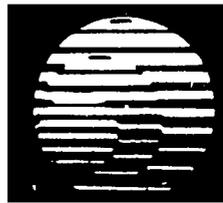


PD-AAW-490

# The Pakistan National Energy Conservation Program



A Report of

# ENERCON

The National Energy Conservation Centre

Ministry of Planning & Development  
Government of Pakistan

PD-11AW-490

52524

**ENERCON TECHNICAL ASSISTANCE PROGRAM  
SIXTH QUARTERLY REPORT**

**APRIL 1 - JUNE 30, 1987**

**Contract No. 391-0478-000-5065-00**

**Prepared for :**

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

**Prepared by**

**Hagler Bailly & Co.  
Buland Markaz, 33, Blue Area,  
Islamabad, Pakistan.**

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## 1.0 INTRODUCTION

During the sixth quarter substantial progress was made in the area of institutional development. The Pakistan Energy Conservation Council met for the first time on June 17. At the meeting, the following decisions were taken:

- o The Council expressed satisfaction with the progress of the program so far.
- o an Executive Committee was constituted to handle day to day matters; it will meet monthly.
- o the draft law for energy conservation was revised and approved.
- o Syed Babar Ali will be approached for his consent to be Chairman of the Advisory Council.
- o four candidates for professional ENERCON positions were approved and four more were to be readvertized; a Selection Committee was appointed.

In addition, a two week technical review of the program was conducted, a two-day program review was conducted with the Pakistani subcontractors and a large number of instruments procured and received. In the technical support area, nine additional industrial surveys were initiated and 12 draft survey reports completed. 43 preliminary energy surveys were initiated in buildings including the identification of 10 demonstration projects. In the education area, the Pakistan Engineering Council has expressed support for the concept of a special course in energy conservation as part of the engineering curriculum in the country. In the outreach area ENERCON published its first newsletter as well as a 4 page supplement in the newspaper. In investment promotion, the banking and financing study was completed.

The level of effort in the sixth quarter was the same as the fifth quarter, 69 person months, indicating that the program has reached stable level necessary to make steady progress. There was a 77% increase in expenses due to a large increase in the purchase of commodities and the submittal of invoices by Pakistani subcontractors for many months of past work for which Hagler, Bailly had not been invoiced.

**2.0 SUMMARY OF ACCOMPLISHMENTS OF ENERCON PROJECT FOR SIXTH QUARTER (APRIL - JUNE 1987) ARE HIGHLIGHTED BELOW:**

**2.1 INSTITUTIONAL DEVELOPMENT SUPPORT**

- Prepared information material for semi-annual review meeting
- High capacity photocopier delivered in Islamabad and installed.
- Held a two-day program review meeting with the Pakistani subcontractors to discuss and solve problems and identify new opportunities
- Conducted evaluation of performance of the Pakistani subcontractors; terminated industrial work of one subcontractor; selected a replacement firm.
- Fifteen recording ammeters, five medium temperature infrared pyrometers and one electric power analyzer delivered to Pakistan.
- Pakistan Energy Conservation Council had its first meeting on June 17, 1987; the following actions were taken:
  - an Executive Committee was established
  - draft Energy Conservation Law was amended and approved
  - Syed Babar Ali was approved to be requested to serve as Chairman of the Advisory Committee
  - a post for administrative officer was created
  - appointment of four professional staff was approved
  - annual National Energy Conservation Award should be given
- Interviewed candidates for the position of Program Manager "Data and Analysis".
- Conducted two-week technical review of program; prepared report and initiated implementation of recommendations.
- 24 electronic combustion analyzers and spare parts received in Islamabad, 29 additional expected July 87.

## **2.2 PLANNING /SPECIAL STUDIES**

- Revised and submitted final version Energy Conservation Chapter of 7th Five Year Plan.
- Submitted final report on energy conservation potential in the agriculture sector : "Energy Use in Pakistan's Agricultural Sector: An Initial Analysis and Proposed TEM Program".

## **2.3 DATA BASE**

- Documentation for data entry module for transport energy conservation data base completed and submitted as draft; programming completed and system installed on ENERCON computer.
- Data collection forms for building data base finalized, to be used in conjunction with building sector, PES to provide data for analysis.
- Documentation report for buildings sector energy conservation data base completed and submitted as draft; programming completed and installed on ENERCON computer.
- Work plan for Buildings Preliminary Energy Surveys developed; Work commenced with 43 buildings to be surveyed in Karachi, Lahore and Islamabad, including residential and commercial buildings.
- Work plan for development of power sector energy conservation data base input modules completed; Work initiated on programming.

## **2.4 TECHNICAL SUPPORT**

### **Energy Survey/Feasibility Studies**

- Preliminary Energy Surveys conducted at 2 plants.

### **Energy surveys were initiated at:**

- Modern Steel, Lahore
- Colony Thal Textile Mills, Bhakkar
- Liberty Textile.
- Adamjee Paper and Board

- Bata Pakistan Limited
- Punjab Oil
- Punjab Steel
- Lasani Steel
- Sadiq Plywood.

**Survey work conducted on the following plants**

- Adamjee Paper and Board
- New Era Steels, Karachi
- Prince Glass, Karachi
- Baluchistan Foundry, Hub Chowki
- Bata Pakistan Ltd
- Punjab Oil
- Punjab Steel
- Lasani Steel
- Colony Textile
- Star Textile
- Sadiq Plywood

**Draft Survey Reports were prepared for:**

- Colony Sarhad
- Crescent Jute Products Faisalabad
- Adamjee Paper and Board
- Bata Pakistan Limited
- New Era Steels, Karachi
- Agha Khan Hospital
- Kohinoor Sugar
- Kohinoor Textile
- Khazana Sugar
- Khawaja/Neelam Glass
- Shakarganj Sugar
- Regal Ceramics

**Follow Up Work was initiated at the following plants:**

- Baluchistan Glass
- Colony Sarhad
- Sampak
- Mehran Sugar

**Follow Up in progress**

- General Tyre Karachi
- National Tanneries
- Glaxo Laboratories
- Nakshbandi
- Indus Jute

- o Shabbir Tiles
- o Nakshbandi
- o Baluchistan Glass
- o Colony Sarhad Textile
- o Sampak Paper
- o Mehran Sugar

**Feasibility Studies were initiated at:**

- o Lever Brothers Karachi
- o Baluchistan Glass
- o Shabbir Tiles and Ceramics
- o Mehran Sugar

**Feasibility Study Work Continued at:**

- o Lever Brothers Karachi
- o Al-Abid Silk Mills
- o General Tyres
- o Pakland Paper
- o Adamjee Paper

**Prefeasibility study report was prepared for:**

- o Rafhan Maize.

**Feasibility Studies were Presented at :**

- o Ceebees Textiles, Lahore.
- o Kamran Steel, Lahore.

**Presentations were made at the following plants:**

- o Crescent Jute Mills
- o Kohinoor Textile Mills
- o Khawaja/Neelam Glass
- o Regal Ceramics

**Draft feasibility study reports were prepared for:**

- o Rafhan Maize
- o Adamjee Paper and Board Mills
- o Pakland Paper

Estimated Energy Cost Saving To Date : Rs. 4,9041,000.00

Total Estimated Energy Cost Savings To Date :  
Rs. 59,385,466.00

Total Actual Energy Cost Savings To Date :  
Rs. 11,769,559.00

Total No Cost/Low Cost Savings Identified To Date :  
Rs. 37,583,871.00

Total No Cost/Low Cost Actual Savings Achieved To Date :  
Rs.11,195,369.00.

### BUILDINGS

- Based on " Walk Through" of P-Block, Pakistan Secretariat, initiated projects for DES and possible demonstration.
- Initiated approvals for Preliminary Energy Survey and possible demonstrations in buildings including Holiday Inn (Islamabad), State Life Insurance Corp. (Multiple buildings throughout Pakistan), New Fuel Research Center, PCSIR (Karachi) and a series of school buildings constructed by USAID.
- Initiated planning for 1-day seminar on approaches for construction of thermally resistant structures.
- Discussed test results of reflective paints with commercial paint manufacturer: Manufacturer will reformulate samples and submit for testing.
- Evaluated capabilities of Jafri and Associates (Karachi) as possible sub-contractor for the buildings program.
- Completed hiring of Mr. Fasihuddin as assistant for buildings programs.
- Met with Mr. A.K. Sherwani, Secretary, Ministry of Housing and works; gained full support for ENERCON's efforts in the areas of Energy Building Codes and Energy Efficiency Standards for products. Sherwani will direct the formation of committees and support ENERCON on building codes (through Environment and Urban Affairs Division) and equipment standards (Public Works Department).

- Discussed plans for proposed survey and demonstration work with CDA personnel at P-Block, Pakistan Secretariat. Demonstrated combustion test equipment and made plans to test boilers when operating under full cooling loads (early June). Prepared subcontractor scope of work for P-Block.
- Continued work on drafting National Energy Building Code.
- Initiated 43 PESs for buildings and identification of 10 potential demonstration projects with Zelin as subcontractor. Work is in progress. Worked with Zelin in Karachi and Lahore on building selection and identification of potential demonstration projects.
- Received 1-year hourly weather data for Lahore, Islamabad, Peshawar and Multan. Analyzed data for energy use simulation purposes. Made request for similar data for Karachi and Quetta.
- Conducted combustion tests on the boiler at P-block, Pakistan Secretariat. Report to be shared with CDA personnel upon ENERCON Approval.
- Conducted walk-through energy survey of A-block, Pakistan Secretariat. Recommended that detailed survey and possible demonstrations be limited to P-block.
- Met with Dr. Naeem Khan, Chairman, PCSIR to discuss possible development of low thermal conductivity concrete. With his approval and encouragement, began plans for a 1-day seminar in September and outlined program plan.
- Submitted request for purchase of a series of conservation measures for demonstration at the ENERCON office.
- Ordered computer software for simulating heating and cooling loads in buildings to support criteria in draft building energy code.

## **2.5 TRAINING**

- Developed cover design for series of training manuals.
- Submitted Final draft of steam manual:  
Energy Efficiency in Steam Distribution System.
- Drafted Task Order (Techno Consult) for development of training manual on waste heat recovery.

- Drafted Task Order (Zelin) for completion of training manuals for energy instrumentation and for cogeneration
- Prepared program for one day boiler efficiency workshop; slide preparation under way.
- Continued follow up of Karachi and Lahore training course participants.
- Prepared one-year Task Order for energy education activities for Prof. Bandey of Intrag Pk.
- Completed final editing of boiler manual Improving Steam Boiler Operating Efficiency and submitted for approval.
- Completed first draft of manual on plant maintenance/implementation guidelines.
- Continued slide preparation for one-day boiler efficiency workshop.
- Finalized program for 3rd Energy Efficiency Management Course in Karachi in July-August.
- Prof. Bandey and Mark Oven had initial meetings with Ministry of Education and Pakistan Engineering Council.
- Began outlines for energy management course syllabus for engineering universities.
- Printed 1000 copies of manual Energy Efficiency in Steam Distribution Systems.
- Printed and distributed brochures for Karachi Energy Efficiency Management Course; working with S.I.T.E. Industrial Association on course logistics.
- Reviewed and approved outlines for instrumentation, cogeneration, and waste heat recovery manuals currently in process.
- Submitted outline for new course Energy Management and Conservation to Pakistan Engineering Council's Accreditation Committee for consideration as a numbered course for engineering universities.
- Submitted proposal for loan/gift of energy audit kits to selected departments of engineering universities.
- Submitted a proposal for ENERCON-sponsored applied energy conservation research to be done by universities.

## 2.6 OUTREACH

- Prepared 6 press releases
  - 1 published in media
  - 2 to be published
  - 3 still awaiting private sector companies approval
  
- Prepared 6 newspaper articles /editorials
  - 1 published in newspapers
  - 2 submitted, awaiting publication
  - 3 submitted for ENERCON review
  
- Published Industrial TEM folders.
  
- Reviewed composing and layout for 29 Energy Tips; final preparation for printing in progress.
  
- Submitted Urdu Text Energy Savings in the Home for graphic design and layout as a pamphlet.
  
- Prepared and presented two papers at the 17th Annual Convention of the Institution of Electrical Engineers of Pakistan in Karachi : 1) THE ROLE OF ENERCON IN THE NATIONAL ENERGY CONSERVATION PROGRAM, and, 2) IMPROVING ELECTRIC MOTOR EFFICIENCY TO CONSERVE ENERGY.
  
- Assigned a series of energy conservation posters for industry, and stickers for general use to a media/design consultant.
  
- Completed formalized mailing list structure, and began entering names.
  
- Performed 7 promotional visits on behalf of ENERCON, with four industrial associations in Karachi, the KCCI, the Sarhad CCI, and Quetta CCI.
  
- Completed draft article on transportation energy conservation in Pakistan.
  
- Visited newspaper editors of Jang, Dawn and Pakistan Times to make connections for ENERCON, and to distribute press releases.
  
- Began distribution of Industrial TEM materials.
  
- Amended and approved final version of cost directory being developed by subcontractors.
  
- Submitted press releases on PECC meeting, and on ENERCON Energy Education for Pakistan report.

- Submitted English newspaper articles "Energy Conservation in the Pakistan Agriculture Sector" and "Potential for Energy Conservation in Pakistan's Transportation Systems".
- Published Urdu article "Energy Conservation and National Development " in Jang on 15 June.
- Printed 13 Energy Tips, submitted additional 15 Tips for design and printing; designed a folder to contain the Energy Tips.
- Developed a newspaper supplement on the occasion of the Pakistan Energy Conservation Council inaugural meeting, published 17 June in Pakistan Times and Morning News, including:
  - "ENERCON and The National Energy Conservation Programme"
  - "Achieving Energy Savings in Industry; Total Energy Management"
  - "National Energy Conservation Law Needed"
  - "Energy Conservation for Buildings"
  - "Planning for Energy Education"
  - Various messages and advertisements
- Finalized and published first issue of ENERCON newsletter *Energy Conservation News*.
- Finalized and published Detailed Energy Survey Case Study summary sheets for 7 industries; additional summary sheets developed in draft form.
- Published and began distribution of 5000 "Conserve Energy" automobile stickers.
- Began development of " I am an Energy Saver" automobile stickers.
- Ghar Baar TV programme with focus on home energy conservation filmed on 27 June.
- Submitted design for posters and light switch stickers for final approval.

## **2.7 INVESTMENT PROMOTION**

- Submitted final draft Volume 1, "Promoting Industrial Energy Conservation; Barriers and Solutions to Financing Energy Conservation in Pakistan".
- Submitted final draft Volume 2, "Promoting Industrial Energy Conservation: The Role of Non-Financial Government Institutions".
- Submitted final draft Volume 3, "Promoting Industrial Energy Conservation: The Role of Financial Institutions and Services".

2.8 TDY Trips During Sixth Quarter

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

2.9 Technical Reports Submitted During Sixth Quarter.

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

2.10 Task Orders/Work Orders Prepared

- o Exhibit 2.3 gives a complete list of the task orders/work orders prepared during the Sixth quarter.

Exhibit 2.1

TDY PERSONNEL TRIPS: APRIL 1 - JUNE 30, 1987

<u>Name of Traveller</u>	<u>Trip</u>	<u>Date of Arrival</u>	<u>Date of Departure</u>	<u>Duration for the Quarter</u>
Barry Tunnah	Fourth	Mar 3, 87	April 13, 87	13
Paul Thorne	Fifth	April 22, 87	May 27, 87	35
Allen Streicher	First	June 13, 87	June 27, 87	14

Exhibit 2.2

LIST OF ENERCON TECHNICAL REPORTS PREPARED APRIL 1 - JUNE 30, 1987

Report No.	Title	Prepared by	Date Draft Submitted
87-44	Energy Conservation Data Base for the Transportation Sector	Techno	4.14.87
87-45	Case Study: Ismailjee and Sons	Zelin	4.14.87
87-46	Detailed Energy Survey Colony Sarhad Textile	Intrag	4.15.87
87-48	The Wapda Energy Savings Advertisement Campaign	OA	
87-55	Detailed Energy Survey Kohinoor Textile Mills	Techno	6.15.87
87-56	Detailed Energy Survey Bata Pakistan Limited	Intrag	6.23.87
87-57	Detailed Energy Survey Regal Ceramics	EM	6.23.87
87-58	Detailed Energy Survey Crescent Jute Mills	EM	6.23.87
87-59	Feasibility Study at Rafhan Maize Products	PES	6.23.87
87-60	Feasibility Study at Pakland Paper	PES	6.23.87
87-61	Feasibility Study at Adamjee Paper Mills	Zelin	6.24.87
87-63	Promoting Industrial Energy Conservation Vol.1	HBC/Intrag	6.25.87
87-64	Promoting Industrial Energy Conservation Vol.2	HBC/Intrag	6.25.87
87-65	Promoting Industrial Energy Conservation Vol.3	HBC	6.25.87

Exhibit 2.3.

TASK ORDERS/ WORK ORDERS PREPARED: APRIL 1 - JUNE 30, 1987

Description	T.O/W.O No.	ST Consultant/ Subcontractor
Prepare Operation Maintenance and Implementation Guidelines	W.O/TC-6	Techno
Detailed Energy Survey Star Textiles	W.O/TC-8	Techno
Prefeasibility Study General Tyre and Rubber Company Limited	W.O/TC-9	Techno
Prefeasibility Study Nakshbandi	W.O/TC-10	Techno
Implementation & Followup General Tyre and Rubber Company Limited	W.O/TC-11	Techno
Implementation & Followup Nakshbandi	W.O/TC-12	Techno
Prefeasibility Study Lever Brothers	W.O/TC-15	Techno
Finalized Reports Kohinoor Textile & Khawaja/Neelum Glass	W.O/TC-16	Techno
Preliminary Energy Surveys of six plants	W.O/TC-17	Techno
Detailed Energy Survey Colony Thal Textile Mills	W.O/TC-18	Techno
Detailed Energy Survey Shakarganj	W.O/Z-4	Zelin
Prefeasibility Study Shabbir Tiles & Ceramics	W.O/Z-5	Zelin
Detailed Energy Survey Adamjee Paper	W.O/Z-6	Zelin
Preliminary Energy Surveys for Buildings	W.O/Z-7	Zelin
Detailed Energy Survey Liberty Textile	W.O/Z-8	Zelin

Implemetation & Followup Shabbir Tiles & Ceramics	W.O/Z-9	Zelin
Prefeasibility Study Rafhan Maize	W.O/PES-1	PES
Feasibility Study Rafhan Maize Products	W.O/PES-2	PES
Long Term Task Order for Intrag Pk.	86-073-INTPK-7	INTRAG PK
Project Management Task Order	87-020-EM-8	EM Consultants
Training and Outreach Support Task Order	87-023-TC-15	Techno
Detailed Energy Survey Punjab Oil/Steel	87-017-INTPK-12	INTRAG PK
Program Review	87-026-HBC-28	HBC
Waste Heat Recovery Manual	87-014-TC-14	Techno
Instrumentation Cogenerat- ion Manual	87-015-Z-10	Zelin
Power Sector Data Entry Modules	87-019-Z-11	Zelin
Detailed Energy Survey Bata Pakistan Limited	87-013-INTPK-9	INTRAG PK
Tariff Study Task Order	87-009-INTUS-3	INTRAG US
Survey Amendments	HBC/892	Techno/Zelin/ EM/INTRAG PK
Amendment for Overruns	HBC/907	HBC/deLucia/ ED/I
Education Recommendation Implemetation Task Order	87-022-INTPK-13	INTRAG PK
Amendment: Equipment Cost Directory	86-031-Z-3A	Zelin
Amendment: Equipment Cost Directory	86-030-TC-5	Techno

### 3.0 FINANCIAL AND LEVEL OF EFFORT INFORMATION

Total expenses for the sixth quarter were \$ 619,369.71 a 77% increase over the previous quarter. This increase was due to a large purchase of commodities and the receipt of invoice from Pakistani subcontractor for past work. Cumulative expenses to date were \$ 2,724,364.66, or almost 30% of the contract budget. Exhibit 3.1 gives the expenses for the quarter and for the project to date. Exhibit 3.2a gives the level of effort consumed for the quarter and project to date.

A total of 69.8 person months of effort was expended in the sixth quarter, the same as in the fifth quarter. The total level of effort to date is 367.5 person months, not counting 54 person months of professional support staff effort. This represents 31% of the contractual level of effort.

Exhibit 3.1

ENERCON QUARTERLY EXPENDITURE : April 1 - June 30, 1987

HAGLER, BAILLY & COMPANY, INC.  
 Suite 400  
 2301 M Street, NW  
 Washington, D.C. 20037

USAID/Islamabad USAID/Islamabad  
 ENERCON Technical Assistance Project  
 Contract No. 391-0478-C-00-5065-00

Contract Budget Amount:

Amount Obligated to Date

\$4,089,000

Cost \$ 8702084  
 Fixed Fee \$ 414247  
 Total \$ 9116331

Cost Category	Amount Previously Submitted	Amount this Period	Cumulative to Date	Amount Obligated to Date	Percent of Budget Contract
1. SALARIES AND WAGES	\$ 441324.88	\$ 94600.59	\$ 535925.47	\$ 1461468.00	36.67
2. FRINGE BENEFITS	132226.00	25577.37	157803.37	422130.00	37.38
3. OVERHEAD	392199.90	67056.67	459256.57	1144770.00	40.12
4. CONSULTANTS	25032.55	2131.79	27164.34	27000.00	100.61
5. TRAVEL, TRANSPORTATION & PER DIEM	259301.93	37979.92	297281.85	1185287.00	25.08
6. ALLOWANCES	62388.69	22752.32	85141.01	198958.00	42.79
7. COMMODITIES	243234.95	187115.08	430350.03	1235000.00	34.85
8. SUBCONTRACT(S)	384367.73	140835.81	525203.54	2953940.00	17.78
9. OTHER DIRECT COSTS	69273.29	13177.72	82451.01	73531.00	112.13
TOTAL COSTS	2009349.92	591227.27	2600577.19	8702084.00	29.88
FIXED FEE @ 4.76 %	95645.06	28142.42	123787.47	414247.00	29.88
TOTAL COSTS & FIXED FEE	2104994.98	\$ 619369.71	\$ 2724364.66	\$ 9116331.00	29.88

# Exhibit 3.2: Quarterly and Cumulative Labor \$ Expended April to June 1987

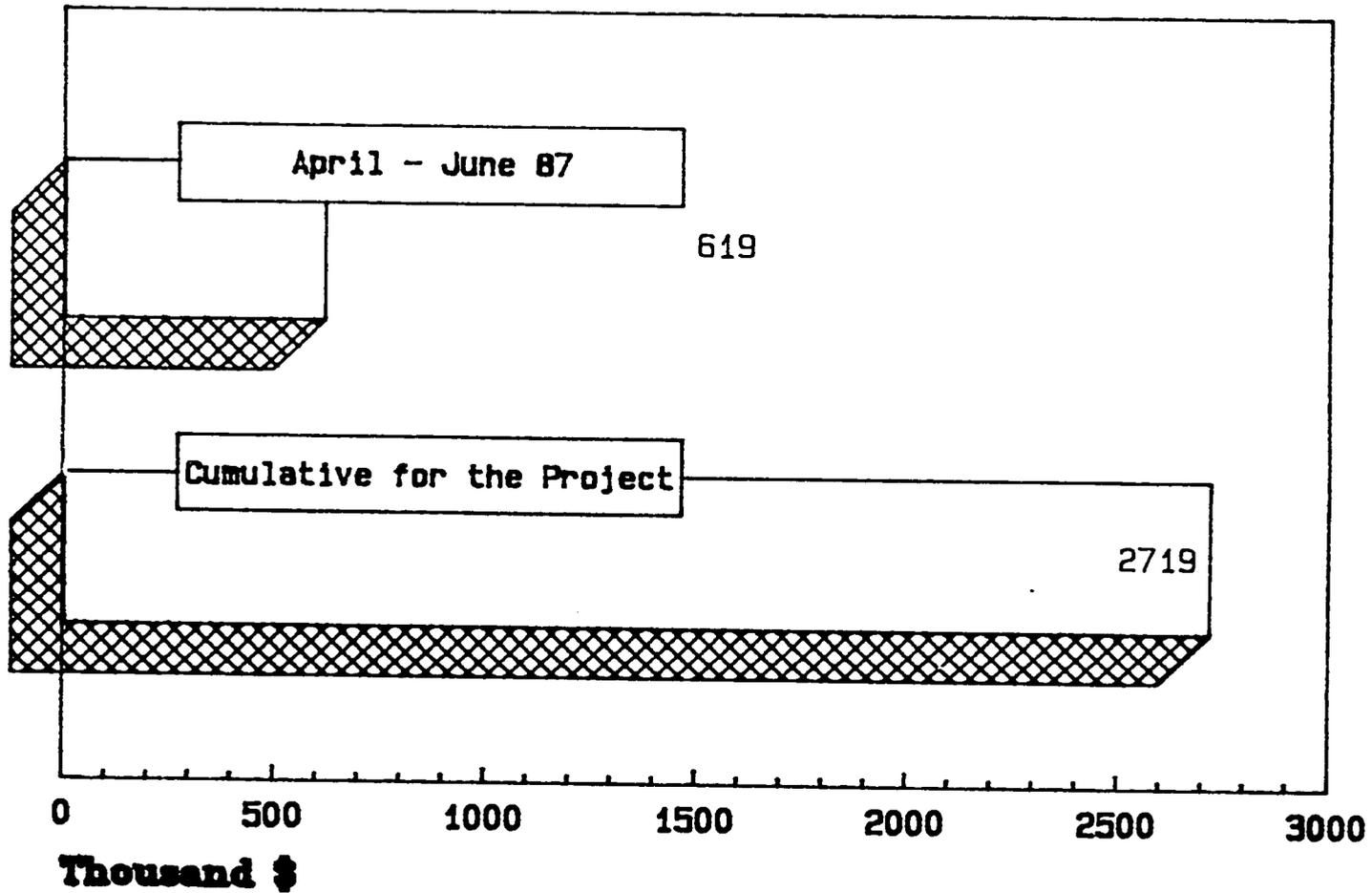
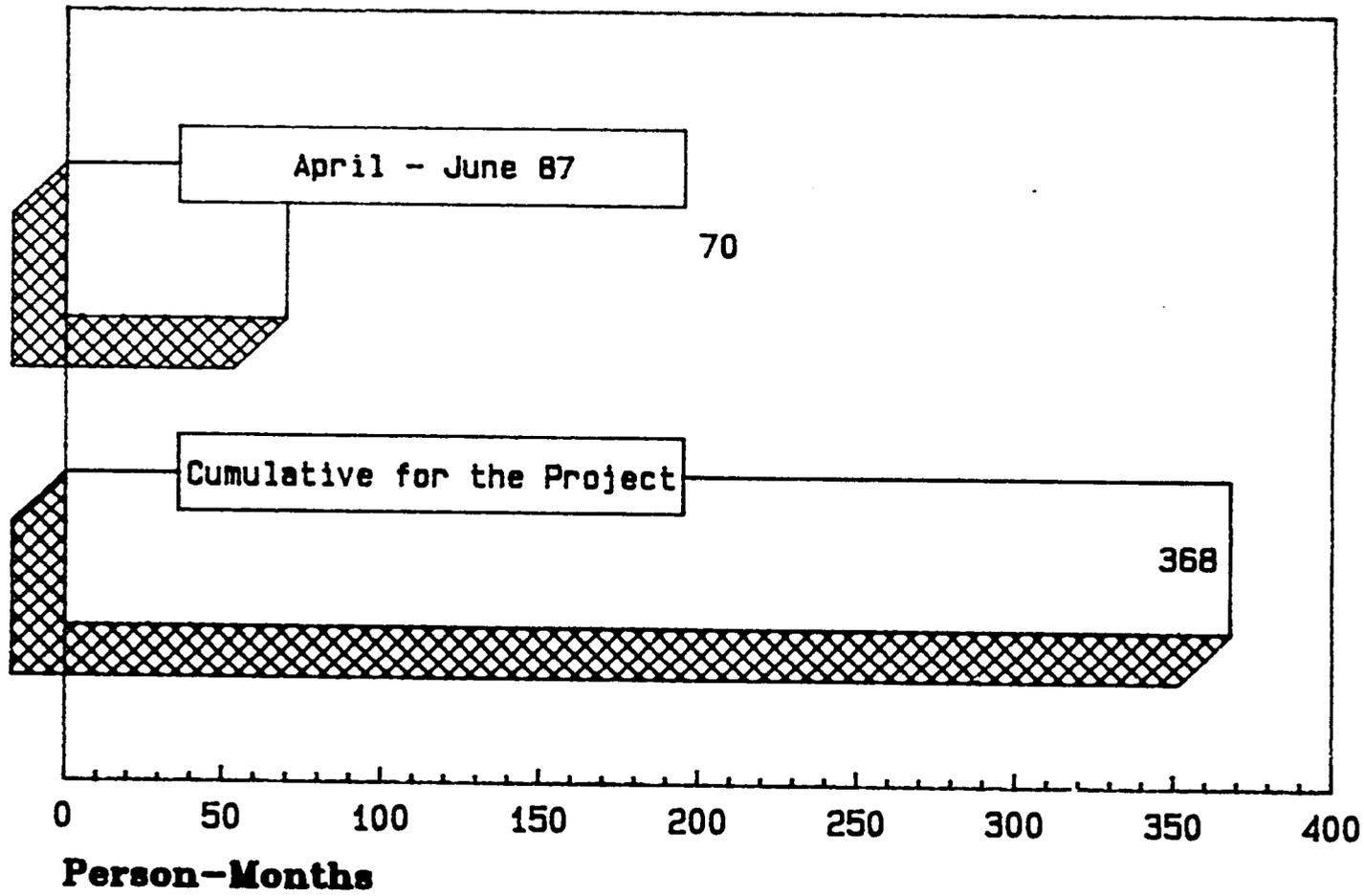


Exhibit 3.2a

**ESTIMATE OF LEVEL OF EFFORT : APRIL 1 - JUNE 30, 1987  
(PERSON MONTHS).**

	<u>Total Budget</u>	<u>Expended This Quarter</u>	<u>Cumulative Expenditure</u>
A: Long term U.S. Personnel	213	15.4	70
B: Short term US Personnel	176	2.7	72.5
B1:Hagler Bailly & Co	-	0.5	32.5
B2:INTRAG U.S.	45	-	12.5
B3:E/DI	31	2.2	11.5
B4:deLucia & Associates	24	-	10
B5:Stone and Webster	53	-	6
C: Home Office Personnel	53	1.7	15
D: Sub total US Level of Effort	442	19.8	157.5
E: Short Term Pakistani Personnel	741	50	210
E1:EM	124	6	28.7
E2:INTRAG PK	91	9	32.5
E3:ZELIN	134	9	46.3
E4:TECHNO/PES	240	23	79
E5:OTHERS	-	3	3
E6:Consultants	-	-	20.5
E7:Special Studies	-	-	-
F: Level of Effort (U.S & Pak)	1183	69.8	367.5
G: Pakistani Professional Staff with HBC	-	26.5	54

**Exhibit 3.3: Quarterly and Cumulative Person-Months Expended  
April to June 1987**



#### 4.0 PROBLEMS ENCOUNTERED AND SOLUTIONS RECOMMENDED

##### 4.1 LACK OF GOP COUNTERPARTS

Although there was still only one GOP counterpart for the project during the sixth quarter, the PECC approved the selection of three additional counterparts. These staff should be arriving in the seventh quarter. The effect of the absence of counterparts has been well documented in previous quarterly reports.

##### 4.2 DELAY OR NON-APPROVAL OF TASK ORDERS

The task order system continues to be a major impediment to rapid project implementation. Many task orders or task order amendments are delayed and some task orders are not approved at all. No explanation has ever been provided in writing as to why a task order is disapproved.

A number of meetings have been held with USAID, including the Mission Director, regarding the task order system. Although no changes have been made to the system, AID has agreed to set up a committee under the direction of the Chief, Contracts Office, to review the entire system and develop improvements.

##### 4.3 LACK OF APPROVAL OF COMMODITY TRANSFER MECHANISM

No means for transferring USAID commodities to private sector firms has yet been worked out. At present, 10 industrial demonstration projects have been identified and could be implemented immediately except that a commodity transfer mechanism has not been agreed upon. Key issues are how much, if any, a firm should share in the cost of the commodities; what the role of the GOP should be in title transfer; how to protect the project from abuse of the equipment or failure of the firm to supply ENERCON with required information.

## 5.0 PLANNED ACTIVITIES : THIRD QUARTER 1987

Institutional Development Support - Transmit law to Law Division and continue to work for its passage; draft by-laws for PEMA and begin organization; place new engineering firm under contract.

Data Base Development - Complete PES's on 43 buildings and begin data entry; work with Zelin to carry out industrial survey; obtain industrial data from Ministry of Production; develop agriculture energy survey plan; hire data base assistant; obtain national weather data and begin development of national weather data base.

Technical support - Review and revise energy survey approach; begin implementation of industrial and building demonstration projects; complete demonstration on ENERCON building; begin DES of P-block; complete first draft of national building energy code and present to Ministry of Housing and Works; conduct one-day seminar on cement in cooperation with PCSIR.

Training and Education - Conduct Energy Management Training Course in Karachi; develop energy conservation course for engineering universities and obtain PEC approval; conduct three one-day workshops in boiler efficiency; develop proposal for applied research program at universities; complete 3 workshop manuals.

Outreach and Information - Mail out 1500 ENERCON newsletters; complete second newsletter; place request card in PEC newsletters (30,000 members); complete mailing list data base; complete 20 promotional visits; hire editor/writer/promotion assistant; write and get printed six press releases on ENERCON activities.

Investment Promotion - Prepare action plan for implementation of recommendations of banking and financing study and begin implementation.

Monitoring and Evaluation - Continue monitoring of energy savings in plants; prepare monthly, quarterly and other reports.

## 6.0 DETAILED FUNCTIONAL AREA ACTIVITIES

### 1. Institutional Development Support

TO No.	Activity	Status
86-002-del-1	Project Management	In Progress
86--010-E/DI-3	Project Management	In Progress
86-023-INTUS-2	Management Support & Project Management	In Progress
86-024-SW-2	Project Management	In Progress
86-020-EM-8	Project Management	Completed
86-073-INTPK-7	Project Management	In Progress
86-071-Z-9	Project Management	In Progress
86-010-TC-13	Project Management	In Progress
87-026-HBC-28	Program Review	Completed

### 2. Energy Conservation Planning

TO No.	Activity	Status
-----	Detailed Work Plan	Completed
86-007-HBC-4/4A	Legislation Initiative	Completed
86-009-HBC-6	Legislation Initiative	Completed
86-029-HBC-8	National Energy Conservation Plan	Completed
86-051-DEL-2/2A	Electrical Equipment Efficiency Standards	Completed
86-052-EM-5	Electrical Equipment Efficiency Standards	Completed
86-060-del-3	Agricultural Sector Assessment	Completed
86-061-TC-10	Agricultural Sector Assessment	Completed
W.O./Z-3	7th Five Year Plan	Completed
86-026-EM-3	Tech Support for ENERCON Office	Completed
86-001-HBC-15/15A	7th Five Year Plan	Completed

### 3. DATA BASE DEVELOPMENT AND MANAGEMENT

TO No.	Activity	Status
86-001-HBC-1	Data Base Development	Completed
86-004-HBC-2	Data Needs Assessment	Completed
86-036-HBC-12/12A & 86-037-HBC-5	Develop Framework for Building Data Base	Completed
86-043-Z-5	Data Base Development- Buildings	In Progress
86-033-HBC-9	Data Base Development- Transport	Completed
86-039-TC-8	-do-	Completed
86-034-HBC-10/10A	Data Base Industry	Completed
86-035-HBC-11	Data Base Power	Completed
86-065-HBC-19 & 19A	Transportation E.Cons Demo Design Plan Update	Completed
86-069-HBC-23/23A	Data Base Development	Completed
87-019-Z-11	Power Sector Data Entry Modules	In Progress

### 4. TECHNICAL SUPPORT

TO No.	Activity	Status
86-005-INTUS-1	Industrial Feasibility Studies Initiatives	Completed
86-005-SW-1	Audit Supervision	Completed
86-028-EDI-2	Identification of Plants for Energy Survey	Completed
86-013-INTPK-1/1A	Energy Survey & Implem. Assistance	Completed
86-014-TC-2/2A	Energy Survey & Implem. Assistance	Completed
86-015-Z-1 & 1A	Energy Survey & Implem. Assistance	Completed
86-018-TC-3	Industrial Feas. Stud.	In Progress
86-019-INTPK-2	Feasibility Studies	Completed
86-020-Z-2 & 2A	Feasibility Studies	Completed
86-004-E/DI-5	Supervision of surveys and feasibilities.	In Progress
86-031-Z-3/3A	Equipment Cost Directory	Completed
86-030-TC-5/5A	Equipment cost directory	Completed
87-010-EM-7	Energy Survey	Completed

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

TO No.	Activity	Status
86-044-EM-4	Energy Survey	Completed
87-008-INTPK-8	Energy Survey	Completed
86-021-EM-2	Industrial Feasibility	Completed
86-042-E/DI-4, 4A & 4B	Feasibility Study Supervision	Completed
86-053-HBC-14&14A	Bid Evaluation Assist.	Completed
86-064-HBC-18 & 18A	Audit & Feasibility Study Counterpart	Completed
86-025-E/DI-6	Energy Surveys Supervision	Completed
W.O/TC-6	Prepare Operation Maintenance and Implementation Guidelines	Completed
W.O/TC-8	D.E.S.Star Textile	In Progress
W.O/TC-9	Prefeasibility study General Tyre	In Progress
W.O./TC-10	Prefeasibility study Nakshbandi	In Progress
W.O./TC-11	Impl.& Follow-up General Tyre	In Progress
W.O./TC-12	Impl.& Follow-up Nakshbandi	In Progress
W.O./TC-15	Prefeasibility study Lever Brothers	In Progress
W.O./TC-16	Finalize Reports Kohinoor Textile & Khawaja/Neelum Glass	Completed
W.O./TC-17	Preliminary Energy Surveys of 6 plants	In Progress
W.O./TC-18	D.E.S.Colony Thal	
W.O./Z-1	D.E.S./Implementation Crescent Textile	In Progress
W.O/Z-4	D.E.S. Shakarganj	Completed
W.O/Z-5	Prefeasibility study Shabbir Tiles	In Progress
W.O./Z-6	D.E.S.Adamjee Paper	Completed
W.O./Z-7	Preliminary Energy Survey for Buildings	In Progress
W.O./Z-8	D.E.S.Liberty Textile	In Progress
W.O./Z-9	Impl. & Follow-up Shabbir Tiles	In Progress
W.O./PES-1	Prefeasibility study Rafhan Maize	Completed
W.O./PES-2	Feasibility study Rafhan Maize	In Progress
W.O./Z-2	D.E.S.New Era	Completed
W.O./TC-1	D.E.S.Mehran Sugar & Kohinoor Textile	Completed
W.O./TC-2	D.E.S.Khawaja/Neelum Glass	Completed

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

TO No.	Activity	Status
W.O./TC-3	D.E.S.Dawood Cotton	Completed
W.O./TC-4	D.E.S.Kohinoor Sugar	Completed
W.O./TC-7	D.E.S.Colony Textile	In Progress
87-017-INTPK-12	D.E.S.Punjab Oil	In Progress
87-013-INTPK-9	D.E.S.Bata Pakistan	Completed
86-026-EM-3	New Office Design	Completed

#### 5. TRAINING AND CURRICULUM DEVELOPMENT

TO No.	Activity	Status
86-003-TC-1 & 1A	Logistical support to first training course	Completed
86-016-EM-1/1A	Logistical support to second training course	Completed
86-017-E/DI-1	Training Course at Lahore	Completed
86-054-TC-12	Training Course Lectures	Completed
86-055-Z-6 & 6A	Training Course Lectures	Completed
86-057-HBC-16	Training Needs	Completed
86-058-HBC-17	Training Needs Assessment	Completed
86-059-INTPK-6	Training Needs Assessment	Completed
86-066-HBC-20	Training Needs Assessment	Completed.
86-067-HBC-21	Training needs Assessment	Completed
86-068-HBC-22	Training needs Assessment	Completed
W.O./TC-5	Follow-up: Karachi Course	Completed
87-023-TC-15	Training & Outreach Support	In Progress
87-014-TC-14	Waste Heat Recovery Manual	In Progress
87-015-Z-10	Instrumentation Cogeneration Manual	In Progress
87-022-INTPK-13	Education Recommendation Implementation	In Progress

## 6. OUTREACH

<b>TO No.</b>	<b>Activity</b>	<b>Status</b>
86-012-HBC-7	TEM Materials for Industry	Completed
86-062-Z-7/7A	Training & Outreach	Completed
87-007-OA-2	Evaluation of WAPDA Advertisement Campaign	Completed

## 7. INVESTMENT PROMOTION

<b>TO No.</b>	<b>Activity</b>	<b>Status</b>
86-006-HBC-3	Investment Promotion Initiatives	Completed
86-008-HBC-5 & 5A	Cogeneration Initiatives	Completed
86-045-HBC-13/13A	Case Analysis & Financial Workshop	Completed
86-047-TC/PES-9	Invest Promotion Initiative	Completed
86-048-Z-8	Invest Promotion Initiative	Completed
86-049-INTPK-5	Investment Promotion Initiative	Completed
86-063-TC-11	Cogeneration Case Study	Completed