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PROJECT ASSISTANCE COMPLETION REPORT

ENERGY COMMODITIES AND EQUIPMENT PROGRAM

391-0486

UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT

ISLAMABAD, PAKISTAN

BEST AVAILABLE DOCUMENT

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I. BASIC DATA

Title of the Program: Energy Commodities and Equipment

Program No. 391-0486

Grant No. 391-0486

Loan No. 391-K-193

Date Authorized August 20, 1984

Date Agreement Signed August 30, 1984

Date First Amendment Signed May 24, 1985

Date Second Amendment Signed May 29, 1986

Financial Information:

Type of Currency: U.S. Dollar

Original Amount of Grant \$20,000,000

Original Amount of Loan \$80,000,000

Total Amount of Grant & Loan \$100,000,000

Final Obligation (Grant) \$49,895,210

Final Obligation (Loan) \$47,755,222

Total Revised Amount \$97,650,432

Terminal Date for Disbursement (TDD)

Original February 28, 1989

Revised September 30, 1992

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II. PROJECT OBJECTIVES AND DESCRIPTION:

1. Background:

When the USAID assistance program was resumed in Pakistan in 1981, the economic environment was not very positive. Much of the industrial and banking activity had been nationalized, and the Government faced serious budgetary and foreign exchange constraints. However, it had begun to take concrete steps to reverse some of the more restrictive policies, especially in the industrial, investment and foreign trade.

It was under these circumstances that the ECE Program was developed under the FY 1982-FY 1987 U.S. assistance package to Pakistan as the primary vehicle for flexible and fast-disbursing balance of payments support and to contribute to energy production from indigenous resources or energy conservation in support of Pakistan's Sixth Five-Year Plan. The program has also been used to address a range of policy dialogue concerns. Finally a private sector window was incorporated into ECE program as part of an effort to more fully involve commercial firms in the import of essential U.S. source/origin energy commodities and equipment.

2. Project Description

The Energy Commodities and Equipment Program was authorized by the A.I.D. Administrator on August 20, 1984 with Life of Program (LOP) funding of \$100 million, of which \$ 20 million was grant and \$80 million was loan. Later, the Loan/Grant proportion was changed to \$ 50 million for grant and \$50 million for loan. Funds for private sector procurement were set at \$ 23 million (\$20 million from loan and \$3 million from grant). In May, 1991, Pursuant to the Pressler Amendment, a deobligation of one million dollars was effected from the Public Sector component, leaving total Loan/Grant funds at \$99 million.

The Project Agreement between the Governments of the United States of America and the Islamic Republic of Pakistan was signed on August 30, 1984 with a Terminal Date for Disbursement (TDD) of February 28, 1989. The TDD was later extended to September 30, 1992.

This Commodity Import Program (CIP) provided fast-disbursing foreign exchange resources for the importation of equipment and commodities of U.S. source and origin that were used to support balance of payments and energy sector objectives of the U.S. economic assistance program in Pakistan.

The commodities imported under ECE were not intended for projects but for specific agencies in the public sector involved in energy, including generation, transmission and distribution entities and research institutes. The primary emphasis was on the development of the energy sector with secondary emphasis on short-run rapid disbursements.

The policy objectives of this Program included further rationalization of energy prices, transfer of technology, increased participation of the private sector in energy development, and decreased import of oil by means of energy conservation and increased production and use of indigenous energy resources (coal, oil and gas, renewables) in direct support of the GOP Sixth Five-Year Plan.

The energy sector equipment financed under the program is categorized as follows:

- a. Energy Conservation;
- b. Fuel conversion;
- c. Power sector;
- d. Coal Mining and Processing;
- e. Renewable Energy; and,
- f. Oil and Gas Exploration.

The equipment was provided to both public sector and private sector entities. The detailed breakdown of equipment importation both for the public and private sectors is given separately in the following pages.

It may also be noted that under the ECE program, all public sector procurement activities were performed by GOP agencies under host country contracting mechanism with USAID guidance. There were no technical assistance teams under this program.

III. EQUIPMENT SELECTION COMMITTEE

In order to provide liaison between USAID and the Government of Pakistan (GOP) agencies for procurement of equipment, an Equipment Selection Committee (ESC) was established on September 26, 1984, by the Minister for Planning and Development, Government of Pakistan. This Committee consisted of the following:

- i) Additional Secretary (Power), Ministry of Water and Power (Chairman); and,
- ii) Engineering Advisor (Power), Ministry of Water and Power (Secretary).

The Committee Office was situated in the Office of the Engineering Advisor (Power).

1. Purpose of Setting Up of the Committee

The Committee acted as liaison between the GOP public sector recipient agencies and the USAID during pre-and post-procurement activities. It approved all requests for procurement by various public sector agencies as well as the fund allocations amongst them. The Committee also approved requests for transfer of equipment from one agency to the other whenever considered appropriate.

2. Functions of the Equipment Selection Committee

All energy related procurement requests (equipment lists) from various public sector agencies were channelled through the Committee for its review and approval before these were submitted to USAID for processing prior to procurement. Fund allocations for various agencies were approved by the Committee.

Earmarkings, to de-earmarkings, commitments and de-commitments of funds by USAID required the concurrence of the Committee.

The Committee assisted the USAID technical office, Office of Private Enterprise and Energy (O/PEN) staff in resolving issues pertaining to transfer of equipment from one GOP entity to the other, delay in installation of equipment and non-utilization of equipment.

IV. BENEFICIARIES OF THE PROGRAM

Various agencies under the following Ministries of GOP benefitted from the Program, including:

- Ministry of Planning and Development
- Ministry of Finance and Economic Affairs
- Ministry of Petroleum and Natural Resources
- Ministry of Water and Power
- Ministry of Science and Technology

1. GOP Counterpart Agencies:

In the public sector, equipment was procured by the following agencies of GOP:

a. Water and Power Development Authority (WAPDA)

WAPDA is an autonomous organization within the Ministry of Water and Power. It is responsible for generation, transmission and distribution of electric power throughout the country except in the Karachi area.

b. Oil and Gas Development Corporation (OGDC)

OGDC, another autonomous organization, under the Ministry of Petroleum and Natural Resources is responsible for the exploration, production, drilling and development of oil and gas resources both independently and in joint ventures with the foreign oil and gas exploration and drilling firms. In addition, OGDC is involved in the processing of petroleum concessions and is an owner, on behalf of the Government, in the majority of Pakistan's oil and gas fields.

c. Pakistan Council of Scientific and Industrial Research (PCSIR)

PCSIR, under the Ministry of Science and Technology, has the overall responsibility for coordination of applied research in scientific and technological fields. The Fuel Research Center and the Solar Energy Center of PCSIR are involved mainly in research endeavors in the field of conventional and non-conventional energies both in public and private sectors.

d. Hydrocarbon Development Institute of Pakistan (HDIP)

HDIP, under the Ministry of Petroleum and Natural Resources, has the responsibility for data management system, assessment of the country's hydrocarbon resources base, vital to the planning and investment decision in petroleum exploration. It is involved in the use of computer technology for analysis of exploration data, source rock studies, environment of sediments and other related aspects of basic analysis. HDIP also provides energy related infra-structure facilities to both private and public sector organizations regarding fuel, lubricants, etc. It is responsible for promoting use of compressed natural gas (CNG) as commercial fuel in automobiles and to provide man-power training in the field of petroleum refining industry.

e. Karachi Electric Supply Company (KESC)

KESC, under the Ministry of Water and Power, is responsible for generation and distribution of electric power in the Karachi area and its environs. KESC's source of power production are thermal power stations.

f. Geological Survey of Pakistan (GSP)

GSP, under the Ministry of Petroleum and Natural Resources, has overall responsibility for mineral exploration throughout Pakistan. It carries out extensive geological and geophysical drilling activities.

2. Equipment Procured in the Public Sector

Given below is a breakdown of equipment procured by various GOP agencies:

<u>Name of Agency</u>	<u>Total Value of Equipment Procured</u>	<u>Type of Equipment Procured</u>
WAPDA	\$22.5 m (\$15.0 m Loan) (\$ 7.5 m grant)	Electrical Power Equipment and Spares for Generation, Thermal as well as Hydel, Planning and Secondary Grid Transmission and Distribution Computers
OGDC	\$24.4 m (\$14.1 m Loan) (\$10.3 m Grant)	Exploration, Drilling, Seismic and Communication
PCSIR	\$ 7.0 m	Analytical, Environmental and Solar Laboratory Equipment
HDIP	\$ 7.5 m	Petroleum Exploration, Scientific Research and Laboratory Equipment, Compressed Natural Gas (CNG) Equipment, Computers
KESC	\$ 2.5 m	Electric Power Equipment and Spares, Maintenance Equipment
GSP	\$11.0 m	Coal Exploration, Geophysical Drilling and Photogrammetry Equipment
PCAT	\$ 0.3 m	Laboratory Equipment and Machinery
PMDC	\$ 0.5 m	Mine Safety Equipment, Ambulances
DGNRER	<u>\$ 0.3 m</u>	Photovoltaic Equipment
Total:	\$76.0 m	Public Sector Loan and Grant

3. Equipment Procured in the Private Sector:

The purpose of this program was to provide foreign exchange for the Pakistani private sector to import energy-related equipment and materials. A wide range of goods was eligible for financing under the program. The major requirement was that the goods must be purchased from the United States of America.

Equipment worth \$23 million (\$20 million from Loan and \$3 million from Grant) was procured under private sector Commodity Import Program.

An illustrative list of eligible energy commodities and equipment based on project objectives was established and is as follows:

i. Energy Conservation and Fuel Conversion Equipment:

- Coal handling
- Cogeneration
- Energy audit
- Furnaces/waste fuel boilers
- Heat recovery technology
- High efficiency lighting
- Insulation materials
- Motor power factor correction and
- Steam generation equipment etc.

ii. Power Sector Equipment:

- Distribution and Rural Electrification and Generation

iii. Coal Use, Exploration and Mining Equipment:

- Belt and chain conveyers
- Coal drilling equipment and drilling consumables (bits, fluids, casing etc.)
- Diesel generators
- Electric hoists
- Gas detectors and alarms
- Groundwater control pumps
- Hard hats and electric safety lamps
- Hydraulic and mechanical jacks

Pneumatic pics, rock drills, and loaders
 Processed smokeless coal briquetting equipment
 Respirators and dust filters
 Ventilation systems with associated ducts and fans etc.

iv. Renewable Energy Equipment:

Biomass systems
 Photovoltaic technology
 Small scale hydro
 Solar Water Heaters
 Wind Power Systems

v. Oil and Gas Exploration and Development Equipment:

Compressor systems
 Seismic processing computer, software, and peripherals
 Seismic systems including ancillary vehicles
 Steel consumables (bits and casings)
 Well logging equipment
 Wireline equipment and other drilling equipment
 Other consumables (drilling fluids, cement, chemicals, mud, etc.)

Procurement Plans and Procedures:

An outline of the procurement plans and procedures for CIP under the ECE project is as follows:

The Designated Financial Institutions (DFIs) were allowed to make loans for the purchase of eligible equipment. The program was well publicized in local papers in Pakistan, AID Procurement Information Bulletin in Washington and other publications.

AID Regulation I, for Informal or Negotiated Procurement Procedures was applicable. Negotiated procurement was in accordance with good commercial practice with the solicitation of offers from a reasonable number of suppliers. Participating banks were responsible for ensuring compliance with this requirement.

After consultation with and having been advised by appropriate GOP agencies, the Economic Affairs Division of the Ministry of Finance and Economic Affairs designated the following participating banks in Pakistan which were authorized applicants for ECE Program funds:

American Express
Bank of America
Citibank
Habib Bank and
United Bank

Each participating bank applied to the State Bank of Pakistan for the funds on a first-come, first-serve basis. USAID/Pakistan then issued a countersigned Project Implementation Letter (PIL) to the Economic Affairs Division (EAD). The EAD signed and submitted to USAID/Pakistan Financing Requests, naming each of the participating banks as designated applicants. Based on these Financing Requests, FM/AID/Washington established a Letter of Commitment(s) at the corresponding banks designated by the participating banks in Pakistan.

When the participating bank in Pakistan opened a Letter of Credit to a supplier, the corresponding bank in the U.S. confirmed this letter of Credit and paid the U.S. supplier against presentation of the required documentation. The bank in the U.S. then submitted a voucher to FM/AID/Washington for reimbursement out of the program funds reserved for the Letter of Commitment.

Accomplishment:

The program was very successful. About 200 LCs were opened by 79 importers. Some of the major importers included:

Allied Engineering
Syed Bhais
Cynamid Pakistan
Al-Karam Textile Mills
Nishat Mills
Engro (EXXON) Chemical Pakistan
International Industries
Jang Printing Press
Jaffer Brothers
National Computers
Pakistan Cables
Pakistan Oilfields
Pak Saudi Fertilizers
Service Industries

Universal Traders
American Cynamid
Caterpillar
Cromemco
Digital
General Electric
Hoechst
ITT
Libbey Owens Ford
PPG
Waukesha and
Wyse Technology.

Over 30 different types of commodities were imported which included:

Air Compressors
Chemicals
Annealing Furnaces
Electrocoating Paint System
Tinted Float Glass
Florescent Tubes
Gas Compressors Generators and
Electric Meter Components.

The principal recovery rates are very good. The commodities were required to be put in use within two years after custom clearance. Periodic end-use checks to monitor the equipment utilization were conducted.

V. MISSION COMMODITY TRACKING SYSTEM:

The USAID Mission Islamabad started its Commodity Tracking System (CTS) in 1989. The CTS serves as an instrument to:

- a. Keep a track of commodities procured;
- b. Ensure that the procurement process is timely and efficient;
- c. Check on end-use of commodities procured; and,
- d. Facilitate project management by making current data on project commodities readily available in a usable form.

In January 1990, USAID/Pakistan issued Mission Order PAK-15-1, A.I.D.- Financed Commodities Arrival Accounting and End-Use Monitoring, to describe the Tracking System and to establish specific responsibilities and procedures for commodity arrival control and end-use monitoring of A.I.D.-financed commodities. This Mission Order incorporates the requirements contained in A.I.D. Handbook 15, Chapter 10, to ensure the effective utilization of A.I.D.-funded commodities.

VI. EQUIPMENT UTILIZATION AUDITS:

The RIG/Singapore Audit staff conducted two audits of utilization of USAID funded equipment procured under the ECE Program (391-0486) by various GOP public sector agencies.

The first audit was conducted for the commodities and equipment procured by OGDC, KESC, WAPDA and PCSIR during May-June 1989. The audit findings were satisfactory as far as OGDC, HDIP and KESC were concerned. However, the audit highlighted that commodities worth \$1.2 million were not being effectively utilized by Fuel Research Center (FRC) of PCSIR, Karachi. Comments about these are given below:

- i) PCSIR's equipment worth \$0.6m could not be utilized because of missing parts, faulty equipment, lack of erection and operation manuals and failure of the suppliers to rectify the defects. After a follow up by the staff of O/PEN, this equipment was brought into operation and the audit recommendation was implemented.
- ii) The major equipment which the FRC could not effectively utilize was NMR Spectrophotometer worth \$0.6 million due to non-availability of steady supply of helium gas. This equipment has now been brought into operation and the audit recommendation has been implemented.

The second audit conducted by RIG/Singapore Audit staff was conducted in November/December 1991. This time the agencies covered under audit were HDIP, PCSIR and KESC. The audit identified commodities worth \$4.2 million as problematic equipment. These included equipment having installation, repair and operational problems. Some equipment, for example that of Solar Energy Center, PCSIR/Hyderabad, worth \$1.5 million, had installation difficulties due to ethnic disturbance in Sindh. It is encouraging to note that all the equipment procured has now been delivered to GOP public sector agencies, installed and is operative. All the audit recommendations regarding installation and non-utilization of equipment have been resolved, and the audit recommendations are now closed.

VII. PROGRAM EVALUATION:

An external evaluation of the Program was carried out during May-July, 1987, by Development Associates, Incorporated, under IQC Contract PDC-0085-I-00-6098-00, Work Order 8.

The purpose of this evaluation was to review and assess the effectiveness of the ECE Commodity Import Program (CIP). It covered four main areas as follows:

- a. Management implications;
- b. Economic and developmental impact;
- c. Effectiveness in advancing major AID policy concerns (policy dialogue, private sector mobilization, institution building, and technology transfer); and
- d. "Lessons Learned" that could be applied to CIP-like activities under the post 1987 AID program for Pakistan.

The status and effectiveness of the private sector window included under the ECE Program was also reviewed.

Some of the salient evaluation recommendations are as follows:

- That USAID should continue to place the high priority on the ECE Commodity Import Program (CIP) and continue to fund public sector agencies on critical need of U.S. made equipment and spare parts where U.S. equipment and technologies were superior.
- That USAID should encourage GOP to support private sector development through public sector institutions.
- That USAID provide technical assistance to the GOP to develop private power plant siting regulations based on need analysis.
- That ECE be focused on the areas where U.S. equipment and technologies are superior such as mining and drilling.
- That USAID Commodity Management Officer (CMO) design and install a single (commodity) tracking and monitoring system for ECE on a priority basis.
- That USAID promote the use of the existing training project so that GOP specification writers and contract evaluators receive on-the-job training and participant training in their specialties from a firm that has an energy equipment specification data base and technical assistance capabilities.

VIII. PROGRAM ACCOMPLISHMENTS

Equipment and commodities worth \$97.2 million including computers, with U.S. origin, have been procured, supplied, installed and commissioned covering all major energy subsectors including power, oil, gas, coal and renewables in both the public and private sectors. This is expected to help in better exploiting available energy sources, reducing energy waste and transfer of latest technology to private and public sectors. The equipment related operational and maintenance short term training to nearly 110 GOP officials have been provided mostly at the facilities of the manufacturers. The broad based technology transfer and equipment related training has made these recipient agencies self-reliable, to some extent, in their respective fields of activity.

The public sector agencies benefitted thru this program are as follows:

Water and Power Development Authority (WAPDA)

- WAPDA Thermal
- WAPDA Distribution
- WAPDA Secondary Transmission Grid (STG)
- WAPDA Hydel
- WAPDA Power System Planning

Karachi electric Supply Corporation (KESC),
 Oil and Gas Development Corporation (OGDC),
 Geological Survey of Pakistan (GSP),
 Pakistan Council of Scientific and Industrial Research (PCSIR),
 Hydrocarbon Development Institute of Pakistan (HDIP)
 Pakistan Council of Appropriate Technology (PCAT)
 Pakistan Mineral Development Corporation (PMDC), and
 Directorate General of New and Renewable Energy Resources (DGNRER)

Brief details of the broad variety of equipment procured both for the public and private sectors along with its advantages and benefits are as follows:

Public Sector:WAPDA worth (\$22.5 m) and KESC (\$24.4 m) : total: \$46.9 m

Electric power equipment and spares for generation, thermal as well as hydel, planning and secondary grid transmission, distribution and maintenance equipment. Computers hardware/software and allied accessories worth \$0.3 million were procured for WAPDA Power Plant Efficiency Improvement Project maintenance management system for seven major power plants: Guddu, Jamshoro, Multan, Muzaffargarh, Faisalabad, Kot Addu and WAPDA Head Office, Lahore. Now, this is a self-contained system with an increased usage of computer facility for monitoring the work control activities with emphasis on maintenance management techniques. This system is being used by the power plant consultants in the United Kingdom.

WAPDA and KESC have been supplied with power plant re-furbishment equipment such as complete set of first and second stage rotating turbine blades, stage 1, 2 and 3 moving buckets, first and second stage nozzle assembly and shrouds, diaphragms, combustors, annunciator drops panels (complete units), truck mounted aerial elbow and self loader truck mounted.

Besides, Rome Turney Radiator Co. USA, carried out design and extension to existing dry cooling towers, and manufacture, supply, delivery and installation of new dry cooling towers and associated equipment as well as supply of all parts and materials required for refurbishment of all 24 of the existing dry cooling towers and 100% tubing replacement. etc. at WAPDA Power Plant, Quetta worth \$3.3 million.

Pakistan Council of Scientific and Industrial Research (PCSIR):
worth \$7.0 m

Coal briquetting machines, Varian VXR-300 Superconducting High Resolution FT-NMR Spectrophotometer complete with accessories, high resolution transmission electron microscope, universal testing machine, elemental analyzer, infrared spectrophotometer with integrated scanning digital display computing facilities, Varian double-beam atomic absorption spectrophotometer, X-ray diffractometer system as well as analytical, environmental and solar laboratory equipment, liquid nitrogen plant and gas analysis system and helium transport vehicles and four wheel towable trolleys etc.

Hydrocarbon Development Institute of Pakistan (HDIP) worth \$7.5m

Petroleum exploration, scientific and research laboratory equipment, Electron microscope with integrated energy dispersive x-ray system, CFR Engine for octane rating of motor gasoline, cetane method engine, microscope universal, gas chromatograph, high resolution electron microscope, and compressed natural gas (CNG), and Microvax 3800 computer hardware and software alongwith printer, digitizer, color plotter and petroleum exploration database etc.

Oil and Gas Development Corporation (OGDC) worth \$24.4 m:

Exploration, Drilling, Seismic, communication such as: steel casings of different sizes and casing accessories, drill pipes of different sizes, well head assembly for deep and medium wells, fluid loss reducer, data communication system, geophone strings, telemetry seismic data acquisition system, ground electronic and cables, logging trucks, surface recording units, accessories for surface equipment, sub-surface logging services, plus spare parts for three years, laboratory testing equipment fluid loss additives, wyoming bentonite, buggies type K with tools and spares etc.

Geological Survey of Pakistan (GSP) Quetta worth \$11.0 m:

Coal exploration, geophysical drilling, photogrammetry equipment and computers etc. Such as: truck mounted rotary diamond core drilling rigs, drilling spares, hard rock pressure drill, jam hammers and collars, centrifugal pumps, generator 7kw paleomagnetic equipment, rock bits, tricone bits, auto chucks, time and frequency IP transmitter and receiver, earth resistivity meter, deep resistivity system, integrated multi-purpose geo system, magnetic susceptibility meter, automated X-ray diffraction system, van-mounted data logging machines, printing and mapping equipment, portable proton memory magnetometer and signal enhancement seismographic equipment, rock analysis equipment and IBM computer hardware and software and 386-based

Pakistan Council of Appropriate Technology (PCAT) worth \$0.3:
Laboratory equipment and workshop machineryPakistan Mineral Development Corporation (PMDC) worth \$0.5 m:
Mine safety equipment and ambulancesDirectorate General of New and Renewable Energy Resources (DGNRER) worth \$0.3 m
Photovoltaic equipment

Private Sector:

Energy equipment worth about \$23 million under the Private Sector CIP of ECE Program has been supplied to private sector manufacturing units. Appropriate training for equipment operation and maintenance has also been provided to the concerned staff of the recipient units.

Approximately 26 major private businessmen participated in the CIP utilizing almost 200 Letters of Credit (L/Cs). Following is the type of equipment procured:

- Air Compressors
- Chemicals
- Annealing Furnaces
- Electrocoating Paint System
- Tinted Float Glass
- Florescent Tubes
- Gas Compressors Generators and
- Electric Meter Components

The principal recovery rates were very good. The commodities were required to be put in use within two years after custom clearance.

How the People of Pakistan have been benefitted from this program:

The people of Pakistan have been greatly benefitted from this program especially because of increase in power generation, an increase in exploration of oil and gas in the country, and the research and development activities being carried out by various public sector agencies to whom the ECE equipment has been supplied.

The demand for the electricity has been ever growing in Pakistan, and the refurbishment of the various thermal, gas and steam power stations operated by WAPDA and KESC will go into higher power generation due to thermal efficiency improvement ensured by the use of electric equipment supplied under the ECE program. Similarly, in the exploration of oil and gas activity and with the identification of few outlets of oil and gas recently in Punjab and Baluchistan provinces, the people will be directly benefitted.

Also, Compressed Natural Gas (CNG) is an under-developed alternative which can be used to power automobiles and other machines. Through the establishment of CNG stations in Karachi and Islamabad (another being set up at Lahore currently), nearly 1200 vehicles have been converted to CNG systems over the past two years or so. It is estimated that the cost of CNG is three times cheaper than the normal gasoline. There has been an evergrowing demand of conversion of government and privately own vehicles from gasoline to the CNG system. It is estimated that there are 1500 to 2000 applicants queued up to get their private vehicles converted to the CNG system. The GOP has announced its policy to commercialize this activity and has now allowed the private sector to set up a CNG station.

The well equiped Laboratories of PCSIR, HDIP and GSP with U.S. equipment are busy in research, development and technical back-up support to the national effort of coal and petroleum development. Coal and petroleum sample tests as well as rock analysis are carried at out at these laboratories. The results of these tests are applied for the refinement and standardization of the coal and petroleum products which enhance the social, economic and environmental development of the general public.

Therefore, it can be appropriately said that the people of Pakistan are directly being benefitted from the facilities made available the use of the equipment supplied under the ECE program.

IX. POST PROGRAM AID MONITORING RESPONSIBILITIES:

Although the ECE program is closed, there are a few actions which need the attention of the project office relating to some outstanding payments; equipment transfer between agencies; and host country contract closecuts. These are mentioned below for follow up purpose.

1. DISBURSEMENT OF RESIDUAL INVOICES

Complete payment documentation from six vendors for invoices totaling \$119,884.47 were not received by TDD although goods were delivered by the TDD. It was determined that payment of these invoices could be made from Energy Planning and Development (EP&D) Project funds (391-0478) after obtaining concurrence from the GOP. Status: The PIL to authorize use of EP&D funds for these disbursements was issued. Payment of \$111,747.62 has been processed for five vendors.

2. CLOSE OUT OF HCC CONTRACT FILES

Approximately 90 files remained to be closed out as of the TDD. All files have been closed except 8 pertaining to those cases where installation is not completed or where there is a dispute remain to be closed.

3. Dry Cooling Towers (WAPDA, Quetta):

A global settlement agreement offering \$377,805.86 has been signed by WAPDA and Rome-Turney. September 30, 1993. USAID has agreed to pay WAPDA a compensation of \$40,000 for completion of works left incomplete by Rome-Turney. This disbursement will be from PDIF monies (391-0470)

4. Turbine Blades from Omega (WAPDA, Lahore):

Blades were replaced by Omega, but they are still not acceptable to WAPDA. WAPDA has sent the blades to Westinghouse Canada to have tests conducted, to determine whether they acceptable for use. But the results are not yet available. However, Omega has stated that another independent laboratory should do the investigation.

5. Solar Panel System, Hyderabad (PCSIR):

The equipment is being installed in Hyderabad. O/PEN will ask PCSIR to inform USAID as soon as the installation and commissioning is completed.

6. Cutler Hammer Calorimeter (HDIP, Karachi):

Under a purchase order issued from PDIF funds, an engineer of the manufacturer of the equipment visited HDIP at Karachi during February 1993, and worked on the repair and installation. The engineer has reported that the equipment has to be sent back to the factory for proper repairs with an estimated expense of \$10,000. HDIP requested for additional funds which the project office declined to accept and advised thru a letter that HDIP should carry out the repairs from their own resources.

7. Sulphur Detector (HDIP, Karachi):

A purchase order for \$16,000 using PDIF funds, was issued to the manufacturer, Fluid Data Inc. Since there has been no response from the manufacturers this contract has been cancelled.

X. LESSONS LEARNED:

An important lesson learned from a public sector CIP project of this magnitude is that public institutions are likely to become unrealistically acquisitive in preparing their equipment requests. Too frequently, GOP agencies asked for equipment that was more sophisticated than they needed and which they could not use without extensive training.

To help reduce this risk, future public sector CIP projects should screen the equipment requests much more thoroughly. Requests should be supported by a strong justification with a rational utilization and maintenance plan, and the agency's capability to use this equipment wisely and effectively should be carefully investigated.

More accountability and training should be built into any future CIPs.

Much time was consumed by the recipient agencies in the preparation and finalization of the technical specifications, evaluation of bids and award of contracts. Appropriate technical assistance was essential to ensure timely preparation of error free bid packages and to ensure that equipment selected was realistic.

A CIP having a private sector component would only take-off smoothly if more favorable terms and conditions such as, speedy availability of funds with simple procedures, comparatively low interest rate and an extended payback period on capital goods are made available to the business community.

To market the U.S. equipment in Pakistan it is essential that the spares and sale service are available, and the prices are competitive.

Under a public sector CIP, the purchasing agency must provide clearcut instructions to the supplier regarding the ultimate consignees in the solicitation documents. There have been instances regarding equipment supplied to WAPDA that the supplier did not mention the name and address of the ultimate consignee, (a WAPDA power station), which not only caused a considerable inconvenience but delivery of the equipment was to the wrong location.

Complete payment should not be made to the vendor without the certification by the recipient agency of the intactness of the order. Experience has shown that once the complete payment was made, the purchasing agency or USAID felt that the vendor was shirking responsibility to make good the deficiencies occurred during the contract administration. In some cases, a lot of time, effort and energy was spent for the replacement of short supplies, installation or commissioning of the equipment.

During the official U.S. audit(s) of the ECE public sector CIP, it was felt that the counterpart agencies were not fully aware of the methodology of equipment utilization audit. For a smooth and clean audit, efforts should be made to provide exposure of the staff concerned counterpart agencies to the audit issues and objectives by the USAID staff.

XI. PROJECT OFFICER'S ASSESSMENT:

1. Overall Program Assessment:

The initial experiment of Commodity Import Program (CIP) worth \$100 million in Pakistan has been quite successful. The GOP's cooperation towards the implementation of the program has been remarkably good and the program which is multi-dimensional and multi-sectoral in scope and magnitude has now been closed.

About 97 percent of the funds obligated for this program were utilized. Equipment and commodities including vehicles, ambulances and computer hardware and software worth \$97.26 million (grant and loan) for both the public and private sectors have been procured and delivered. Most of the equipment has been installed and commissioned. Thus the overall project objectives have been achieved.

However, there are some cases where installation has not completed or there are disputes about the quality of equipment or performance. Those issues are being followed and will be resolved soon.

The demand for the public sector CIP was very high from the very

beginning. The private sector program was not moving satisfactorily in the earlier stage. However, the private sector program moved with an accelerated pace after the rate of interest was reduced from 14% to 11% and the repayment period was increased from three to five.

2. Implementation Issues:

During the life of program, occasional bottlenecks occurred on the GOP side in drafting specifications, evaluating the bids, and awarding contracts to supplier - resulting in substantial delays in procurement process. Also, there have been instances where vendors failed to respond favorably to the genuine demands of the purchasing agencies in sending replacement of short supplies, which considerably delayed the installation and commissioning of the equipment.

Experience has shown that, once the complete payment was made, the purchasing agency or USAID did not have a strong leverage to persuade the vendors to make good the deficiencies occurring during the contract administration. Some vendors did not bother to respond to the purchaser's persistent demands or even USAID's written requests to provide the missing items. In some cases, a lot of time, effort and energy was spent for the replacement of short supplies, installation or commissioning of the equipment. It is recommended that a system should be worked out to withhold some percentage of payment until satisfactory completion of the contract.

Some actions, such as settlement of a force majeure claim, closing-out host country contract files for public sector procurements, and end-use checks of items worth \$50,000 or more procured during 1991 and 1992 still remain to be completed.

The program has been subjected to two U.S. Government audits (by RIG/Singapore), during 1989 and 1991. With continued cooperation from the GOP and the strenuous efforts of the project staff and the mission support offices, the audit recommendations have been resolved and closed.

3. Recommendations:

- In case of public sector CIP, 100% payments must not be released. At least 10% payment should be withheld to ensure that vendors complete the shipments, including installation and training, if required by the contract, and conform to the purchaser's specifications.

- Requests for procurements from GOP agencies should be supported by a strong justification with a rational utilization and maintenance plan, and the agency's capability to use the

equipment effectively should be carefully investigated.

- Counterparts commitment with regard to the availability of qualified staff, maintenance servicing, repair facilities are highly desirable for the success and smooth running of a program such as ECE CIP.

- Before entertaining GOP's requests for big and substantive procurements, it should be determined that the GOP has adequate storage facilities and that sufficient local funds are available for the maintenance and operation of the sophisticated expensive equipment.

- GOP officials dealing with procurements under commodity import programs (CIPs) should be given sufficient orientation regarding USAID procurement procedures, practices and acquisition rules and regulations.

CLEARANCE:

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