002	0	\$ 41002	9-01-86	10-21-86
Invest Prom Initiatives	86-049-INTPK-5	7 INTRAG Pak	JA	8-3-86	11-30-86	Rs. 156304	Rs. 21048	Rs. 177352	8-28-86	10-21-86
Sid Evaluation	86-053-H8C-14A	4 A.Lakhani	JA	10-1-86	12-31-86	\$7675.01	\$365.47	\$8040.48	12-15-86	
Trng Urse Lecturers	86-055-2-6A	5 Zelin	MO	8-19-86	10-9-86	Rs. 2460		Rs 2460	10-29-86	
Hor Sector Assessment	86-060-DEL-3	2 deLucia & Assoc.	BA	9-9-86	9-29-86	\$ 21804	\$ 10674	\$ 32478	9-3-86	21-10-86
Hor Sector Assessment	86-061-TC-10	2 Techno Consult	BA	8-3-86	10-30-86	Rs. 69360	Rs. 12800	Rs 82160	8-12-86	21-10-86
Trng & Outreach	86-062-2-7A	6 Zelin	MO	7-27-86	10-16-86	Rs. 2460		Rs. 2460	10-19-86	
Audit& Feasib.Study Counterp	86-064-H8C-18	4 H8C	JA	8-10-86	11-6-86	Rs. 87475	Ps. 28891	Ps 116366	8-05-86	10-21-86
Audit& Feasib.Study Counterp	86-064-H8C-18A	4 H8C	JA	11-09-86	01-08-87	Rs. 48138	Rs. 18776	Ps. 66914	11-04-86	11-17-86
Audit& Feasib.Study Counterp	86-064-H8C-18B	4 H8C	JA	1-11-87	3-12-87	Rs.48137.54	Ps.18776.38	Rs.66913.92	12-23-86	
Transp.EC Deades Plan Update	86-065-H8C-19	3 H8C	JA	8-9-86	8-29-86	\$ 9071	\$ 2786	\$ 11857	8-05-86	10-21-86
Data Base Development	86-069-H8C-23A	3 C.Zimmermann	BA	9-25-86	10-1-86	\$2340.31	\$111.4	\$2451.71	12-15-86	
Feasib. Studies,TechAsstt	86-071-2-9	4 Zelin	RPS	9-1-86	9-1-86	Rs.2855230	0	Rs 2738380	9-10-86	Stoned
7th 5-Yr Plan for E.Conserv.	87-001-H8C-15	2 H8C	BA	1-1-87	2-1-87	\$14055.91	\$7173.96	\$21229.87	12-18-86	
Modelling & Energy Software	87-002-H8C-24	H8C	BOA	1-15-87	2-15-87	\$4980.62	\$537.07	\$5517.69	12-23-86	

### 3.0 FINANCIAL AND LEVEL OF EFFORT INFORMATION

Total expenses for the fourth quarter were \$ 421,018.05, a 45% decline over the previous quarter. Cumulative expenses to date were \$ 1,763,279.79, 43% of the currently obligated funds and 19% of the contract budget. Exhibit 3.1 gives the expenses for the third quarter and for the project to date. Exhibit 3.2 gives the monthly and cumulative labor expenses.

A total of 79 person months of effort was expended in the fourth quarter compared to 91 person months for the third quarter. Total level of effort to date was 229 person months (see Exhibit 3.3).

#### 4.0 PROBLEMS ENCOUNTERED AND RECOMMENDED SOLUTIONS

A number of problems identified were either resolved or progress made toward resolution in the fourth quarter. These are briefly summarized below:

<u>Problems</u>	<u>Solution</u>
1. Detailed Work Plan does not reflect lack of GOP counterparts.	DWP revised to bring TA in line with GOP staffing
2. T.O process cumbersome	T.O process streamlined
3. USAID communications too informal	USAID providing responses and direction in writing
4. Lack of continuity of USAID project mgmt.	Anjum Ahmad assigned as Project Manager
5. Variable quality of subcontractors	RFP issued for new subcontractors
6. Insufficient office space	New office space secured, but didn't move in yet
7. Shortage of two project vehicles	Two additional vehicles assigned to project

Problems which continued to persist are briefly discussed below:

Lack of ENERCON counterpart staff - The most serious short-coming of the project continues to be the lack of counterpart staff. The effects of the lack of staff are: 1) no training, transfer of knowledge or institution building takes place; 2) the program is slowed due to absence of about 8 man-years of anticipated effort (by end of fourth quarter), difficulty in getting reports, task orders, meetings etc. reviewed and approved in a timely manner, and sufficient GOP representation at the over 100 meetings held.

Variable quality of subcontractor performance - The level of technical assistance from the US short and long-term advisors significantly exceeds that originally anticipated. This is due in general to a lower level of technical proficiency on the part of the subcontractors and a longer learning curve than

originally estimated. In addition, two firms have suffered from high staff turnover. This has had two effects: 1) significant cost overruns on the first few audits and feasibility studies , and 2) delay in completion of reports. Although it anticipated that the program will catch up to the original audit schedule in the first quarter of 1987, the amount of difficulty all subcontractors are having with feasibility studies suggests that these may be significantly delayed.

## 5.0 PLANNED ACTIVITIES: FIRST QUARTER 1987

In the area of institutional support, key activities will be reviewing candidates for the GOP ENERCON positions and hiring staff. Preparations will also be made for the donors meeting on March 4-6 and the first NECC meeting. Moving and set-up of the new office will take place early in the quarter.

In planning/legislation/special studies the dominant activity will be preparation of the first draft of the 7<sup>th</sup> Five Year Plan. The schedule for the draft was moved forward from July 31 to February 28, necessitating a significant shift staff allocation. As the decision to accelerate the 7<sup>th</sup> Plan was made in late December, its effect on tasks and schedules is not reflected in the revised DWP.

Data base development activities planned include the initiation of the industrial survey in cooperation with the Ministry of Industries and continued work on the other sectors.

A major emphasis will be placed on follow-up and implementation in the energy surveys area, in addition to lining up (i.e., conducting a PES and receiving a signed agreement for DES) over 30 industrial plants for surveys. A total of 20 feasibility study candidates will be identified by the end of the first quarter and at least 2 studies completed. Demonstration projects will be identified and at least one initiated.

In the training area, the next energy management course will be planned (in Karachi) and manuals for the boiler efficiency and steam systems workshops completed. The energy conservation education needs assessment will be finalized.

In information the TEM materials for industry will be finalized and printed along with at least 22 fact sheets for industry. A summary pamphlet on energy conservation and the role of ENERCON will be prepared for the first NECC meeting.

In investment promotion, the draft reports on the financing and banking study will be completed on the 3 case studies.

Monitoring systems will be designed to track implementation of energy audit recommendations and savings, and site visits will be initiated at the plants to set up a monitoring program in each audit plant.

EXHIBIT 3.1: QUARTERLY EXPENDITURE

Third Quarter: October-December 1986

Amount Obligated to Date: \$ 4089000

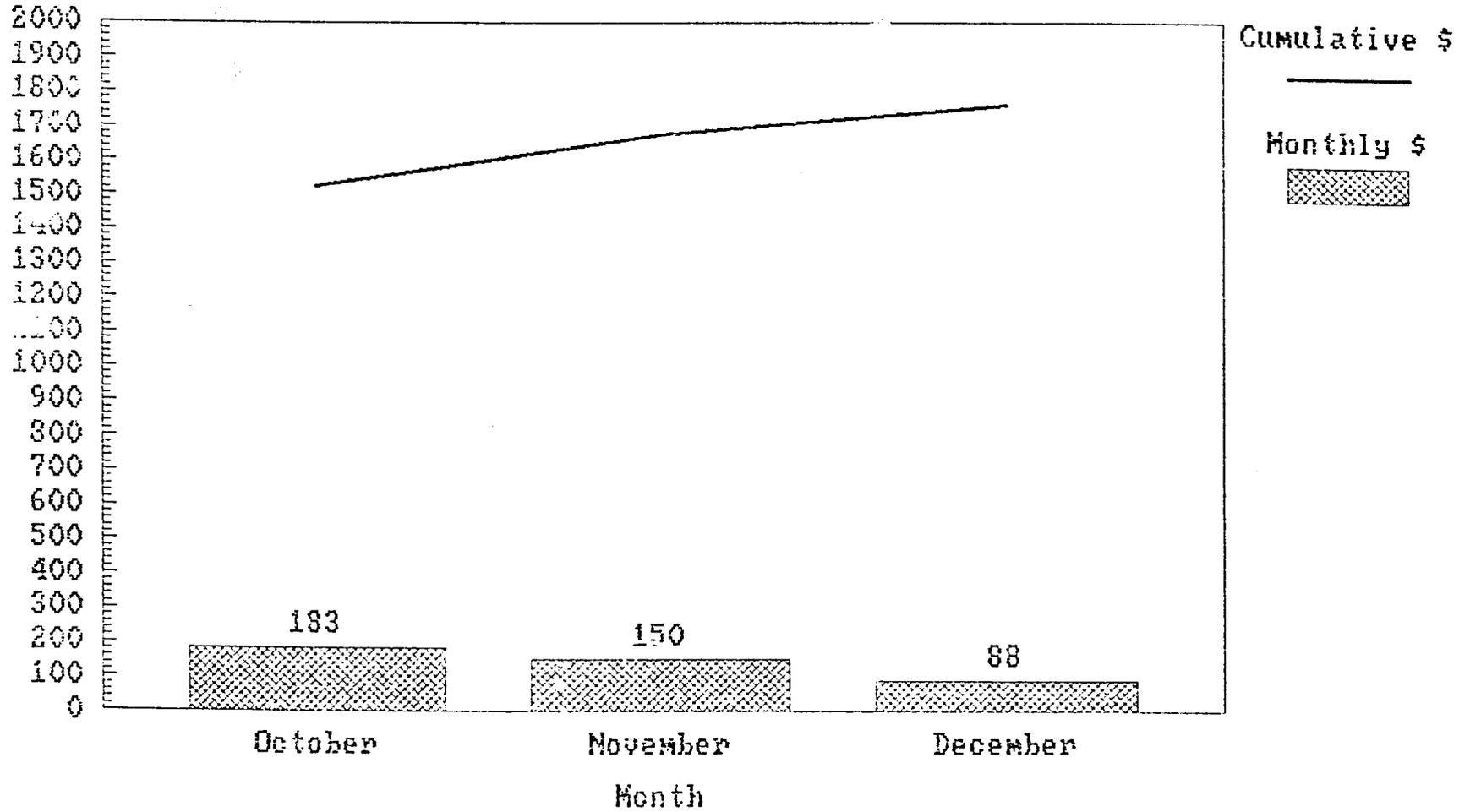
Contract Budget Amount:

Cost Category	Amount Previously Submitted	Amount this Period	Cumulative to Date	Budget Amount	* Obligated Amount	Cumulative Expenditure To date	
						Percent of Contract Budget	Percent of Obligated Funds*
1. SALARIES AND WAGES	252232.40	86009.11	338241.51	1461466.00	655521.00	23.00	52.00
2. FRINGE BENEFITS	76488.34	24499.45	100987.79	422130.00	204450.00	24.00	49.40
3. OVERHEAD	244861.46	64279.57	309141.03	1144770.00	513470.00	27.00	60.00
4. CONSULTANTS	20384.25	2904.13	23288.38	27000.00	12110.00	86.00	192.00
5. TRAVEL, TRANSPORTATION & PER DIEM	180399.00	51865.01	232264.07	1185287.00	531644.00	20.00	44.00
6. ALLOWANCES	36228.06	12256.97	48485.03	198958.00	89240.00	24.00	54.00
7. COMMODITIES	185637.91	39511.44	225149.35	1235000.00	553942.00	18.00	41.00
8. SUBCONTRACT(S)	242199.68	104919.81	347119.69	2953940.00	1324948.00	12.00	26.00
9. OTHER DIRECT COSTS	42840.98	15642.68	58483.66	73531.00	32981.00	80.00	177.00
TOTAL COSTS	1281273.14	401868.17	1683141.31	8702084.00	3903195.00	19.00	43.00
FIXED FEE @ 4.76%	60988.60	19129.88	80118.48	414247.00	185805.00	19.00	43.00
TOTAL COSTS & FIXED FEE	\$ 1342261.74	\$ 421018.05	\$ 1763279.79	\$ 9116331.00	4089000.00	19.00	43.00

\* Obligated funds (4.089 million) distributed by cost category according to contract budget cost distribution

# Monthly and Cumulative Labor \$ Expended October to December 1936

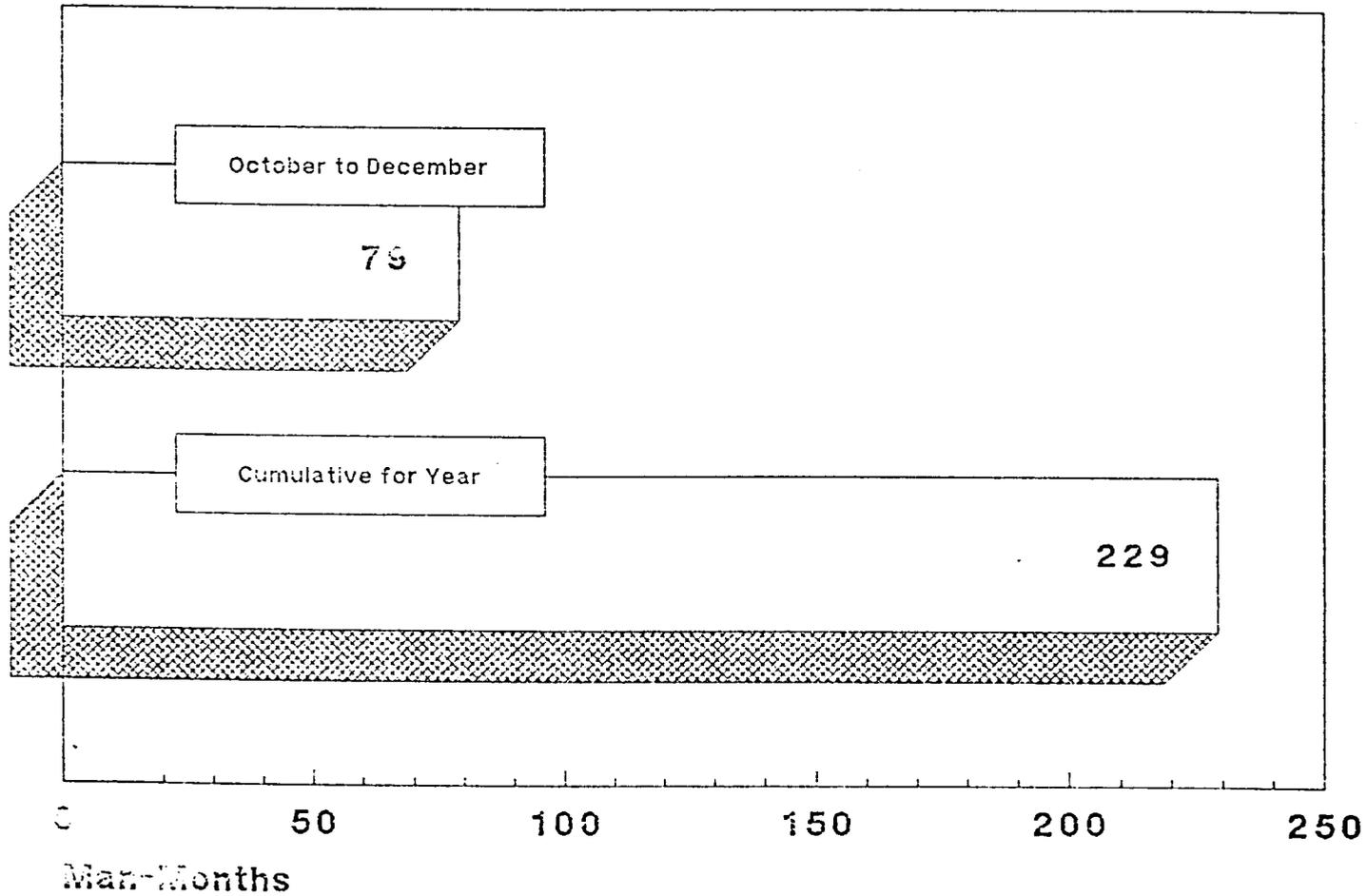
Thousand \$



18

28

# Monthly and Cumulative Man-Months Expended



## 6.0 DETAILED FUNCTIONAL AREA ACTIVITIES

### 1. Institutional Development Support

TO No.	Activity	Budget	Quarterly Costs	Cumulative Costs	Status
86-002-del-1	Project Management	\$ 14 980	\$ 312	\$ 1 980	In Progress
86--010-E/DI-3	Project Management	\$ 13 405	\$ 279	\$ 2 201	In Progress
86-023-INTUS-2	Management Support	\$ 21 854	\$ 1 203	\$ 5 137	In Progress
	Project Management				
86-024-SW-2	Project Management	\$ 20 745	\$ 60 000	\$ 2 388	In Progress
86-070-EM-6	Project Management	Rs 182 259	Rs 60 000	Rs 116 988	In Progress
86-073-INTPK-7	Project Management	Rs 142 106	Rs 60 000	Rs 75 120	In Progress
86-071-Z-9	Project Management	Rs 184 580	Rs 60 000	Rs 16 086	In Progress
86-010-TC-13	Project Management	Rs 196 500	Rs 60 000	Rs 180 000	In Progress

### 2. Energy Conservation Planning

TO No.	Activity	Budget	Quarterly Costs	Cumulative Costs	Status
-----	Detailed Work Plan	-----	-----	-----	Completed 4/86
86-007-HBC-4/4A	Legislation Initiative	Rs 320 000	Rs 90 000	Rs 320 000	Completed 11/86
86-009-HBC-6	Legislation Initiative	\$ 7 745	\$	\$ 7 745	Completed 6/86
86-029-HBC-8	National Energy Conservation Plan	\$ 14 129	\$	\$ 14 129	Completed 6/86
86-051-DEL-2/2A	Electrical Equipment Efficiency Standards	\$ 50 155	\$ 25 155	\$ 50 155	Completed 12/86
86-052-EM-5	Electrical Equipment Efficiency Standards	Rs 181 668	Rs 81 668	Rs 181 668	Completed 12/86
86-060-del-3	Agricultural Sector Assessment	\$ 32 478	\$ 32 478	\$ 32 478	Completed 10/86
86-061-TC-10	Agricultural Sector Assessment	Rs 82 160	Rs 65 728	Rs 65 728	Completed 9/86

### 3. DATA BASE DEVELOPMENT AND MANAGEMENT

TO No.	Activity	Budget	Quarterly Costs	Cumulative Costs	Status
86-001-HBC-1	Data Base Development	\$ 31 868	\$	\$ 31 868	Completed 6/86
86-004-HBC-2	Data Needs Assessment	\$ 39 761	\$	\$ 39 761	Completed 9/86
86-036-HBC-12/12A & 86-037-HBC-5	Develop Framework for Building Data Base	\$ 39 376	\$	\$ 39 376	Completed 9/86
86-043-Z-5	Data Base Development-Buildings	Rs 259 480	Rs 50 000	Rs 210 000	In Progress
86-033-HBC-9	Data Base Development-Transport	\$ 31 917		\$ 31 917	Completed 10/86
86-039-TC-8	-do-	Rs. 223 444	Rs 223 444	Rs 223 444	Completed 10/86
86-034-HBC-10/10A	Data Base Industry	Rs 375 587	Rs 188 087	Rs 375 587	In Progress
86-035-HBC-11	Data Base Power	\$ 16 354		\$ 16 354	Completed 9/86
86-065-HBC-19 & 19A	Transportation E.Cons Demo Design Plan Update	\$ 25 754	\$ 25 754	\$ 25 754	Completed 10/86
86-069-HBC-23/23A	Data Base Development	\$ 14 764	\$ 14 764	\$ 14 764	Completed 9/86

### 4. TECHNICAL SUPPORT

TO No.	Activity	Budget	Quarterly Costs	Cumulative Costs	Status
86-005-INTUS-1	Industrial Feasibility Studies Initiatives	\$ 115 152	\$ 45 152	\$ 70 00	Completed 10/86
86-005-SW-1	Audit Supervision	\$ 61 241	\$	\$ 61 241	Completed 8/86
86-023-EDI-2	Identification of Plants for Energy Survey	\$ 19 562	\$	\$ 19 562	Completed 6/86
86-013-INTPK-1	Energy Survey & Implem. Assistance	Rs 184 398	Rs 49 398	Rs 184 398	In Progress
86-014-TC-2	Energy Survey & Implem. Assistance	Rs 213 700	Rs 53 700	Rs 213 700	In Progress
86-015-Z-1 & 1A	Energy Survey & Implem. Assistance	Rs 175 350	Rs 70 350	Rs 70 350	In Progress
86-018-TC-3	Industrial Feas. Stud.	Rs 300 764		Rs 300 764	In Progress
86-019-INTPK-2	Feasibility Studies	Rs 159 634		Rs 159 634	In Progress
86-020-Z-2 & 2A	Feasibility Studies	Rs 346 761		Rs 276 800	In Progress

#### 4. TECHNICAL SUPPORT (Cont'd)

TO No.	Activity	Budget	Quarterly Costs	Cumulative Costs	Status
86-021-EM-2	Industrial Feasibility	Rs 212 723		Rs 212 723	In Progress
86-042-E/DI-4, 4A & 4B	Feasibility Study Supervision	\$ 41 002		\$ 41 002	Completed
86-053-HBC-14	Bid Evaluation Assist.	\$ 17 227		\$ 17 227	Completed
86-064-HBC-18 & 18a	Audit & Feasibility Study Counterpart	Rs 183 280	Rs 43 280	Rs 183 280	In Progress
86-025-E/DI-6	Energy Surveys Supervision	\$ 16 246	\$ 16 246	\$ 16 246	In Progress
86-026-EM-3	New Office Design	Rs 27 104	Rs 27 104	Rs 27 104	Completed

#### 5. TRAINING AND CURRICULUM DEVELOPMENT

TO No.	Activity	Budget	Quarterly Costs	Cumulative Costs	Status
86-003-TC-1 & 1A	Logistical support to first training course	Rs 174 475		Rs 177 612	Completed 7/86
86-016-EM-1	Logistical support to second training course	Rs 177 612	Rs 107 612	Rs 177 612	Completed 10/86
86-017-E/DI-1	Training Course at Lahore	\$ 26 430		\$ 76 510	Completed 10/86
86-054-TC-12	Training Course Lectures	Rs 76 510	Rs 76 510	Rs 76 510	Completed 10/86
86-055-Z-6 & 6A	Training Course Lectures	Rs 31 750	Rs 3 750	Rs 3 750	Completed 10/86
86-057-HBC-16	Training Needs	\$ 12 675		\$ 12 675	In Progress
86-058-HBC-17	Training Needs Assessment	\$ 12 070		\$ 12 070	In Progress
86-059-INTPK-6	Training Needs Assessment	Rs 105 211		Rs 105 211	Completed 9/86
86-066-HBC-20, 21 & 22	Training Needs Assessment	Rs 102 113	Rs 25 613	Rs 102 113	In Progress

## 6. OUTREACH

TO No.	Activity	Budget	Quarterly Costs	Cumulative Costs	Status
86-012-HBC-7	TEM Materials for Industry	\$ 30 753	\$ 3 753	\$ 3 753	Completed
86-062-Z-7 & 7A	Training & Outreach	Rs 108 530	Rs 8 530	Rs 108 530	Completed 10/86

## 7. INVESTMENT PROMOTION

TO No.	Activity	Budget	Quarterly Costs	Cumulative Costs	Status
86-006-HBC-3	Investment Promotion Initiatives	\$ 16 557		\$ 16 557	Completed 5/86
86-008-HBC-5 & 5A	Cogeneration Initiatives	\$ 20 632		\$ 20 632	Completed 8/86
86-045-HBC-13	Case Analysis & Financial Workshop	\$ 66 615	\$ 30 000	\$ 56 400	In Progress
86-047-TC-9	Invest Promotion Initiative	Rs 56 408	Rs 30 000	Rs 48 000	In Progress
86-048-Z-3	Invest Promotion Initiative	Rs 55 688	Rs 30 000	Rs 48 000	In Progress
86-049-INTPK-5	Investment Promotion Initiative	Rs 177 352	Rs 50 000	Rs 130 000	In Progress
86-063-TC-11	Cogeneration Case Study	Rs 8 672		Rs 8 672	Completed 7/86