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A REVIEW
OF THE
INSTITUTIONAL IMPROVEMENT PLAN
POWER DISTRIBUTION

MAY 1987

POWER DISTRIBUTION WING
WATER AND POWER DEVELOPMENT AUTHORITY

A REVIEW
OF THE
INSTITUTIONAL IMPROVEMENT PLAN
POWER DISTRIBUTION

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1.0 INTRODUCTION

This review gives a resume' of the accomplishments of the PTAT and WAPDA in the reorganization of the Distribution Headquarters, AEB's, Circles and Divisions in the period from early 1984 to May 1987. It provides a broad outline of the Institutional Improvement Program that was developed after exhaustive studies, discussions and reviews and the assistance and concurrence of the concerned WAPDA officials. It includes what remains to be done to ensure that the Distribution Wing evolves into an efficient and effective organization.

An Institutional Improvement Plan for the headquarters organization that was approved by WAPDA and the Government of Pakistan and its implementation which is about to occur. The new management structure and realignment of responsibilities will facilitate the expansion of the distribution system to meet the future needs including the goals of the Prime Minister's Program. In the future the secondary transmission and grids (ST&G) will be transferred from the Generation and Transmission Wing to Distribution. The Distribution organization now being proposed will be able to accommodate the staff and assume the responsibility for the secondary transmission and grid work.

A preliminary report on the reorganization of the Area Electricity Boards and Circles has been issued. It is proposed to introduce the staff relationship in the Area Electricity Board structure, upgrade the staff in some areas, add Planning as a line responsibility and strengthen the importance of the Meters and Equipment section with improved maintenance, test and repair facilities. The Circles will be transformed from an auditing organization to an operational supervisory group with responsibility for construction and division operations.

The division organization that has been proposed will be different from the present organization. Now the divisions of WAPDA have a small headquarters staff and a varying number of sub-divisions with large staffs. It has been proposed that the urban sub-divisions be combined into a division headquarters with a small number of mostly rural sub-divisions reporting to them. This is a major organizational change. It is now being implemented in two divisions to ensure that the principles and procedures are correct so that any changes which are necessary can be identified before the reorganization of the remainder of the divisions is undertaken.

Also included are:
Excerpts of the Institutional Improvement Plan, Area Electricity Boards and Circles and the Model Division Reorganizations, official letters and approvals that have been prepared to facilitate and make possible the successful functioning of the new organization, a list of procedures and policies, and a status report of PTAT activities.

The initial steps in reorganizing the headquarters have been taken, the changes to the eight Area Electricity Boards and their Circles have yet to be started and the reorganization of two divisions is progressing but there are expected to be about 165 more that have yet to be reorganized.

2.0 BACKGROUND

Since its formation in February 1958 the Water and Power Development Authority has experienced rapid growth in both functions and magnitude. However, the requisite changes in management structure did not keep pace. The management structure and control still remains centralized and is unable to meet the management requirements. The Sixth Five Year Plan from June 1983 through June 1988 envisaged considerable increase in customer saturation. The installed generation capacity was to be doubled from 3954 MV and approximately 3.2 million more customers were to be provided electricity. On December 31, 1985 the Prime Minister announced the Five-Point Program specifying that loadshedding must be eliminated by January 1990 and 90% of the villages of Pakistan be electrified. To achieve these objectives efficient integration and streamlining of methods and procedures of the electric utility functions: Training, General Administration, Management Services, Finance, Customer Services, Operations, Planning & Engineering and Purchasing & Stores is necessary.

Project 391-0473 is one several financed (or co-financed) by USAID to develop and improve the Power Sector. The Project Loan and Grant Agreements, signed in September 1982, provided $ 169,474,000 towards the project with the GOP/WAPDA providing approximately $ 136,064,000 in local currency and $ 60,500,000 in foreign exchange (provided by the ADB to co-finance the foreign exchange component of Phase I of the Guddu Combined Cycle Power Station).

The Project consists of 5 components;

1. Institutional Improvement
2. Training
3. Energy Loss Reduction
4. Guddu Combined Cycle Power Station
5. Rural System Expansion

USAID have provided to Consulting Teams to provide Technical Assistance to WAPDA with program design and implementation. Both teams were mobilized in early 1984.

Consultants were provided to review the (then) existing Distribution Organization (functions, structure, communications/reporting channels), Personnel (staffing and training), Methods and Processes (policies, procedures, practices, reporting and monitoring systems). The initial studies were completed in December 1984 and their findings and recommendations for program design were presented to the full Authority in late January 1985. The Authority granted a series of approvals, in principle, at the close of the presentation;

- Selection of a single service-oriented utility, American Electric Power, for the institutional model;

- Establishment of a new definition of Distribution, consistent with current and future needs;

- Establishment of a functional organization, consistent with the model and the definition of Distribution (to provide the necessary staff support, improve accountability and provide built-in arrangements for self-improvement and self-assessment);

- Completion and Implementation of the Management Information Systems Plan (to improve and speed and accuracy of reporting to improve monitoring and control); and

- Agreement to provide Top Management support and budgetary support for the timely implementation of the Comprehensive Power Distribution Training Plan.

WAPDA took its next step by establishing the Distribution Wing in April 1985, under the administrative control of the Deputy Managing Director (Distribution). At WAPDA's request, USAID expanded the consulting team to provide support to each functional area within Distribution. The majority of the new Chief Consultants arrived during September-November 1985. The first Draft of the Institutional Improvement Plan, complete with organization charts, staffing plans, position descriptions, implementation plan and cost/benefit analysis was released in April 1986.

The goal of the Institutional Improvement Program is to establish and implement a comprehensive program to enable Distribution to evolve into a more effective, efficient and self-sustaining organization. This will permit Distribution to better support WAPDA goals of improving quality and availability of electric power service. WAPDA's stated goals and objectives, in turn, contribute to infrastructure development which is essential to meet GOP goals for growth in the other sectors (including; industrial, agriculture, commercial, health, education, transportation, communications, etc).

Extracts from the Institutional Improvement Plans for Distribution reorganization at Headquarters, Area Boards and Circles and Divisions level are:

DISTRIBUTION REORGANIZATION AT HEADQUARTERS LEVEL

The proposed Distribution reorganization envisages consolidation of functions split between two or more organizations within a single administrative unit as well as introduction of other necessary functions not included in the stated duties and responsibilities of any administrative units. The proposed Headquarters organization envisages the establishment of offices of a Managing Director Distribution, Chief of Training and General Managers in the areas of Administration, Management Services, Finance, Customer Services, AEB Operations, Planning and Engineering and Purchasing & Inventory Control.

Training

The proposed organization in Training establishes a uniform administrative structure, identifies in-country and out of country training needs and commodity and facility requirements including the preliminary details of a major Training facility to be built in Islamabad to accommodate the Distribution Training Institute.

Administration

The General Manager Administration Distribution will be supported by a Director General Personnel and Director General General Services. The office of General Manager Administration will be responsible for Legal, Medical and General Services functions for the entire WAPDA organization.

Management Services

The proposed General Manager Management Services will be supported by a Manager Computer Systems and a Director General Computer Operations. It is proposed that the Computer Department be transformed into a full Management Services organization through the establishment of a Computer System Division, a Computer Operations Division, a Training Section and a Planning Section. Computer Systems future improvements will include upgrading the Customer Electricity Billing system, linking of Stores and Accounting system to the Main Accounting system, integration of Payroll with the Accounting system and updating of Distribution Maps. The computer operations improvements will include a comprehensive scheduling system and a Library Management system.

Finance

The proposed General Manager Finance Distribution will be supported by a Deputy Manager Finance. The functions of the financial organization will include Budgets and Controls, Rates and Tariffs, Accounts and Funds and implementation of financial systems. Other activities include confirmation of current liabilities, improvements in cash management, vefification and revaluation of Distribution assets, development of functional depreciation rates, revision of construction/retirement and fixed asset accounting procedures, development and implementation of computerized financial systems, revision of the financial organization and improvement in staff capabilities, establishment of a program for monitoring cost of rendering services to the customers and upgrading and expanding the internal auditing function.

Customer Services

The proposed organization includes the establishment of an office of General Manager Customer Services with a Director General Energy Management and a Director General Commercial. The Customer Services department will be responsible for customer contacts,

customer relations, customer acounts, customer surveillance, energy conservation & load management and customer billing. The existing functions will be reorganized and strengthened as necessary.

Operations

The Operations function will be headed by a General Manager Operations, who will direct the Area Electricity Board Chairmen. The General Manager Operations will be supported by a Chief Engineer Construction, Maintenance & Operations, and a Director Headquarters. Other functions include Distribution Measurement and Distribution Projects.

Planning & Engineering

It is proposed to establish the position of a General Manager Planning, Engineering & Standards supported by a Chief Engineer Planning and a Chief Engineer Engineering. The functions of the Planning organization will include power marketing survey and load forecasting, distribution planning and rural electrification planning and monitoring. The Distribution Engineering functions will include design, rural electrification and Distribution records.

Purchasing & Inventory Control

The proposed organization envisages the establishment of the office of General Manager Purchasing and Inventory Control supported by a Deputy General Manager Stores Surveillance, Chief Engineer Inspection, Deputy General Manager Purchasing and Deputy General Manager Material Planning & Control. The proposal for reorganization aims at improving and strengthening the functions of: budget forecasting, material planning, procurement, material inspection, stock control, storage and receipt and issue of purchased material.

DISTRIBUTION REORGANIZATION AT AEB AND CIRCLE LEVEL

Under the proposed reorganization the basic structure and functions of the present AEB and Circle organizations will change. The important changes will include redesignation of a number of senior position and upgrading of some junior positions. Other changes include introduction of staff functions to establish relationships between the Headquarters, AEBs, Circles and Divisions, addition of new functions that do not exist, installation of computers, introduction and reorganization of training programs and improvement in utilization and maintenance of the transport equipment. The basic change will be the transfer of responsibility for physical work such as construction and expansion of physical facilities from the AEB to the Circle.

Administration at AEB

The Administration function will be headed by Director Administration supported by the Deputy Director Personnel, Deputy Director General Services and Transport, Deputy Director Safety, Deputy Director Labor and Legal, and Sports Officer. The Personnel functions include transfers, promotions, disciplinary cases, performance evaluations, compensation, employee fund, advances, claims, leaves and personnel record. The Safety section will ensure implementation of Safety policies and procedures. General Services and Transport function will be responsible for repair and maintenance of buildings, procurement of furniture, office equipment and supplies, control of vehicles and scheduling and control of their maintenance.

Management Services at AEB

The Management Services function at the AEB level will be headed by a Data Processing Manager under direct administrative control of Director General Computer Operations at the Headquarters level. The Data Processing Manager will be supported by a Chief Data Control and a Chief Programmer. The functions will include preparation of AEB customer system reports, customer billing, general accounting, the work order proposals and costing, monitoring, payroll and personnel records, stores and inventory control. Circle Computer Centers will include entry of payments, meter readings, stores activities, time reports, field completion reports and other input documents. Each center will also prepare the bills and maintain a copy of the current account status for all customers for that circle's accounts.

Finance at AEB

The proposed organization of the financial section will be headed by a Director Finance supported by six Deputy Directors in functional areas Banking and Funds, Post-Audit, General Records, Stores Accounting, Accounts Payable and Assets. The proposed reorganization will provide a substantial upgrading of the management capabilities as well as some realignment of responsibilities. The strengthened financial staff will provide improved assistance, guidance and control over the financial operations of the Divisions.

Customer Services at AEB

The Customer Services section will be headed by a Director Customer Services supported by Deputy Directors of Customer Accounts, Customer Relations and Energy Conservation and Load Management, Energy Surveillance and Customer Assistance and a Special Magistrate. The objective of the Customer Services function is to improve the efficiency in operation with resultant improvements in Customer Services.

The enhanced Commercial Procedures, establishment of an Energy Conservation function, enhancement and expansion of Energy

Surveillance and a program to construct Customer Service Centers in all the Divisions, as they are organized, will also contribute to the planned improvements.

The position of a Customer Service Deputy Director will be established in the Circle.

Planning and Engineering at AEB

This function will be headed by a Director Planning and Engineering supported by a Deputy Director Planning and Engineering, Deputy Director Civil Works, and Deputy Director Records. The Planning function will include preparation of load estimates, long term expansion plans, circuit analysis and preparation of work order proposals. The Engineering function will be responsible for the inspection and enforcement of the standards prepared in Distribution Headquarters, evaluations of equipment and the review of plans and estimates prepared in the Divisions. The Civil Works function will handle the acquisition of rental land, residential and office buildings.

In the Circles the Deputy Director Engineering will prepare work orders, drawings and bills of quantities from which the Construction Divisions will build the facility.

Construction, Maintenance and Operations at AEB

The Construction, Maintenance and Operations function will be headed by a Director supported by a Deputy Director Maintenance and Operations and a Deputy Director Construction. The organization will be responsible for monitoring the implementation of policies and procedures developed by Headquarters as well as provide leadership and expertise in the field of construction, operation and maintenance of the Distribution system.

The construction of 11/33 kV Distribution system will be done in the Circles under an Executive Engineer Construction who will have one or more construction Sub-Divisions.

Material and Equipment Repair Center

It is proposed that a Distribution Equipment Repair Center and Meter Laboratory be established and located geographically convenient to the Divisions and the Circles. This center will provide complete service and repair for transformers and other Distribution equipment and repairs and adjustments to new and malfunctioning maters.

Inventory Control at AEB

The present Stores system under Director Inventory Control is functioning satisfactorily. However, the staff should be expanded to include Deputy Directors for Material Planning and Inventory Control. This action will continue to be responsible for controlling the stores, ensuring that the levels of stores are sufficient to meet the demand, purchasing the decentralized

material and coordinating with the inventory control group in Distribution Headquarters, the regional requirements of centrally purchased materials and expediting their delivery.

It is proposed that the Prestressed Concrete Pole Plant organization be placed under the Regional Director Inventory Control in the Area Electricity Boards.

MODEL DIVISION REORGANIZATION

The proposed reorganization of the divisions will include twelve basic changes:

- Restructuring of the divisions so that there will be a central division organization with a small number of rural subdivisions.
- Introduction of staff functions to the organizational structure as an addition to the existing line functions.
- Addition of new functions to the organization that do not exist now.
- Placement of higher grade supervisors for the financial and service functions and engineering supervisors in the technical areas.
- Installation of computers in the divisions to perform the routine repetitive tasks.
- Utilization of radios to improve communications.
- Increase in the number of vehicles.
- Improvement in the tools and equipment.
- Formalization of training program.
- Enforcement of the safety program.
- Increase in the level of the administrative and financial authority of the Division Manager.
- Upgrading of the existing accommodations and/or the construction of new service centers.

Service Functions

The Service functions of the new Divisions will be under three officers, namely, Administration Officer, Budget & Accounts Officer and Customer Services Officer, each reporting to the Division Manager.

- Administration will look after the building maintenance, transport, personnel, legal, labor & welfare and safety.

- Finance will handle the acounting, cash management and disburseement functions for the division including the accounting operations currently performed by the Revenue Office.

- Customer Service will assume all remaining functions from the Revenue Office and take over meter reading, bill distributing and will also include the new computer operations.

Technical Functions

The Technical functions will be under a Planning Engineer, a Service Engineer and Maintenance and Operation Engineer reporting to the Division Manager:

- Planning will plan all the low tension network and limited high tension extensions.

- Service will construct the planned facilities and make the new connections.

- Maintenance and Operations will operate the system, perform preventative maintenance and provide customer service restoration.

The Sub-Divisions provide the same services to the customers in the rural areas as the divisions do in the urban areas except the Administrative, Finance and Planning functions will only be in the divisional office.

- Sub-divisions that remain will be reorganized to handle customer and operational activities with lower level supervisors than in the division office.

The staff function that is being introduced in the divisional reorganization is a working relationship between the sub-division and division in which sub-division supervisors can call upon any officer in the division for direction and guidance about the interpretation of technical or policy matters.

3.0 SUMMARIES

OF

HEADQUARTERS, AREA ELECTRICITY BOARDS, CIRCLES AND DIVISIONAL REORGANIZATION PLANS

3.1 INSTITUTIONAL IMPROVEMENT PLAN

HEADQUARTERS

POWER DISTRIBUTION
INSTITUTIONAL IMPROVEMENT PLAN
HEADQUARTERS

FOREWORD

The Institutional Improvement Plan has been developed with the assistance of the Principal Technical Assistant Team of the WAPDA/USAID Rural Electrification Project 391-0473. The Principal Technical Assistance Team which is grant funded by USAID, is a Joint Venture of Ebasco Services, American Electric Power and International Training and Education Company. The balance of activities under the Power Distribution Implementation Program are described in the Comprehensive Power Distribution Training Plan of May 1985 and Power Distribution System Rehabilitation and Expansion Program of November 1985.

The focus of the plan is on the more important concepts and considerations relating to the reorganisation and consolidation of the headquarters of the Distribution Wing. The reorganisation of the Divisions have now been reported upon, approved and implementation is progressing in two of them. A reorganisation plan for the Area Electricity Boards and Circles is being prepared. In the future the Wing will also include the 33 kV, 66 kV and 132 kV transmission lines and grid stations and this will result in further reorganisation of the Distribution Wing as well as organisational changes throughout the rest of WAPDA.

The distribution organisation has not been responsive to the growing demand placed upon it and its operational effectiveness has kept decreasing with the continuously increasing work load. This has resulted in inefficiencies, rapid increase in the staff, unacceptable losses, a degradation in the quality of electric service and increased opportunities for corruption. As there will now be a period of rapid growth to achieve the goals of the Prime Minister's Five Point Program there will be a massive acceleration of these problems with the existing organisation and regulations.

The goals of the Institutional Improvement Plan are to provide better service to the present customers and to ensure that the organisation will be capable of satisfactorily and efficiently servicing the future customers.

The proposed new distribution organisation will be suitable for the operation of a modern service-oriented utility with adequate built-in arrangements for self assessment and self improvement to meet changing requirements.

The proposed organisation of the Distribution Wing has been derived from a model of other successfully operated utilities. The headquarters of the Wing will function to establish and maintain improved methods and

processes that assure accountability for the activities of the headquarters units and the decentralised field formations (AEB's, Circles and Division). They will also function as a consulting group to provide guidance to functional counterparts at the lower field formations and also provide staff services to the Managing Director Distribution.

In addition, it is being proposed that the existing systems, yardsticks and procedures be revised and modernised where necessary. A comprehensive training plan will over the years upgrade the skills of most employees.

The benefits of the program are difficult to quantify accurately as many of the benefits such as improved customer relations, improved safety, improved service reliability, and even the reduction in corruption are intangible. The benefits that can be evaluated, the reduction in administrative, operation and maintenance costs and an assumed reduction of 2% in administrative losses result in a benefit cost ratio of 2.5 to 1.

By upgrading and training the staff of the Distribution Wing and introducing new methods and procedures the customers will have a better quality of electric service with lower distribution costs for their energy.

1.0 EXECUTIVE SUMMARY

1.1 WATER AND POWER DEVELOPMENT AUTHORITY

Since its formation the Water and Power Development Authority has experienced rapid growth in both functions and magnitude. The capital assets of the WAPDA Power Distribution Wing has increased more than sixteen times in the last twenty years. Over the years, the system has experienced tremendous growth in power demand. However, the requisite changes in the management structure did not keep pace. In 1981, eight Area Electricity Boards were formed as a measure to decentralize the organisation. However, the management structure and control still remains centralized and is still unable to meet the management requirements.

It is anticipated that the number of distribution customers will almost double by 1990. Without an Institutional Improvement Program, WAPDA's existing power distribution organisation will not be in a position to cope with this expansion and the distribution rehabilitation work that must also be done.

The sixth Five Year Plan covering the period from mid 1983 to mid 1988 had as its objectives for electric power: enforcement of efficient use of energy, realising growth targets, improving self reliance on indigenous resources of energy, greater participation of the private sector, proper institutionalisation of long term energy planning, monitoring, evaluation and rationalisation of energy prices. The Plan called for increasing the customer saturation in electrified villages from 15% to 50%. Among other targets, the installed generation capacity was to be doubled and approximately 3.2 million more customers were to be provided with electricity.

On December 31, 1985, the Prime Minister signed a Five Point Program which affects the Power Wing by specifying that loadshedding must be eliminated by January 1990 and modifies the last half of the Sixth Five Year Plan by the mandate that the Distribution Wing electrify 90% of the villages of Pakistan by June 1990. To achieve these objectives, efficient integration and streamlining of methods and procedures of all the electric utility function; Training, General Administration, Management Services, Finance, Customer Services, Operations, Planning and Engineering, and Purchasing and Stores will be necessary.

1.2 PROBLEMS WITH THE EXISTING ORGANISATION

The problems with the existing distribution organization fall in three catagories, namely;

i) Inadequate Organisational Structure,
ii) Personnel Administration and;
iii) Methods and Procedures.

The current distribution organisation is less than effective because some important functions report to senior management outside the Distribution Wing. The human resource development functions do not reside within distribution. The existing training programmes are of a general nature. Generally, there is no formal career planning. Candidates are selected on the basis of seniority-cum-fitness rather than by their qualifications. WAPDA's existing yardstick for sanctioning new distribution staff leads to the cellular expansion of the organisation. The yardstick has not been updated frequently enough to keep it responsive to WAPDA's changing requirements. There is little communication between those who formulate policies and procedures and those who are responsible for their implementation. The operating divisions get little feedback on their performance and are poorly informed about WAPDA's plans, problems, opportunities and goals.

Most reports received at Headquarter's are consolidations of lower level reports, compounding the opportunities for human errors and adjustments, which cannot be treated as valuable management reports. The current manual systems do not provide adequate inputs to the top distribution management for decision making in a timely manner.

Some functions are split between two or more organisations within a single administrative unit. Other necessary functions are not included in the stated duties and responsibilities of any administrative unit.

Senior management is involved in too many decisions. Many managers tend to refer decisions upwards without any valid reason. The present system is based on mistrust. There are too many checks and balances which slow down the speed of implementation. The organisation is ill-equipped with facilities such as transportation, suitable accommodation, communications and computers. The malfunctioning of the organization has resulted in a high level of theft of electricity, excessive technical energy losses, a high rate of accidents and a poor public image as a service organisation.

1.3 PHASES OF THE INSTITUTIONAL IMPROVEMENT PLAN

The Institutional Improvement Plan has been divided into five different phases. PHASE-I represents the WAPDA organisation effective April 4, 1985. PHASE-II is identified with the organisation that will result from the formation of a Consolidated Distribution Wing. PHASE-III will involve the reorganisation of the Generation and Transmission functions in the Power Wing. The transfer of the 132 kV and 66 kV networks from the Power Wing to the Distribution Wing is PHASE-IV. As a result of these reorganisations, the Distribution Wing will become and remain a self-supporting organisation.

It can remain as it then exists in WAPDA, or it could become more autonomous as a Power Distribution Board a part of WAPDA. Alternatively, Distribution might become a separate government authority. The organizational structure of these latter two options are included as PHASE V.

1.4 ORGANISATION AND REORGANISATION OF DISTRIBUTION

Organisations in 1984 and 1985

The organisation of WAPDA and the Distribution group as they existed at the time the consultants were mobilized in March 1984 are shown on the charts identified as INITIAL A and INITIAL B which are at the end of this report.

On April 4, 1985 a change occurred with the creation of the Power Distribution Wing and the appointment of a Deputy Managing Director Distribution having jurisdiction over Purchasing & Inventory Control as well as Distribution. The organisation of WAPDA and the Distribution Wing that resulted from this change is the one that exist at the present time and is shown on the charts identified as PHASE I - A and PHASE I - B.

Training

The training organisation which was in position at the time of the initial organisational studies was fragmented and lacked a central unified administration. During the first stage of development the Comprehensive Power Distribution Training Plan was developed and approved in November 1985. The Plan established a unified administrative structure identified in-country and out-of-country training needs, and commodity requirements and facility requirements including the preliminary details of a major Distribution Training Facility that is to be built in Islamabad to accommodate the Distribution Training Institute. WAPDA personnel were posted in 1985 to the posts of department heads and a Chief of Training was appointed and designated as the administrative authority in WAPDA for distribution training. Curriculum development was started and support courses were identified. By January 1987 thirty-one curriculums had been completed and implemented and twelve are

under development or awaiting implementation. A major portion of the out-of-country programme has been completed. An interim distribution training facility has been established at Lahore and classes started during December 1986.

The training organisation presented in the Comprehensive Power Distribution Training Plan in November 1985 will be implemented under PHASE II. The organisational structure is expected to remain in place throughout the next several years and the only changes will be in the posting of un-filled positions as the new facilities become operational A General Manager Training will be established in PHASE IV when the 132 kV and 66 kV networks become

part of distribution and the Principal Training Institute in Faisalabad and the Principal G.S.O. Training Center in Tarbela are taken over. At the Area Electricity Boards and Circles, the general structure will be maintained

Administration

A support organisation for administration does not exist in Power Distribution. A General Manager, Administration reporting to the Chairman assists the Authority in formulation of policies, ensures their implementation and posts and transfers grade 20 officers. He is responsible for legal, medical and general services functions for the entire WAPDA organisation. A Chief Engineer, Administration exists in the Power Wing and he is primarily responsible for administration, the selection, posting and transfer of BPS-17 to 19 engineers and is the guardian of the personnel records. In the AEBs, Directors of Administration get functional direction from the General Manager Administration. In the circles, divisions and sub-divisions the administrative functions are handled by clerks.

The existing administrative function has a number of problems including; the lack of personnel and general administration support in the divisions, deficiency in performance evaluation, lack of career planning and development, dual administration control, system of promotion on the basis of seniority cum fitness resulting in a large cadre of journeymen which results in a lack of motivation for excellent performance, lack of effective training programs for junior level administrative staff, lack of position descriptions defining major duties and responsibilities.

Under PHASE II, recommendations will be developed to remove deficiencies in the personnel policies, performance evaluation, career planning, system of promotions, compensation and benefits, personnel records and human resources information system. Safety codes, safety organisation and accident investigation and switching operation procedures will be developed and implemented. A similar approach will be adopted for the General Services functions at the Headquarters, AEB's and Divisions.

A new position of General Manager Administration, Distribution supported by Director General Personnel and Director General General Services will be established at the Headquarters. At the Area Electricity Boards, Directors of Personnel and Directors of General Services will be established. In the Division, a separate administration section will be established that will also manage the administrative affairs in the sub divisions. Under Phase IV, the role of General Manager Administration, Distribution will be upgraded with additional responsibilities associated with those involved with the 132 kV, 66 kV and 33 kV transmission lines and grid stations work.

Management Services (Computers)

The present organisation consists of eight major components including; the billing system design and programming group, a systems group, operation group, administrative staff, a budget and accounts staff and three Area Electricity Board computer groups. The organisation is responsible for a billing system, a payroll system, a personnel system, report printing and support of program packages. The WAPDA Computer Department is administered by the Director General who is responsible for all the staff at Lahore, Islamabad, Gujranwala and Peshawar Computer Centers and for Data Entry Centers which have been established at Faisalabad, Gujrat, Jhang, Gujranwala, Sialkot and Sheikhupura. The functions at these centers will include entry of payment, meter reading, stores activity, time reports, field completion reports and other input documents.

The computer organisation has a number of serious defects. Top management spends most of their time with operational problems and has little time to manage and plan for new systems or upgrade the current operations. No one has been specifically assigned to plan, acquire, install and maintain equipment. The Department only has a training programme for entry level positions. No staff has been assigned to develop and monitor the use of methods, procedures and standards. There is an inadequate number of senior programmers and analysts. There is no staff position for creation and maintenance of a departmental plan.

Under PHASE-II, the computer department will be transformed into a full Management Services organisation including appointment of a General Manager, establishment of a computer system division, a computer operation division, a training section and a planning section. Functions within the new management services organisation at Headquarters will result in improved management service planning, computer system development (billing system, stores and inventory system, general accounting system, work order system, payroll personnel system, planning and design system and management reporting system), and computer operations (scheduling and control techniques, training and installation, equipment maintenance and a training program for programming and computer network operation).

In the AEB's, regional computer centers will be established to operate electricity billing, accounting, work orders, payroll and personnel, stores inventory and control, and distribution planning and design system. Data entry computer centers will be established at ten additional Circle locations during the next two years.

Micro computers will be isnstalled in all division offices for data entry, validation of customer transactions, meter reading, stores transactions, accounting entries, planning, estimating and work orders, and analysis of local distribution network conditions. These computers will also support similar functions for the sub-divisions.

Computer system future improvements include upgrading of the customer/electricity billing system, linking of stores and accounting system to the main accounting system, integration of payroll with the accounting system and updating of distribution maps. The computer operations improvements will include a comprehensive scheduling system and a program library management system at Headquarters and at the at the AEB centers. Operations in the circles will not be affected during PHASE-II. At the divisions, changes approved during the Model Division Pilot Test will be incorporated system-wide and will include; customer, stores, accounting, work order system, payroll processing and personnel system transactions. No computer activities will affect the sub-divisions.

Headquarters enhancements will be made in mapping, planning and design systems, the customer billing system, and the work order system. A load management system will be introduced. A new headquarter computer center will be built and tied via high speed data link to the WAPDA Headquarters building.

AEB computer centers will be updated to handle mapping, planning and design systems, on-line customer enquiry and order entry system, and transformer load management. No changes will be made affecting circles, divisions and sub divisions in PHASE-IV. Under Phase V a separate computer division will be established to support all non distribution computer systems. Equipment and operation staff for the rest of the WAPDA computer system group have been provided in the plan.

Finance

The Deputy General Manager Finance, Distribution reports to the General Manager, Distribution on an administrative basis and General Manager Finance, Power on a functional basis. Similar patterns of administrative and functional organisational relationships are present in the AEBs and Divisions.

A number of activities will be completed during PHASE-II including; confirmation of current liabilities, improvements in cash management, verification and revaluation of distribution assets, development of functional depreciation rates, revision of construction/retirement and fixed asset accounting procedures, improvement of manual accounting and reporting systems, development and implementation of computerized financial systems, revision of the financial organisation and improvement in staff capabilities, establishment of a program for monitoring cost of rendering service to the customers and upgrading and expanding the internal auditing function.

A number of tasks including; inventory valuations, appraisal of current assets, fixed assets accounting manual, preliminary revaluation of fixed assets, determination of management information requirements and computerized accounting and reporting system for divisions and AEBs have been completed. A cost of service and rates study have been prepared. Improved cash management procedures and operations have been developed. A proposal for reorganisation of WAPDA's financial operations has been developed. Initial auditing capabilities have been assessed.

Under PHASE-II, a General Manager Finance, Distribution and an additional Deputy General Manager Finance, will be appointed. The functions of the Financial Organisation will include budgets and controls, rates and tariffs, accounts and funds and implementation and financial systems. At the AEB level, the stores inventory accounting and payroll will be consolidated into the Accounts Directorate. No finance organisation will be established at the circle level. The two accounting units in each operation division will be consolidated into one. There will be no finance organisation at the sub division level.

Under Phase IV, the 132 kV and 66 kV line and grid station organization accounts functions will be transferred to Deputy General Manager Finance at Headquarters and to the Director Accounts at the AEB's.

Customer Services

At the present time, the head of the commercial function is the Chief Commercial Manager who reports to General Manager Distribution and is responsible for; commercial operation, commercial system operation, commercial warehousing, tariffs, rules and commercial procedures. At the AEB's, the commercial function is headed by a Director Commercial. In the circles, a Deputy Commercial Manager gives functional guidance to the Revenue Officers associated with the division and sub-divisions. In the sub-divisions, the sub-division officer is responsible for all commercial functions.

Customer Services has several problems with its current organisation. The Headquarters staff is overburdened with day-to-day operating problems and are deficient in the planning and control functions that are required. A lack of functional guidance exists from the top of the organisation to the bottom. While Customer Services should have input into tariffs, the study and design of tariffs is of a financial nature and should not be in Customer Services. The Customer Service organisation in the division is currently not structured to provide good service to customers. The customer must often contact several offices to transact one piece of business, and he is often confused regarding the required procedures to follow. This situation is further aggravated by an over-burdened sub-division officer who cannot devote the proper attention to customer service activities.

Customer Services will be the new designation of WAPDA's organisation that deals with customers: customer contacts, customer relations, customer accounts, customer surveillance, energy conservation, load management and customer billing. Those customer functions that are now being performed will be reorganised and strengthened as necessary, those that are done elsewhere in the organisation will be transferred and those that are not now performed will be added.

The proposed organisation under Phase II includes the establishment of an office of General Manager Customer Services with a Director General Energy Management and a Director General Commercial at the WAPDA headquarters. A Director Customer Services will serve in each AEB reporting directly to the AEB Chairman and will be functionally responsible to General Manager Customer Services. In the Divisions, the customer service organization will have customer accounts, customer assistance, customer relations, energy surveillance as well a computer section. Meter reading, bill distribution and customer assistance will be available in the sub-division offices.

The later phases of the planned reorganisation will not affect the Customer Service organisation structure or functions.

However as the number of customers increase, additions in staff and equipment will be required.

Operations

All the present operations functions that exist in distribution - administration, finance, commercial, construction, maintenance and system operations have been delegated to the AEB's. All Area Electricity Boards Chairmen report directly to the General Manager Distribution.

In the divisions, sub divisions and revenue offices, where most of the distribution employees work, the administration and financial functions have been carried out by lower level staff. The contacts with the customers have not been less than satisfactory. The technical functions have been beset by a number of problems including; lack of distribution records, poor safety practices, poor construction work standards, inadequate and poor design of protective equipment, defective meters, and low workers skill and morale. At the circle, no staff has been assigned for active participation of the maintenance of the system but construction is being transferred to them from the AEB's. Construction, Maintenance and Operation of the low tension distribution system is done by staff in the sub-divisions.

Under PHASE II, the operations function will be headed by a General Manager, Operations who will direct the Area Electricity Board Chairmen.

A plan for reorganising the divisions on a very limited scale is being implemented and, if successful, will later be implemented in all the divisions. Proposals for reorganising the Circles and Area Electricity Boards will be put forward shortly. When the reorganised operations group is functioning, the Planning Engineer in the AEB will be able to obtain technical and administrative guidance from the engineer in charge of planning at headquarters. Each discipline will function in the same manner and this will also apply between sub-divisions and divisions and between divisions and their counterpart in the Area Electricity Board.

In PHASE IV, the 132 kV and 66 kV facilities will be transferred to distribution. The operation organisations coming from Transmission & Grid will be integrated into the functional organisations at headquarters, AEB's and Circles.

Planning & Engineering

The offices of the Chief Engineer, Design and the Chief Engineer, Rural Electrification Organisation (REO) now are responsible for many of the functions that will become part of the Planning, Engineering and Standards group. The current activities under Design include; engineering of the larger projects, preparation and maintenance of technical specifications and project descriptions, equipment inspections at factories in the country and abroad, preparation of bills of quantities, review of the technical aspects of tenders, and circuit analysis of the distribution feeders. At the present time, the REO monitors the construction of foreign financed projects, prepares tender documents for these projects, reviews the commercial aspects of the tenders, and administers the contracts.

In the AEB's, the Director Technical is responsible for the design and performance of the distribution system and certain civil works. The Executive Engineers in the divisions review and approve plans and proposals prepared by the sub-division officers

under whose supervision the low tension system is developed and changed to serve the customer needs.

In PHASE II, the name of the organisation becomes Planning, Engineering and Standards headed by a General Manager. The same functions will generally remain and some new ones added. The Planning organisation at Headquarters will be under a Chief Engineer and will include; Power Market Survey and Load Forecasting, Distribution Planning, and Rural Electrification Planning and Monitoring. The functions of Distribution Engineering organisation, also supervised by a Chief Engineer, will include; design ,rural electrification and distribution records. A third Chief Engineer will be in charge of construction, maintenance and operation standards and procedures as well as energy measurements.

When PHASE IV is implemented, the functions will be expanded to include the planning, engineering and standards and procedures for the 132 kV and 66 kV system.

Purchasing & Inventory Control

The Purchasing & Inventory Control responsibilities for the WAPDA for Distribution are split between different organisations under two General Managers. The present Inventory Control organisation under the General Manager Inventory Control reports to the Deputy Managing Director Distribution. He is currently responsible for the inventory control and stores operation for the distribution organisation. The functions include; inventory control management and monitoring, stores operation, disposal of excess/ obsolete material, material inspection, material imports and customs clearance, and purchase of common use materials for the entire power wing. Within the Distribution Wing, there is a purchasing and inventory control function that is headed by Deputy General Manager, Inventory Control, reporting to the General Manager Distribution, with the responsibilities of purchasing distribution catalogue materials, inventory control and stores operations.

No inventory control techniques are in place to monitor inventory level requirements or to determine optimum order points. The existing warehouse facilities are inadequate. There is insufficient material handling equipment. Transportation is a problem. Inspection of purchased material and equipment is currently handled by Chief Engineer Material Inspection under the General Manager Inventory Control. The present material test facilities at Faisalabad is not well equipped to the perform the required mechanical tests.

The proposal for reorganising the Purchasing and Inventory Control function aims at improving and strengthening the functions of; budget forecasting, material planning, procurement, material inspection, stock control, storage and receipt and issue

of purchased material. The organisation will be divided into four functional areas: Purchasing, Inventory Planning and Control, Stores Operations and Material Inspection.

Under PHASE II, the office of General Manager Purchasing and Inventory Control will be established. To make the purchasing functions more effective, consideration will be given to the introduction of automated systems for planning, monitoring and reporting. Systematic inventory control techniques will be introduced. Material Disposal will become a part of the Inventory Planning and Control function. A Stores System will be developed in three phases covering; modifications and extension of manual procedures, design and development of micro-processor based stores system, and design and development of consolidated Stores Information System. The inspection function will be included within Distribution Purchasing and Inventory Control. The existing material testing facility at Faisalabad will be upgraded or a new testing facility established at a new location.

In PHASE IV, the large procurement group involved with the 132 kV and 66 kV system will be integrated into the Distribution Purchasing and Inventory Control organisation that then exists.

1.5 Analysis of the Benefits and Costs of the Plan

To evaluate the relative costs and benefits of the Institutional Improvement Plan, two scenarios were studied:

Case 1: Business as usual

The projections of this case are based on the WAPDA's projections of energy generation and capital investments to meet the objectives of the Prime Minister's Programme to electrify 90% villages and eliminate load shedding by 1990. The Program does not reflect full scale implementation of a wide ranging Institutional Improvement Programme.

Case 2: Plan

Under this scenario, the entire WAPDA programme is supplemented by a comprehensive Institutional Improvement Programme.

Estimate of Costs

The Plan envisages institutional improvements in 167 divisions, 38 circles, 8 Area Electricity Boards and the entire distribution headquarter organisation by 1990. After 1990, all new divisions, circles and AEBs shall be established on similar lines. During the period 1985/86 to 1992/1993 the additional capital cost due to institutional improvement programme is estimated at Rs 4,952 million. The expected decrease in operation and maintenance expenses during the same period is estimated at Rs 8,793 million.

Quantifiable Benefits

Only two tangible benefits were quantified while evaluating the Institutional Improvement Programme, the reduction in O&M and administration costs and the increase in revenues due to reduction in administrative energy losses and energy conservation. The increase in energy sales due to these measures is estimated at about 2% of the energy generation. The 2% estimated administrative loss reduction should be considered as conservative. Once the entire distribution organisation has been reorganised and the modernized functions have been established, up to 5% reduction in administrative losses is considered to be possible.

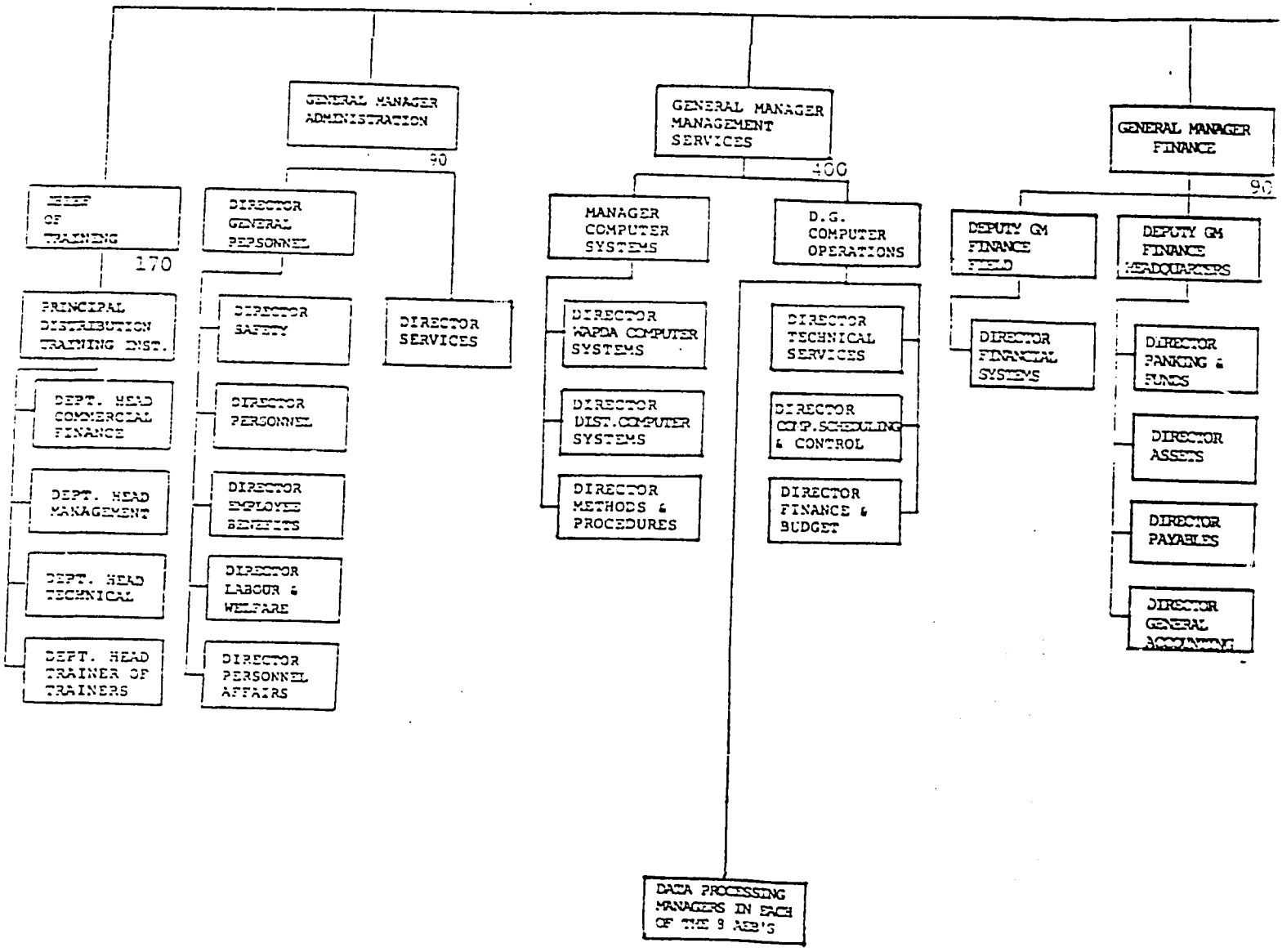
Benefits which were not Quantified in Terms of Rupees

The establishment of the proposed Functional Organisational Structure will increase the effectiveness of the organisation. The quality of training will contribute to human resources development. Coordination among functional organisational units will be improved. Frequency and severity of accidents will be reduced. The planned automated customer billing centers will improve the time between meter reading and customer billing. The customer service will be improved, this will also improve WAPDA's public image. Automation of different functions will provide WAPDA management with more accurate and timely information for sound decision making. The refinement/development of improved position descriptions for all Distribution Organisations will enable the authority to be delegated to the level most appropriate to make decisions and accurately define accountability when work is not accomplished on schedule and within budget.

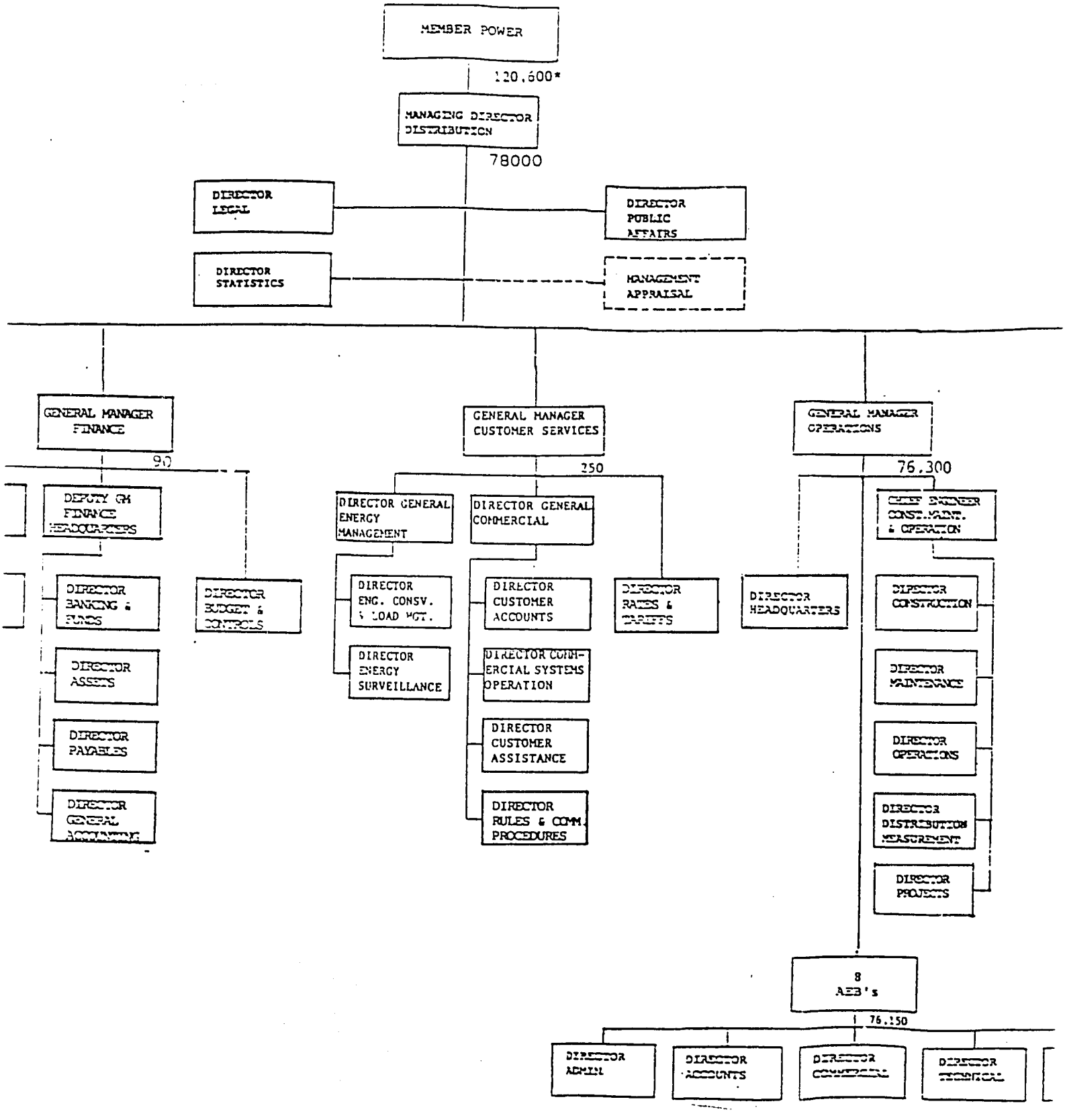
Benefit Cost Analysis

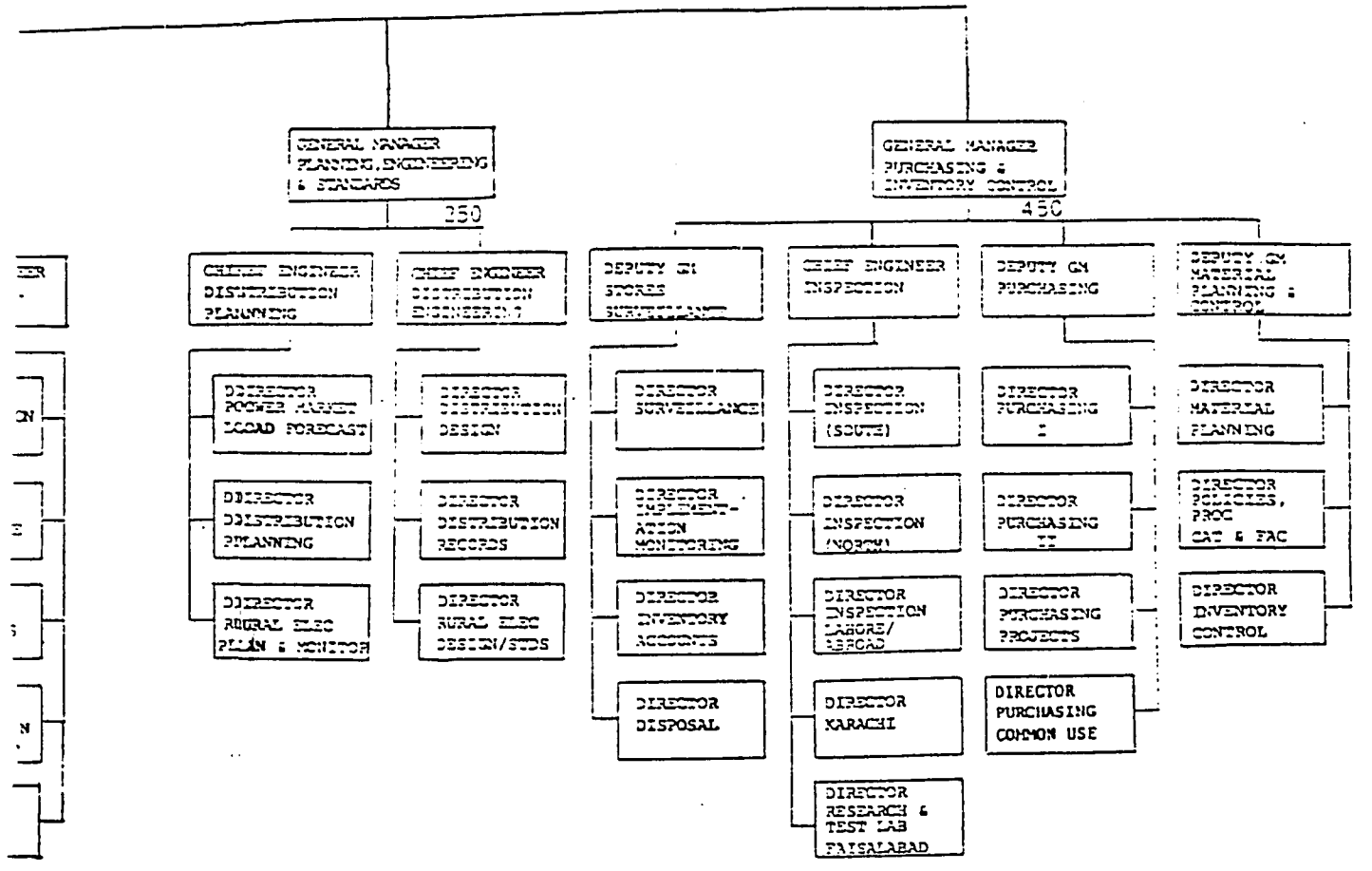
Benefit cost analysis for the Institutional Improvement Plan was carried out for the period 1985/86 - 1992/93. Based on 2% administrative loss reduction the net present worth of benefits of the plan is Rs 7,665 million against net present worth of cost of Rs 2,937 million. The benefit: cost ratio is 2.6:1.

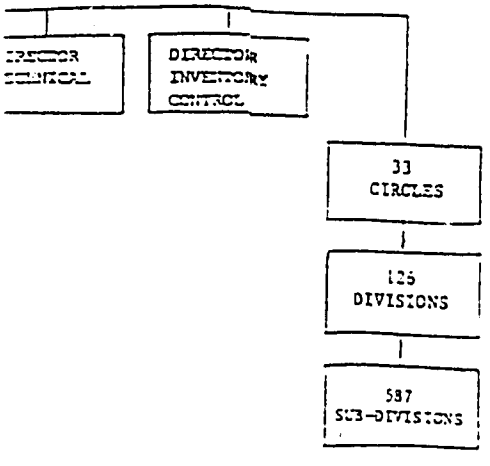
From an investment view point, the Institutional Improvement Plan offers attractive benefit cost ratio even at a modest reduction of 2% in administrative losses. In addition to these quantified benefits, the intangible benefits of the programme are considerable.



*ESTIMATED NUMBER OF EMPLOYEES


MEMBER POWER
120,600*
MANAGING DIRECTOR DISTRIBUTION
78000
DIRECTOR LEGAL
DIRECTOR PUBLIC AFFAIRS
DIRECTOR STATISTICS
MANAGEMENT APPRAISAL
GENERAL MANAGER FINANCE
90
DEPUTY GM FINANCE HEADQUARTERS
DIRECTOR BANKING & FUNDS
DIRECTOR ASSETS
DIRECTOR PAYABLES
DIRECTOR GENERAL ACCOUNTING
DIRECTOR BUDGET & CONTROLS
GENERAL MANAGER CUSTOMER SERVICES
250
DIRECTOR GENERAL ENERGY MANAGEMENT
DIRECTOR ENG. CONSV. & LOAD MGT.
DIRECTOR ENERGY SURVEILLANCE
DIRECTOR GENERAL COMMERCIAL
DIRECTOR CUSTOMER ACCOUNTS
DIRECTOR COMMERCIAL SYSTEMS OPERATION
DIRECTOR CUSTOMER ASSISTANCE
DIRECTOR RULES & COMM. PROCEDURES
DIRECTOR RATES & TARIFFS
GENERAL MANAGER OPERATIONS
76,300
DIRECTOR HEADQUARTERS
CHIEF ENGINEER CONST.MAINT. & OPERATION
DIRECTOR CONSTRUCTION
DIRECTOR MAINTENANCE
DIRECTOR OPERATIONS
DIRECTOR DISTRIBUTION MEASUREMENT
DIRECTOR PROJECTS
8 AEB's
76,150
DIRECTOR ADMIN
DIRECTOR ACCOUNTS
DIRECTOR COMMERCIAL
DIRECTOR TECHNICAL





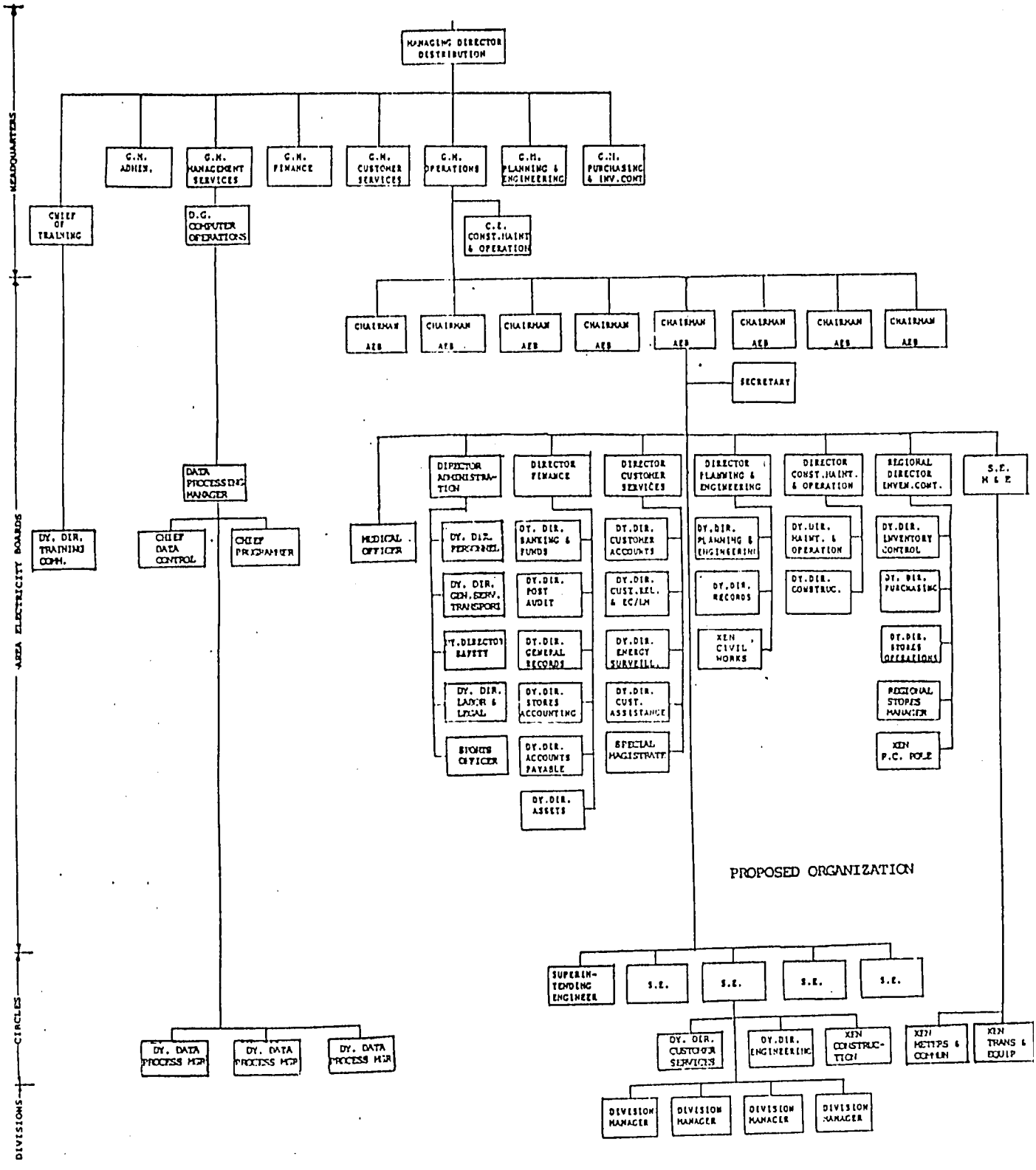
WAPDA

CONSOLIDATED DISTRIBUTION WING

(To become effective on the date of the Ministry's approval of the Authority's letter of September 30, 1986)

Approved January 12, 1987

PHASE II - B


HEADQUARTERS
AREA ELECTRICITY BOARDS
CIRCLES
DIVISIONS
MANAGING DIRECTOR DISTRIBUTION
G.M. ADMIN.
G.M. MANAGEMENT SERVICES
G.M. FINANCE
G.M. CUSTOMER SERVICES
G.M. OPERATIONS
G.M. PLANNING & ENGINEERING
G.M. PURCHASING & INV.CONT
CHIEF OF TRAINING
D.G. COMPUTER OPERATIONS
C.E. CONST.MAINT & OPERATION
CHAIRMAN AEB
SECRETARY
DIRECTOR ADMINISTRATION
DIRECTOR FINANCE
DIRECTOR CUSTOMER SERVICES
DIRECTOR PLANNING & ENGINEERING
DIRECTOR CONST.MAINT. & OPERATION
REGIONAL DIRECTOR ENVIR.CONT.
S.E. M & E
DY. DIR. TRAINING COMM.
DATA PROCESSING MANAGER
CHIEF DATA CONTROL
CHIEF PROGRAMMER
MEDICAL OFFICER
DY. DIR. PERSONNEL
DY. DIR. GEN.SERV. TRANSPORT
DY. DIRECTOR SAFETY
DY. DIR. LABOR & LEGAL
STORES OFFICER
DY. DIR. BANKING & FUNDS
DY. DIR. POST AUDIT
DY. DIR. GENERAL RECORDS
DY. DIR. STORES ACCOUNTING
DY. DIR. ACCOUNTS PAYABLE
DY. DIR. ASSETS
DY. DIR. CUSTOMER ACCOUNTS
DY. DIR. CUST.REL. & EC/LM
DY. DIR. ENERGY SURVEILL.
DY. DIR. CUST. ASSISTANCE
SPECIAL MAGISTRATE
DY. DIR. PLANNING & ENGINEERING
DY. DIR. RECORDS
XEN CIVIL WORKS
DY. DIR. MAINT. & OPERATION
DY. DIR. CONSTRUC.
DY. DIR. INVENTORY CONTROL
DY. DIR. PURCHASING
DY. DIR. STORES OPERATIONS
REGIONAL STORES MANAGER
XEN P.C. POLE
PROPOSED ORGANIZATION
SUPERINTENDING ENGINEER
S.E.
S.E.
S.E.
S.E.
DY. DIR. CUSTOMER SERVICES
DY. DIR. ENGINEERING
XEN CONSTRUCTION
XEN METERS & COMMUN
XEN TRANS & EQUIP
DIVISION MANAGER
DIVISION MANAGER
DIVISION MANAGER
DIVISION MANAGER
DY. DATA PROCESS MGR
DY. DATA PROCESS MGR
DY. DATA PROCESS MGR

4.2 ADMINISTRATION

The Administration organization proposed for the AEB's, will be augmented to ensure the efficient handling of administrative matters and to clarify the responsibilities in regard to personnel, general services, transport, safety, legal, labor welfare and sports.

- The Personnel section will look after recruitment, transfers, promotions, disciplinary cases, performance evaluations, compensation, employee fund, advances, claims, leaves and personnel records.

- The General Services section will be responsible for the repair and maintenance of the buildings, procurement of furniture, office equipment and supplies.

- The Transport section will ensure the proper use and control of the vehicles and schedule and control their maintenance.

- The Deputy Director of Safety will be responsible for ensuring that the safety policies and procedures are implemented and followed and that there is continuous awareness about safety. The section will also assist in accident investigations.

- Legal and Labor Welfare will maintain records of legal cases and provide assistance to counsel engaged in defence of cases and provide guidance to the Divisions and Circles on legal and labor matters.

- Sports.

4.3 MANAGEMENT SERVICES

Computer Centers in the Area Electricity Boards, while under the direct control of the Director General, Computer Operations in the WAPDA distribution organization, have been established to support the needs of the AEBs. The computer center will prepare AEB customer system reports, perform customer billing, general accounting, work order standards, proposals and cost monitoring, payroll and personnel records, stores and inventory control.

Each AEB will have the facilities to run the WAPDA management reporting system. Data collected will be available to users either on the main frame processor in headquarters or on microcomputers. These operations will be improved with the installation of a scheduling system to guide local operations.

They will document the network of operations for daily, weekly, monthly or other period outputs. A change management system which will administer changes to all programs or operating protocols will be installed. The system will help eliminate operational errors and simplify any reruns.

In the future the AEB computer centers will be upgraded to handle the mapping, planning and design systems. This will allow decentralization of these data bases to the sites where they can be maintained and used.

An on-line customer inquiry and order entry system will be developed for major accounts. This will allow AEB staff responsible for the accounts to ensure all the corrections and the changes are made accurately and when needed, allowing the accounts to be billed as early and as error free as possible.

Circle computer centers will be established at most of the circles that are not very close to an AEB office (in Gujranwala there will be computers at the Sheikhupura and Sialkot circles). Work at these centers will include entry of payments, meter readings, stores activities, time reports, field completion reports and other input documents. Each center will also prepare the bills and maintain a copy of the current account status for all customers for that circle's account.

4.4 FINANCE

The proposed organization of the financial section of the Area Electricity Boards, under a director, will provide a substantial upgrading of the management capabilities as well as some realignment of responsibilities. The strengthened financial staff will provide improved assistance, guidance and control over the financial operations of the divisions.

Effective financial management requires a sound basis of forecasting, budgeting, controlling and monitoring. Forecasts of future revenues and financial requirements for capital expenditures and operation and maintenance expenses are essential elements in the management process. Detailed budgets are prepared based on the forecasts and priorities established by management and once approved become managements plans for the future. The financial results are monitored on a continuing basis and any differences between budgeted amounts and actual amounts disbursed and received signals the need for corrective action.

Financial resources and obligations are reflected in the receipts and disbursements of funds. Strict accountability and control must be maintained. The primary vehicle for handling the cash assets is the banking system. Accounting for and controlling the flow of funds through the banking system is a primary function of the financial organization. Optimizing cash flows is required to

derive maximum benefits from the available funds. Impressed funds are used as vehicles for transferring funds within the organization to provide the means for various formations to pay employees, vendors, contractors and others. Effective controls must be provided to ensure proper use of the funds.

The results of all of the accounting processes are the financial statements and reports. This is accomplished by the outputs from a logical and well organized system of ledgers and records that are maintained from processing the accounting transactions from all sources. This provides overall control of the financial process.

The accounting and financial controls for all non cash assets are handled by the asset accounting system. The system covers capital assets, depreciation, construction and retirement of capital assets and material, equipment and stores inventories.

The financial obligations are recorded, accounted for and paid via an accounts payable system. Payments must be made on the basis of proper documentation and approvals according to the policies and procedures. Expenditure transactions are analyzed and classified for recording in the applicable accounts so that they will be reflected in the financial statements.

Employees must be paid wages, salaries and allowances due each pay day. The payroll system must produce these payments accurately and on time. In addition, the system records and accounts for social and other benefits and maintains records of each employee's earnings during his career.

All expenditures are subject to detailed audit to ensure the propriety of the payments, proper approvals, conformity with budgets and classification to the proper accounts.

All of these financial processes are based on the development, documentation and implementation of the required procedure. Procedures must be maintained and upgraded on a continuing basis for efficient financial operations and monitored to ensure compliance.

4.5 CUSTOMER SERVICES

The objective of institutional improvements being recommended for WAPDA's AEB and Circle Customer Services function is to improve the efficiency in the operation with resultant improvements in customer service. To accomplish this objective, changes in the organization structure as well as functional revisions are being proposed. Additionally, a new function to improve customer relations is being recommended. Customer Service management will be strengthened with the improved monitoring and control facilities being proposed.

Other functional operations will also benefit from the improvements being recommended in Customer Services. More accurate and timely computerized reports will allow managerial decisions to be made sooner based on more factual information. Support of field operations will be enhanced when the headquarters, AEBs, circles and divisions are reorganized and functional responsibilities have direct and clearly defined lines of authority and responsibility.

The key to the success of the plans being laid in Customer Services is twofold: well trained and experienced personnel must be placed in key positions and secondly, the attitudes of the implementators must reflect anticipated success.

Responsibilities for the overall Customer Services activities in the reorganized Area Electricity Boards will be divided by, and into, distinct functions. These functions will coincide with the planned organizations being implemented in distribution headquarters and the model divisions. A new function for improved Customer Services in the area of energy conservation and load management will be included in the organization. The energy surveillance groups will be expanded to accommodate the increased emphasis being planned in this field. These two functions will be field oriented, involving all classes of customers with some responsibility for giving functional guidance to the divisions. Energy surveillance staff will have the support of computerized monitoring of customer usage which will indicate exceptions and provide the basis for routine checks and if warranted, investigation. Key posts must be filled with trained and experienced personnel who are dedicated to achieving the intended results. There should be ample opportunities for career advancement to motivate personnel and keep them committed to the Customer Services function.

These new Managers must demand strict adherence to established procedures. They must become involved with, and interact with division personnel, monitoring their performance and effectively correcting deviations from the prescribed policies and procedures.

The enhanced commercial procedures, establishment of an energy conservation function, enhancement and expansion of the energy surveillance function, and a program to construct customer service centers in all divisions as they are reorganized will all contribute to the planned improvements.

In the circle a Deputy Director - Customers Services, reporting to the Superintending Engineer, will function in a staff position. He will accumulate data from the divisions as prescribed by the commercial procedures and assemble reports as required by the AEB. He will also control division functional activities as directed by the Superintending Engineer, and act to maintain the effective flow of communication between the AEB and its divisions.

4.6 PLANNING AND ENGINEERING

One of the objectives of changing the technical services in the Area Electricity Boards is to introduce engineered planning into the organization so that the future renovation and expansion programs are properly engineered and then constructed to result in the most economic distribution system.

The first requirement for effective planning is a load estimate. To obtain this requires knowledge of the existing loads and how they might increase plus on appraisal of where the future loads are likely to develop and their magnitude. To obtain this data it is necessary to have the past load growth history, field data, consumption and demand data and then a judgement on how these elements will combine to result in a load forecast.

A long term expansion plan is a primary requirement. Because the future is so uncertain they must be revised periodically to incorporate developments that become known as time passes. From a long term load forecast an indication of the future system can be visualized - the probable location of future grid stations and the 11 kV distribution circuits emanating from them.

The more immediate planning problem is for facilities to supply loads that are ready to be connected. With the long term system plans as a guide the circuits to the new loads can be routed so that they will fit into the future system. The planning organization will be continually updating their plans and making changes with changing conditions.

Planning is an area wide function. Every element must be planned always considering what its function might be in the network of the future. The circuit analysis that should be done in planning system expansion or system rehabilitation can best be done at a central location - the AEB.

The engineering function of the Area Electricity Boards will be responsible for the inspection and enforcement of the standards prepared in distribution headquarters, evaluations of equipment, and the review of plans and estimates prepared in the divisions.

In the circles the Deputy Director Engineering will take the plans prepared by the AEB planning engineers and convert them into specifications and prepare the work orders, drawings and bill of quantities from which the construction divisions will build the facility.

The Deputy Director Engineering will also ensure that the facilities that have been constructed conform to the work order.

The Deputy Director Civil Works will handle the acquisition of rental of land, residential and office buildings.

4.7 CONSTRUCTION, MAINTENANCE & OPERATIONS

The Construction, Maintenance and Operations organization in the Area Electricity Boards will primarily be monitoring the policies and procedures developed by headquarters to ensure their correct application. The section is not involved in performing any field activities. Its organizational arrangement is to provide leadership and expertise in the field of construction, operation and maintenance of the distribution system. A dedicated approach will arrest the present trend of system deterioration and restore a higher degree of operating capacity.

The construction of the 11 kV/33 kV system will be done in the circles under an Executive Engineer, Construction who will have one or more construction sub divisions which will have the work force and special construction equipment to construct the distribution 11 kV/33 kV facilities for both rehabilitation and expansion. Concentrating the available work force and directing the effort towards a dedicated objective will not only reduce the time and money involved, but assures standardization and quality of the work. Construction scheduling will be more easily and accurately predicted and the amount of additional contracted assistance will be identified sooner.

4.8 INVENTORY CONTROL

The present stores system in the Area Electricity Boards is functioning satisfactorily and it is recommended that the present practices be continued. However, the staff of the Regional Director Inventory Control should be expanded to include Deputy Directors for material planning and inventory control.

The Regional Director, Inventory Control under the Chairman of the AEB is and will be responsible for controlling the stores, ensuring that the levels of stores stock are sufficient to meet the demands, purchasing the decentralized material and co-ordinating, with the Inventory Control group in distribution headquarters, the regional requirements of centrally purchased materials and expediting their delivery.

There are ten Regional Stores in the Area Electricity Boards with two in Multan, two in Hyderabad and one in each of the other six. A varying number of Field Stores are in each area and a small number of Remote Stores are in the outlying areas. The Regional Store receives all the materials and allocates them to the other stores for use by the operating and construction divisions.

It is proposed that the Pre-Stressed Concrete Pole Plant organization be placed under the Regional Director Inventory Control in the Area Electricity Boards that have such a plant. The plant produces poles and size and number of poles required and their allocation as well as the purchase of materials for their construction are inventory control functions.

4.9 METERS AND EQUIPMENT

It is proposed that a Distribution Equipment Repair Center and Meter Laboratory be established and located geographically convenient to the divisions and circles. In the AEB this Center will provide complete service and repairs for transformers and other distribution equipment and repairs and adjustments to new and malfunctioning meters and communication equipment.

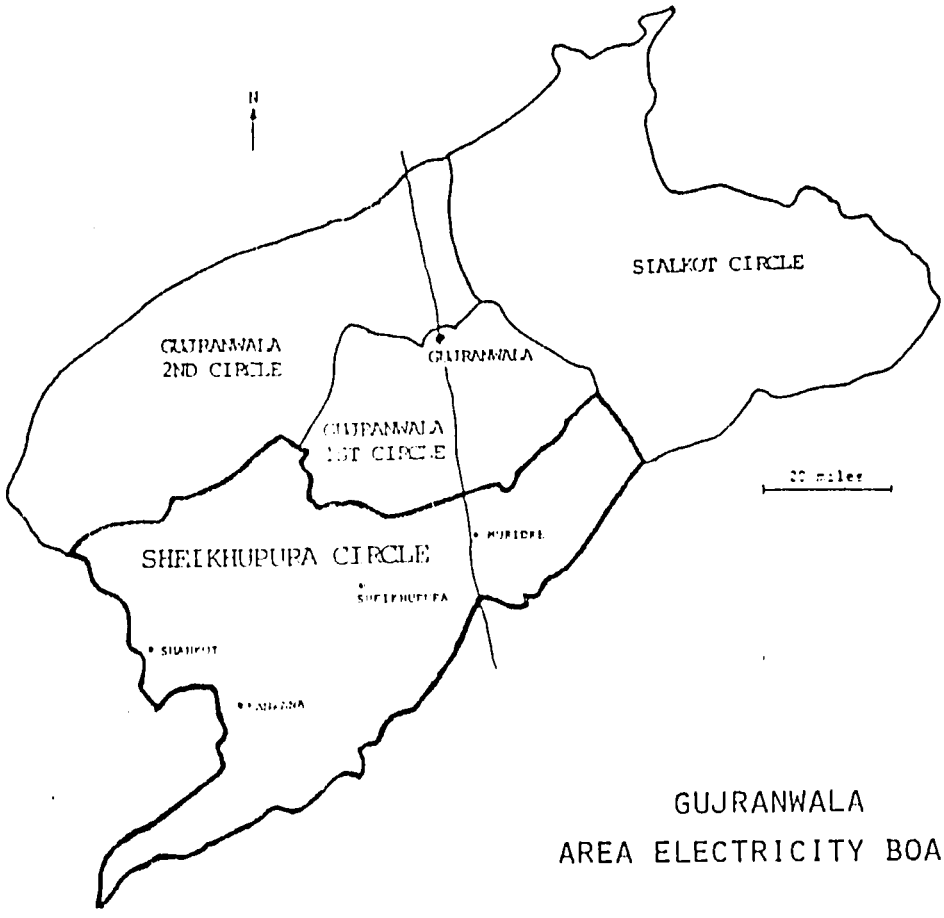
No attempt has been made in this report to justify the cost of establishing or the cost of operation and maintenance of this Center. However, realizing that the future dictates emphasis on costs and with it the stress which will be placed on the efficiency of operation, it is of vital importance to study "the use and flow" of materials.

To meet this concern partially it is proposed to establish a Center in each AEB. The philosophy being "Equipment on the ground is revenue lost; Equipment in service is revenue gained". The reports available from Shalamar Distribution Transformer Reclamation Workshop and from other WAPDA sources indicate the urgent need for additional Centers throughout WAPDA which adds to the justification for this proposal.

The estimated cost to construct and equip a Center is estimated at 20 million rupees, employing roughly 100 employees with a capability of between 2500 to 3000 transformers processed per year. Personnel are presently available in the AEB/M&T organization.

IT IS FURTHER RECOMMENDED THAT A STUDY BE MADE OF THE M&E ACTIVITY AND THE "USE AND FLOW" OF MATERIALS.

5.0 REORGANIZATION OF THE GUJRANWALA AREA ELECTRICITY BOARD AND THE SHEIKHUPURA CIRCLE



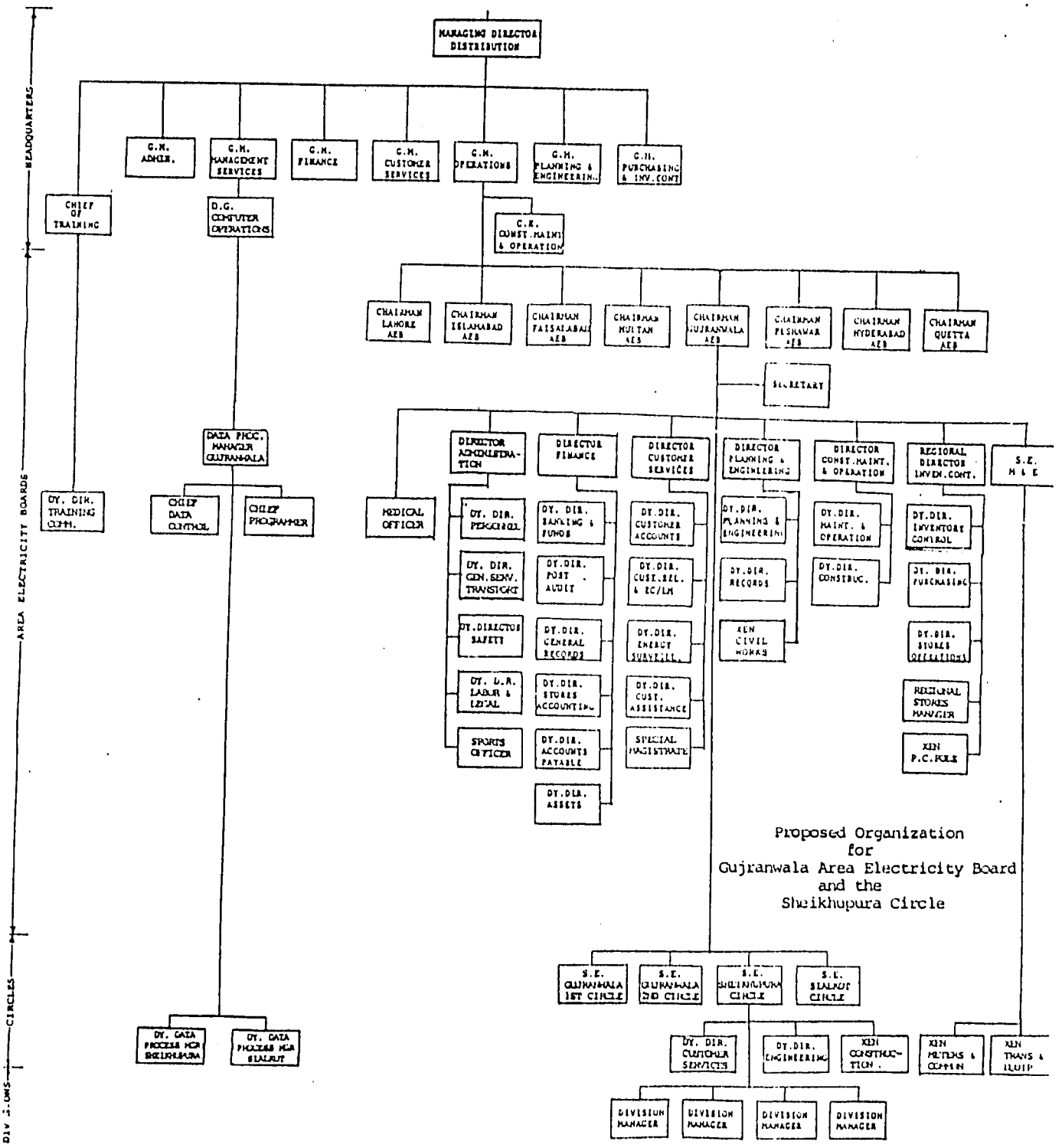
GUJRANWALA
AREA ELECTRICITY BOARD

The Gujranwala AEB, with its headquarters in the city of Gujranwala, has four circles and seventeen divisions. The service area encompasses 17,300 square kilometers and there are about 700,000 customers whose total load is more than 1100 MW.

In the headquarters of this AEB there are now 374 sanctioned employees. There are, in addition, 369 workers in the various stores located within its boundaries, in the linemans schools and in the P.C.Pole Plant. There will also be a computer center staff of 95 working exclusively on Gujranwala AEB business but they will be reporting to the Director General, Computer Operations in distribution headquarters.

The Sheikhupura Circle has an area of nearly 6000 square kilometers, 170,000 customers and a load of over 200 MW. In this circle there is a staff of 140 which includes a small headquarters organization and one construction division with two sub divisions.

The proposed organization of the Gujranwala AEB and the Sheikhupura Circle will be similar to that outlined in section 4.0 of this report except for the number of circles and the number of circle computer centers. The chart below shows the organization with the titles of the officers of BPS 18 and above:



Proposed Organization
for
Gujranwala Area Electricity Board
and the
Sheikhupura Circle

3.3 MODEL DIVISIONS REORGANIZATION PLAN / INSTITUTIONAL IMPROVEMENT PROGRAM

FINAL REPORT

November 23, 1986

POWER DISTRIBUTION WING

WATER AND POWER DEVELOPMENT AUTHORITY

4.0 PROPOSED DIVISION ORGANIZATION

The proposed reorganized division will consist of a division office and in most cases one or more rural sub-divisions. The division office will be formed by combining the existing division headquarters staff, the revenue office personnel and the staff of existing centrally located and geographically contiguous urban sub-divisions into a single operational unit. A Division Manager (Executive Engineer) will be in charge of the reorganized division and he will report to the Superintending Engineer. The rural sub-divisions will have a different organizational structure than that that now exists with the sub-division officers reporting to the Division Manager. The administrative, financial and planning functions will only be in the division office.

The proposed reorganization of the divisions will involve twelve basic changes:

- Restructuring of the divisions so that there will be a central division organization with a small number of rural subdivisions.

- Introduction of staff functions to the organizational structure as an addition to the existing line function.

- Addition of new functions to the organization that do not exist now.

- Placement of higher grade supervisors for the financial and service functions and engineering supervisors in the technical areas.

- Installation of computers in the divisions to perform the routine repetitive tasks.

- Utilization of radios to improve communications.

- Increase in the number of vehicles.

- Improvement in the tools and equipment.

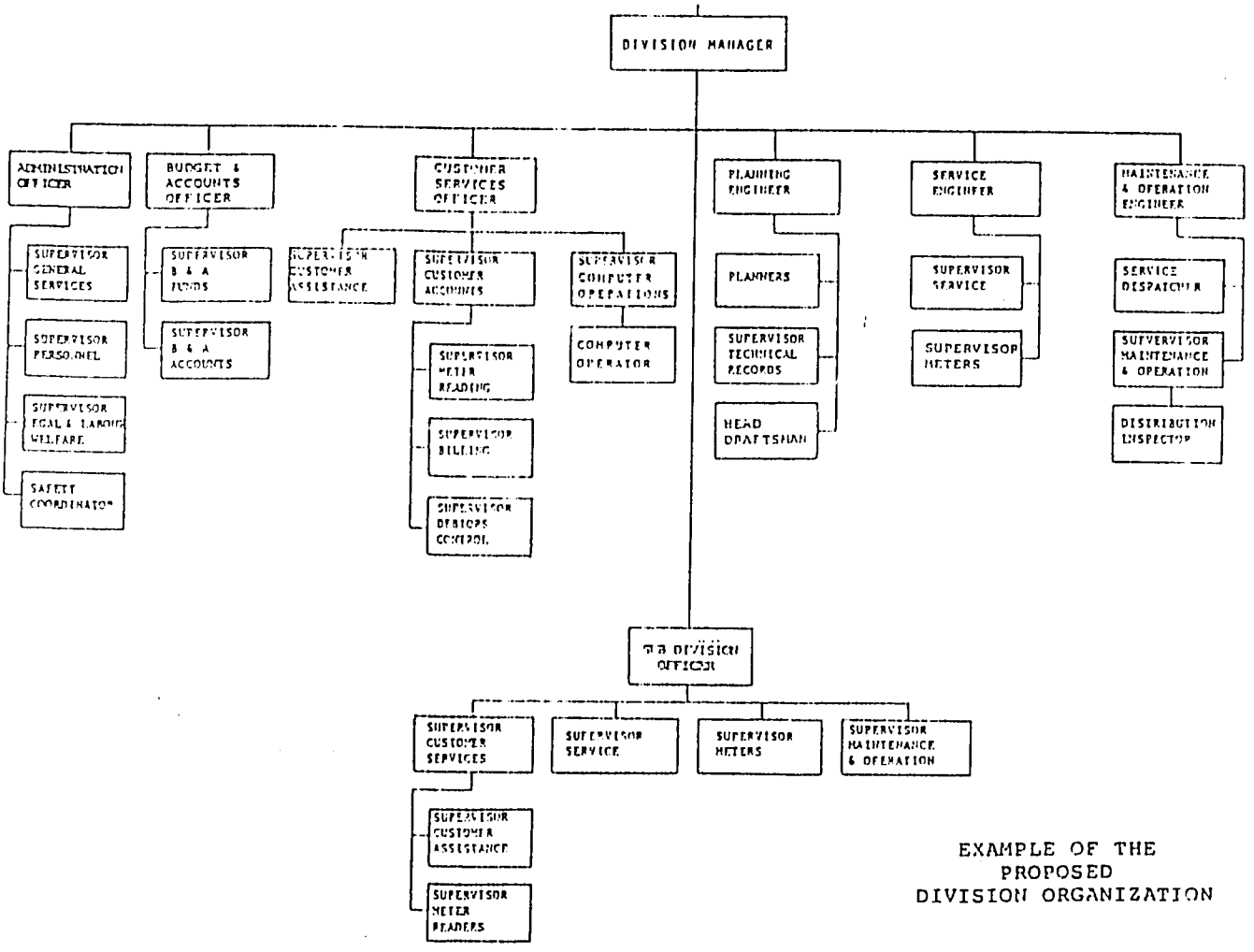
- Formalization of training programs.

- Enforcement of the safety program.

- Increase in the level of the administrative and financial authority of the Division Manager.

- Upgrading of the existing accommodations and/or the construction of new service centers.

The chart below shows the proposed reorganized division.



EXAMPLE OF THE PROPOSED DIVISION ORGANIZATION

The Service Functions of the new divisions will be under three officers, each reporting to the Division Manager.

- Administration will look after the building maintenance, transport, personnel, legal, labor & welfare and safety.

- Finance will handle the accounting, cash management and disbursement functions for the division including the accounting operations currently performed by the Revenue Office.

- Customer Service will assume all remaining functions from the Revenue Office and take over meter reading, bill distributing and will also include the new computer operations.

The Technical Functions of the division related to the physical system will be carried out by three engineering section heads reporting to the Division Manager:

- Planning will plan all the low tension network and limited high tension extensions.

- Service will construct the planned facilities and make the new connections.

- Maintenance and Operations will operate the system, perform preventative maintenance and provide customer service restoration.

The Sub-Divisions provide the same services to the customers in the rural areas as the divisions do in the urban areas except the Administrative, Finance and Planning functions will only be in the divisional office.

- Sub-divisions that remain will be reorganized to handle customer and operational activities with lower level supervisors than in the division office.

The staff function that is being introduced in this divisional reorganization is a working relationship between the sub-division and division in which sub-division supervisors can call upon any officer in the division for direction and guidance about the interpretation of technical or policy matters.

Presently the division personnel are housed in leased and usually less than desireable quarters leading to employee morale problems, WAPDA image problem, inefficient operation and uncontrolable expenses. In order to functionally and operationally integrate the proposed division office staff and to provide space for vehicles and vehicle repair facilities, materials and supplies it would be highly desireable and customer service oriented to centralize these functions at one location and in one Customer Service Center building. The same reasoning applies to the sub-division offices operation and personnel. This program by WAPDA will provide a visible and desireable impact on the communities.

Other functions may be added to the organizational structure according to local or timely requirement such as an Energy Surveillance Cell and a computer in the technical area. This divisional structure can readily accommodate changes.

It is visualized that as the reorganization of the Area Electricity Boards, Circles and Divisions progresses the maintenance of the equipment and testing of the meters will be delegated to the three groups on the basis of complexity and volume of the repair and test work. The majority of the equipment repairs and meter testing of a routine nature should be performed in the Division and Circles with the more complex work that requires expensive and sophisticated test equipment undertaken by the AEB's.

4.1 Administration

An Administration Section is being proposed for the new divisional organization. Some of the activities that will be included are already being performed within the present organization; others are not.

The responsibilities will be:

- General Services will be responsible for acquisition of office buildings, houses, land, maintenance and repairs of WAPDA buildings, procurement of office equipment, furniture, stationery and the operation and maintenance of the divisional vehicles.

- Personnel will be responsible for the employee personnel problems, employment, training, orientation, records, and the processing of promotions, demotions and transfers records.

- Legal and Labor Welfare will be responsible for assisting in choosing legal counsel, providing evidence, monitoring cases, and advizing on labor problems and grievances.

- Safety Coordinator will actively enforce the safety program, inspect for compliance of safety code, resolve safety enquiries, assist in accident investigation, recommend safety equipment, conduct regular safety meetings and assist and conduct safety training programs.

4.2 Finance

It is being proposed that the accounting, budgeting, cash management and disbursement functions of the present Division Headquarters, the Revenue Office and additional financial responsibilities be combined into a Finance section in the new divisional organization. This new section will be directed by more senior accounting staff than are now in the divisions and this will strengthen and improve the work in this field.

Initially there will be little change in the accounting procedures but with the advent of computerization of accounting, procedural changes will be necessary.

The Finance function will be responsible for the following activities:

- Maintaining accounts and ledgers and preparation of financial and managerial reports.

- Banking relationships, transfer of funds to AEB accounts, reconcillation of bank statements and handling of imprest cash.

- Processing and payment of bills, invoices and payroll vouchers.

- Accounting for capital contributions, fixed assets and stores.

- Preparation and the monitoring of budgets.

- Interfacing with inspection and auditing groups.

4.3 Customer Service

Improved customer service with associated improvements in customer relations is a basic objective of the reorganization. The changes that are being proposed are designed to provide improvement in service to customers. Customer Assistance will be equipped to effectively handle customer requests and complaints. The concept of one-stop service will be emphasized. The current practice of repeated customer visits to handle a single business item will be reduced. The new organization with the use of computers in the division will improve the divisional efficiency and accountability. Customer Service employees will have less opportunity to use their personal discretion in customer financial transactions, and computer generated reports will provide managers with information on which to take appropriate action. Applications for service, meter reading, billing including adjustments, bill distribution, debtor control, service disconnects and reconnects authorization, customer enquiries, customer advice, and energy conservation and load management will all be in the Customer Service section. All commercial functions dealing with the customers will be coordinated and directed by Customer Services.

A Customer Service Center building or complex housing all division operations and support facilities will enhance the operation.

The proposed customer service function will be responsible for the following activities:

Customer Assistance

Customers requesting a new service will make their application to Customer Assistance. The required documents will be prepared and processed. The design of the physical facilities will be done by the Planning Engineer. Applications for service above 70 kW will be forwarded to the Superintending Engineer for action. A proposed Energy Conservation and Load Management cell operating in the AEBs will handle the large customer applications.

Customer complaints regarding billing, meter reading, and tariff application, will be resolved by Customer Assistance.

After having been disconnected, customers will be provided assistance in making arrangements for restoration of service.

Bill distribution will be a function of Customer Assistance as will the litigation responsibilities.

Customer Accounts

Customer Accounts will be responsible for the meter reading

function. The meter reading will be entered into the computer in the division. Exception lists of irregular usage indicating possible error conditions will reduce incorrect billings to customers. Estimating readings and adjustments to readings will then no longer be at the meter readers personal discretion which will reduce exposure to illegal gratification.

Adjustment to customers bills as well as billing factor changes will be performed by Customer Accounts. This data will be entered daily into the computer. Debtor control will also function in this section and operate under the guidelines promulgated by the regulations governing their application.

Computer Operations

The use of computer system will be an important tool in providing management with information for improving control. In the divisions a computer will be available in the Customer Services Section and will be used for:

- data entry and validation of customer orders, adjustments, and meter readings;
- data entry and validation of stores transactions;
- data entry, validation and processing of division accounting activity;
- support of work order planning, estimating and the preparation of bill of materials;
- data entry and validation of payroll and personnel transactions and time reports.

The purpose of these changes is to reduce the delay between capture of data and the time it is ready for processing, to simplify the operations by automating some of the routine tasks and to provide support for new and improved division operations.

Technical Services

Under the proposed reorganization the divisional technical functions will be concerned primarily with technical matters with an engineer in charge of each vital function of electrical distribution. These engineers along with the Sub-Division Officers will also be responsible for the Maximum Demand Indicator meter readings.

4.4 Planning

It is proposed to establish a Planning Section in the divisions. This section will plan the method of supply to customers that will result in quality service at a reasonable cost and with minimum losses.

There is presently no coordinated uniform planning in the divisions and as a result there are many services that are too long, with conductors too small or other practices that result in low voltages, high losses, poor reliability, difficult maintenance and erratic application of standards.

The Planners will plan the service connections from the secondary network to the customers premises and additions to the primary network. The requests for service from Customer Assistance in the division office will be sent to the Planners who will plan the expansion or modification to the network, prepare estimates, specify materials and prepare work orders adhering to accepted standards. Requests for service in the sub-divisions will also be sent to the Planners except in cases where the service involves only a service drop or a minor extension in which case the Service Supervisor in the sub-divisions will process the request and do the work. The Planners will prepare monthly reports on transformer loads, service requests, connections and removals, feeder and grid station loadings, transformer failures and loss of service with the cause. In addition, records will be maintained on estimates, work orders, work order status, poles installed, poles removed, primary extensions and removals, secondary extensions and removals, transformers installed and removed, street light installations, removals and replacements. With the collaboration of the Maintenance Operating Section the Planner will monitor loads on the grid stations, lines and transformers and recommend changes that will result in minimizing losses.

The records of all Technical Sections will be filed with a Supervisor Technical Records. In addition, they will maintain plans and records of the electrical system and monitor capital and operating expenditures.

The Planning Section also include drafting services.

4.5 Service

The Service Section will make the installation of customer services; extensions and modifications to the primary and secondary lines and service drops; the disconnections and reconnections of customer services; meter installation, removal and testing. Work orders, issued by the Planning Section, specify the work to be done. Customer Accounts will provide disconnecting and reconnecting orders to support proper billing and in turn must be kept informed about the status of all such orders.

Metering instruments are electro-mechanical devices that require a specialist to ensure proper performance. The customers and WAPDA view the metering with great concern. It is therefore proposed that there be trained meter technician in each division who in addition to installing and removing the instruments will also test them. Field accuracy tests and preventive maintenance can be done by the meter electrician but major repairs, recalibration and acceptance testing must be done in a meter laboratory.

A technical Energy Surveillance Cell will be able to monitor this activity.

4.6 Maintenance and Operation

The Maintenance and Operations section will be charged with operating the Service Dispatch Center, 24 hours a day, 7 days a week keeping the lines and equipment in operating condition, restoring service when there are failures of facilities, and surveying the distribution system to determine where maintenance is necessary.

The Service Dispatch Center will receive and transmit information about work activity, system conditions, giving clearances through the Distribution Inspectors to ensure safe working areas and conditions and will arrange for maintenance and operating crews to restore customer service in the division. The Dispatch Center receives customer calls concerning service and the staff estimates the corrective action by assessing the available data. It is proposed that there be radio communications between the Dispatch Center and the vehicles of the maintenance and operation crews and the sub-division offices. A small truck with driver will transport 2 two-men crews to trouble locations along with ladders, tools and repair supplies.

The communications equipment will also be maintained by a technical assistant attached to the Center.

The Maintenance and Operations crews of the divisions and sub-divisions will be doing routine maintenance during normal working hours. When there is a need for service restoration work, the Service Dispatcher contacts the closest crew by radio and some or all of the crew will be directed to the trouble. At other than normal working hours skeleton complaint crews will be available with communication to additional staff that can be assembled quickly.

When there are a large number of complaints, other available maintenance and operations crews would be called in and when there are major failures, crews from other divisions that are not affected by the cause of the local outages, can be called upon.

With time the distribution system facilities deteriorate and this requires continuous evaluation if system events are to be controlled. Distribution Inspectors (trained as equipment operators to perform normal and emergency switching) will be in the division and sub-divisions reporting the current condition so that maintenance forces can be directed to potential trouble areas. They will also assist the service and maintenance crews in switching out and restoring line sections and equipment for performing the work. These inspectors provide safety insurance to work personnel as well as monitoring the security of the utility investment.

4.7 Sub-Divisions

The Sub-Divisions of the proposed organization will include Customer Services, Service Connections, Meters and Maintenance & Operation Sections headed by qualified supervisors.

With the new Customer Services Section and the enhanced supervisory staff and with functional help and guidance available from the divisions, the sub-divisions will be able to operate, maintain and expand the distribution system to meet the needs of customers.

However the administration, customer accounts, computer operations, major service and line extension and engineering planning will be performed at the divisional office for the sub-divisions.

4.8 Purchasing and Stores

Existing Stores System

The stores organization currently in use in WAPDA has Regional Stores, Field Stores and Remote Stores in each Area Electricity Board and this organization should remain in effect. The system ensures a reasonable allocation of centralized and decentralized materials.

- Regional Stores are located in each Area Electricity Board. Centrally purchased materials allocated to the area and decentralized materials purchased by the Regional Director Inventory Control are placed in these stores.

- Field Stores are located in some of the divisions and support the divisions and sub-divisions activities. These stores receive all their materials from the Regional Store.

- Remote Stores exist in some of the remote sub-divisions and support one or more sub-divisions receiving their material requirements from the Field Stores.

The Regional Director Inventory Control in each Area Electricity Board is responsible for:

- The forecast of maximum and minimum working stock levels for the Field Stores sufficient to allow restocking before the store's supply is exhausted.

- The control of all stores.

- The direct supervision of all stores personnel.

- The coordination of the area requirements for all decentralized materials and the purchase of those materials.

- The coordination of the area requirements for all centrally purchased materials and the expediting the delivery of those materials through the Lahore Office.

- The allocation of all centralized and decentralized materials from the Regional Store to the various Field Stores.

Proposed Stores System

- Field Stores will be reorganized so that there will be sufficient stocks of materials available to support the activities of the divisions they serve. The Field Stores Manager will advise the Division Managers of shortages of any stores materials.

- The Division Managers will communicate the material requirement for any special projects directly to the Regional Director Inventory Control. A copy of the requirement must be sent to the Field Store Manager.

- The Division Managers will present an annual materials forecast to the Regional Director Inventory Control. This forecast must be updated quarterly.

- The Regional Director Inventory Control will utilize the annual and quarterly forecast to purchase and/or expedite the delivery of the required materials.

- The division personnel requiring materials from the Field Stores will present an approved Materials Requisition before materials are issued.

- Consideration is being given to construct Field Stores in the Model Divisions. It is proposed that the new stores building/warehouse be located as close to or preferably at the same site as the proposed Customer Service Center.

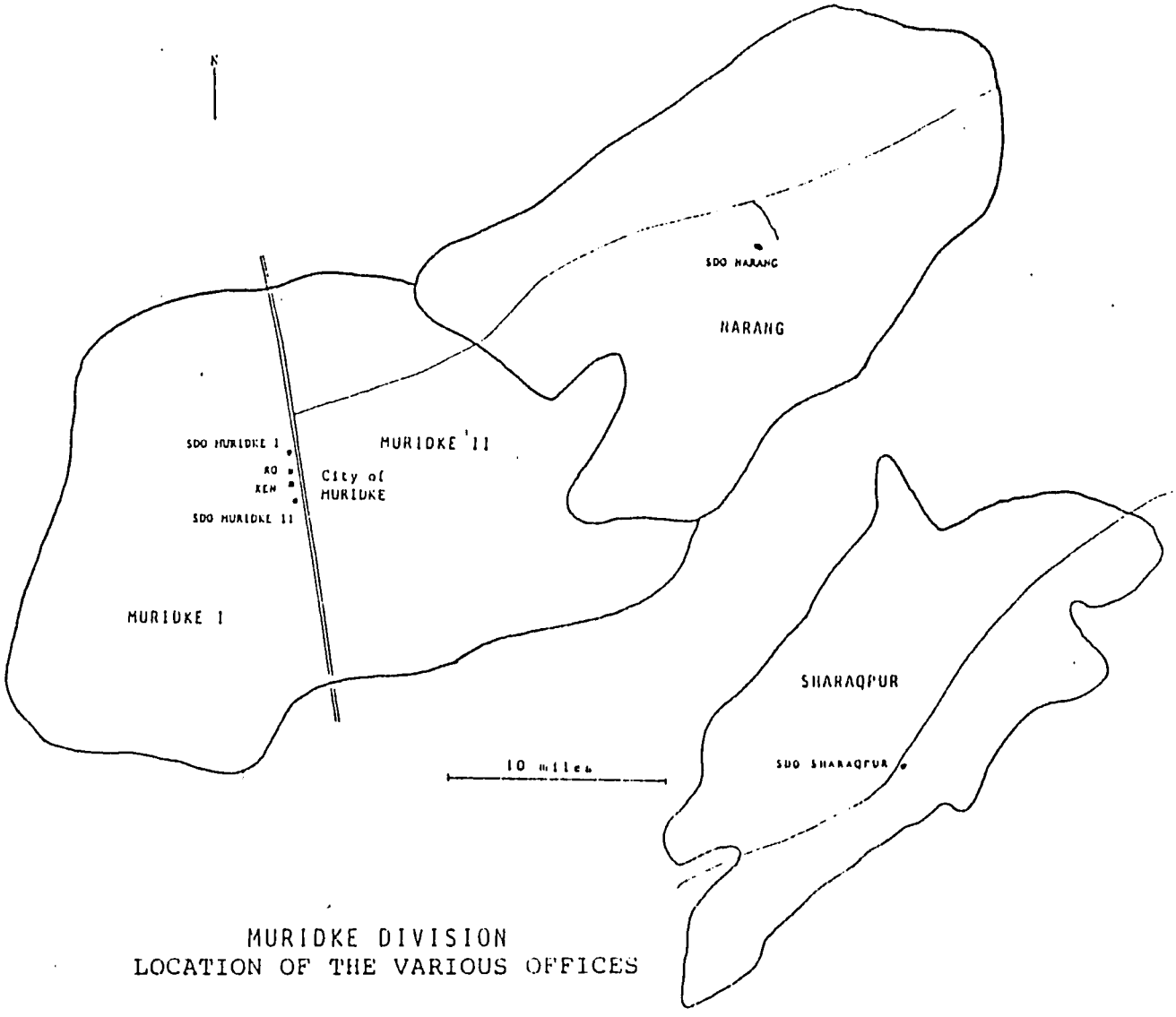
5.0 REORGANIZATION OF THE MURIDKE AND SHEIKHUPURA DIVISIONS

The two model divisions will require more vehicles than they presently have in order to take full advantage of the proposed communications equipment and the new organizational structure. The number of vehicles being recommended will result in a workable functioning division. Muridke has so few vehicles that more additional vehicles are needed in this division than in Sheikhupura even though Sheikhupura is a much larger division. More office space and furnishing will also be needed in each division.

5.1 Muridke

The Muridke Division consists of a divisional headquarters, a revenue office and four sub-divisions: Muridke I, Muridke II, Narang and Sharaqpur. The offices of Muridke I and II are within a few hundred meters of each other on the boundary between them in the city of Muridke, and the offices of Narang and Sharaqpur are near the center of the each sub-division in the respective cities.

There follows a map of the Muridke Division showing boundaries of the present sub-divisions and the location of the various offices:



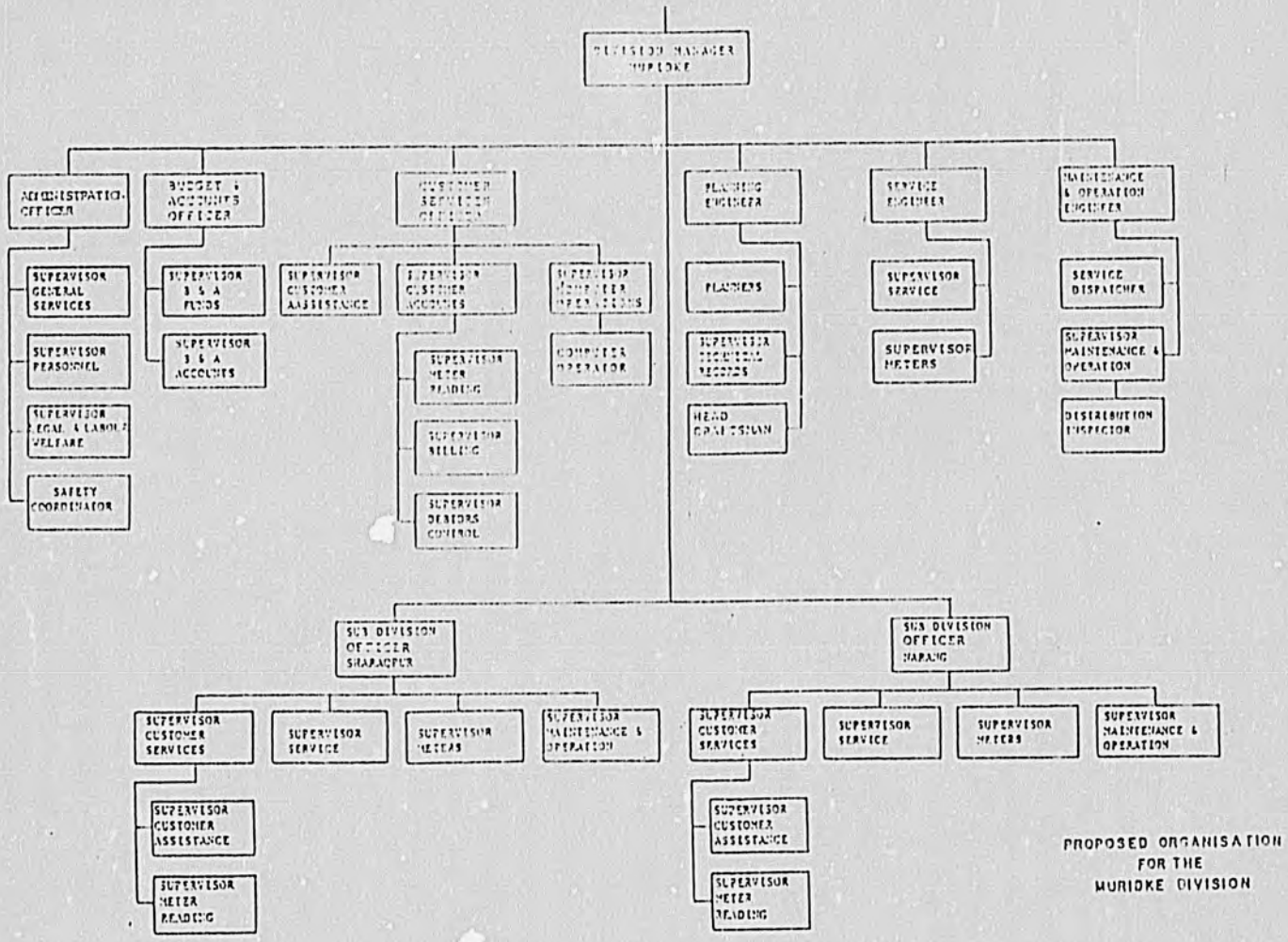
MURIDKE DIVISION
LOCATION OF THE VARIOUS OFFICES

In the reorganized division the present headquarters staff, revenue office personnel and all the personnel in Muridke I and Muridke II sub-divisions along with the personnel required for the new positions will be brought together to form the new divisional office organization in the city of Muridke. The proposed site for the new Customer Service Center in the proposed organization will be located in the vicinity of the present Muridke I and II offices thus the distances the customers will have to travel in the future

to contact the utility at the Customer Service Center will hardly be any different than at present.

The sub-divisions of Narang and Sharaqpur will retain their identities when they are reorganized and will continue to function from their present offices.

The chart below shows the revised organizational structure with the titles of the supervisor of BPS 12 and above:



PROPOSED ORGANISATION FOR THE MURIDKE DIVISION

The eleven pages of Exhibit I show the staff complement, vehicles, electronic equipment, furniture and accommodation requirements and the estimated capital and additional annual operating costs resulting from the reorganization of the division.

At the present time there are 477 employees in the Muridke division serving 36,000 customers. The current norm is to limit the number of customers to about 40,000. The complement for the division after reorganization will increase by 19 to 496. The reorganized division will be able to manage 60,000 or more customers with an increase of only 19 employees. The increase of nineteen is created by obtaining 70 employees from elsewhere in WAPDA while 51

employees will be made available for other assignments in the organization. This situation is due to the existing staff not having the required skills or because of the existing procedures in WAPDA. For example, a Supervisor Meter Reader BPS-7 is not permitted to be placed in a position of a driver of the same salary classification even if he is capable of driving. The surplus staff, however, will continue to be posted in the division until they are placed somewhere else in WAPDA.

The estimated capital costs for the reorganization of Muridke will be Rs.17,000,000 of which Rs.10,900,000 will be recommended for USAID financing. The annual costs of the increased and upgraded staff, the additional costs of owning, maintaining and operating the vehicles, communications, accommodations, and the other additional costs will total about Rs.2,870,000 per year.

The table below differs from the table in the Draft report of Sept 30, 1986 by including the construction of a Model Division Customer Service Center in Muridke and a Model Sub-division Service Center in Narang as recommended from comments given on the Draft report.

As noted the construction costs of these Model Service Centers will be recommended for USAID financing. The cost of land will be a WAPDA project and which already is under study.

Summary: Muridke

Capital Costs Rs.

	USAID*	WAPDA
Model Division Customer Service Center*	7,500,000	
Model Sub-division Service Center*	1,000,000	
Land		2,700,000
Vehicles		3,051,000
Computer*	150,000	
Mobile Radios*	868,000	
Radio Towers*	935,000	
Test Equipment*	476,000	
Furniture		334,000
Total	10,929,000	6,085,000

*Recommended for USAID financing: Rs. 10,929,000
WAPDA Cost : Rs. 6,085,000

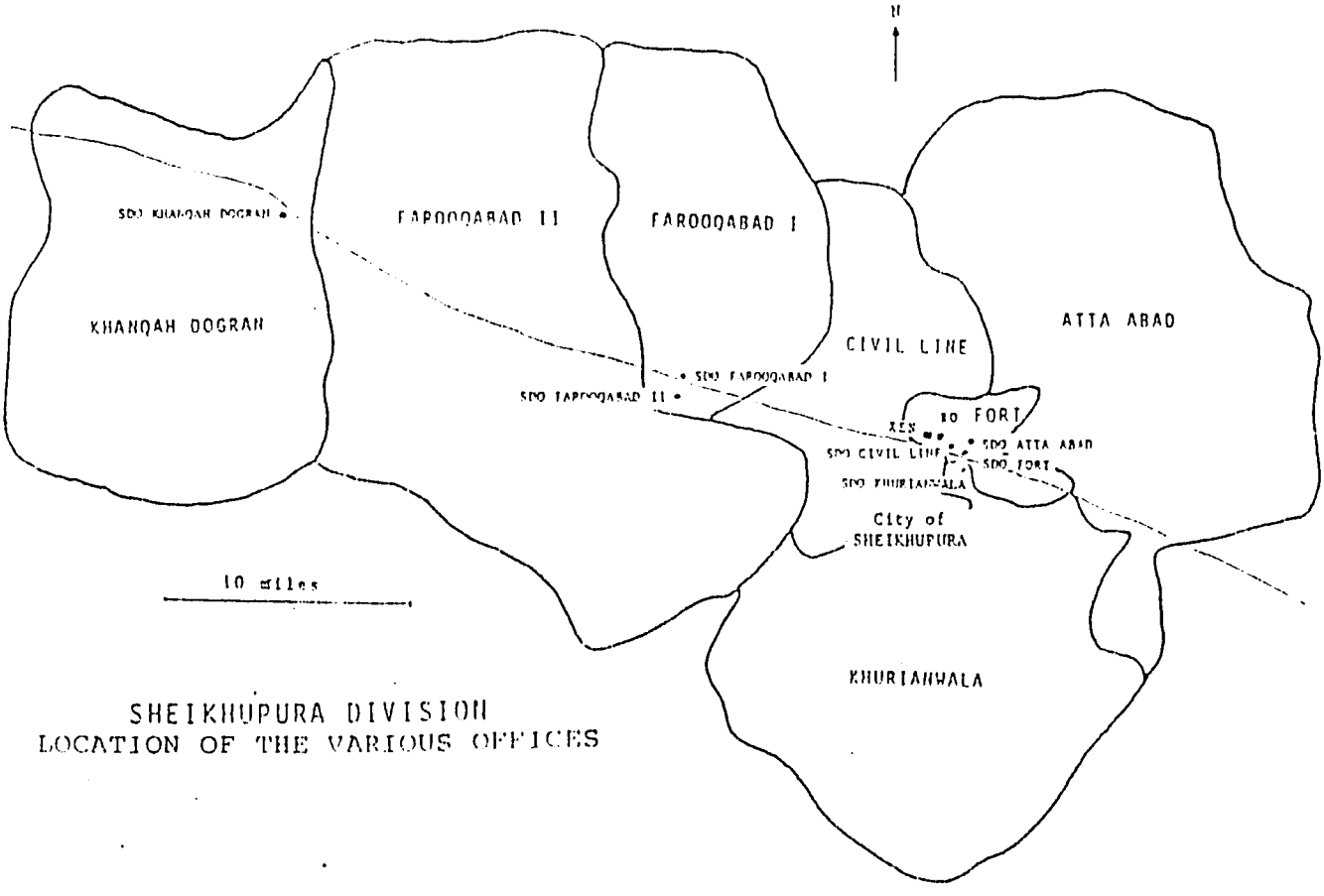
Additional Annual Operating Costs Rs.

Building depreciation	213,000	Building maintenance is equal to the cost of renting accommodations
Vehicles	991,000	
Electronic	148,000	
Staff	1,518,000	
Total	2,870,000	

5.2 Sheikhupura

The Sheikhupura Division now consists of a divisional headquarters, a revenue office and seven sub-divisions: Fort, Attabad, Khurianwala, Civil Line, Farooqabad I, Farooqabad II and Khanqa Dogran. The offices of the division headquarters, the revenue office, and the sub-divisions of Civil Line, Fort, Khurianwala and Attaabad are in the city of Sheikhupura and are located within a short distance of each other. Farooqabad I and Farooqabad II sub-division offices are both in the city of Farocqabad and that of Khanqa Dogran is in the city of Khanqa Dogran.

The map shows the location of these sub-divisions and the location of the various offices:



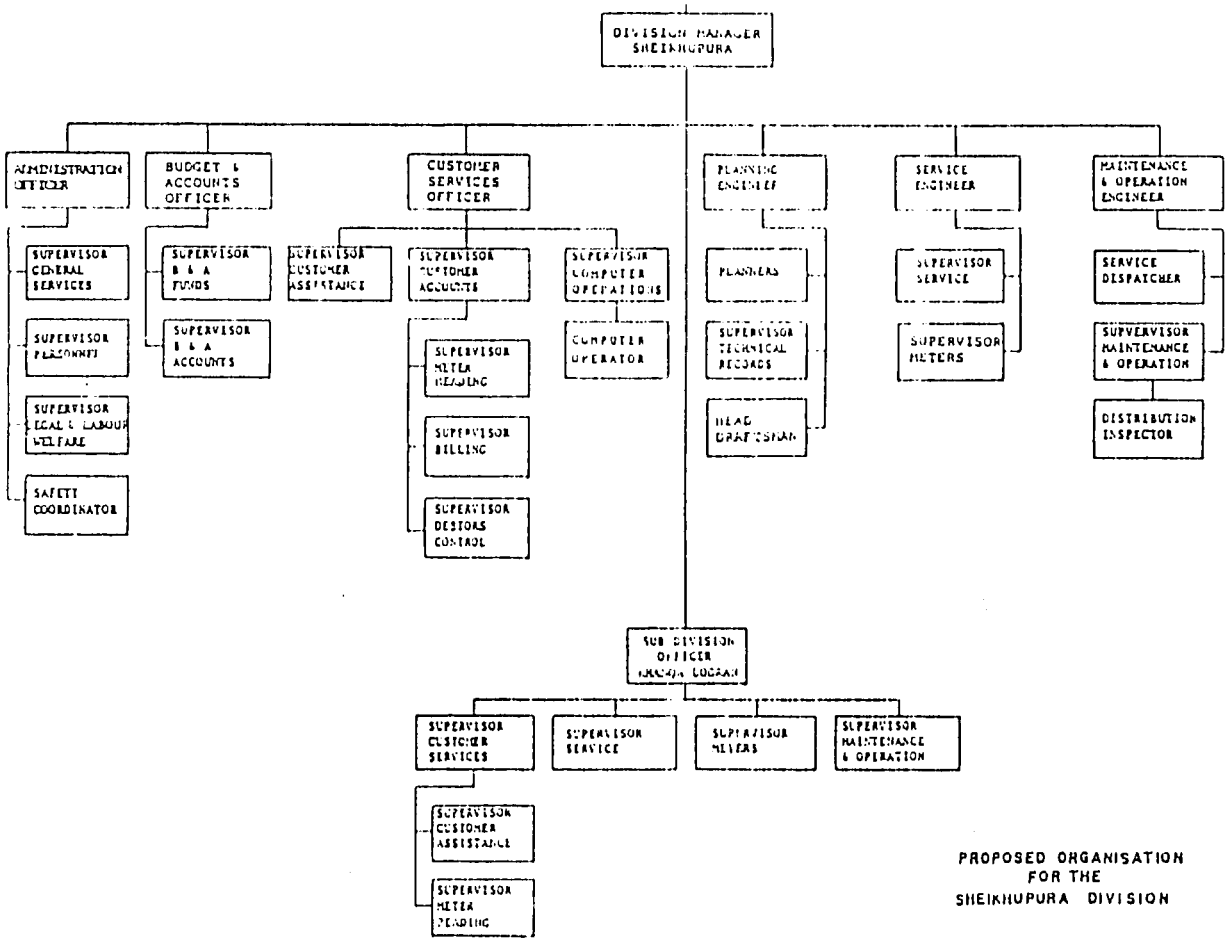
SHEIKHUPURA DIVISION
LOCATION OF THE VARIOUS OFFICES

In the reorganized division the present headquarters staff, the revenue office personnel, and the staff of the sub-divisions of Fort, Attaabad, Khurianwala, Civil Line and Farooqabad I along with the personnel required for the new positions will be brought together to form the new divisional office organization in Sheikhupura. The proposed site of the new Customer Service Center will be located in the vicinity of the existing sub-division offices in Sheikhupura thus the distances the customers will have to travel in the future to contact the utility at the Customer Service Center will hardly be different than at present. In the Farooqabad I sub-division, however, the customers will have choice

of contacting a Customer Service Office to be established in the city of Farooqabad or the Customer Service Center in Sheikhupura.

The sub-divisions of the Khanqa Dogran and Farooqabad II will be combined and become the only sub-division of the Sheikhupura Division. It will be known as Khanqa Dogran and the office will be in the city of Khanqa Dogran.

The chart below shows the revised organizational structure with the titles of the Supervisors of BPS-12 and above:



PROPOSED ORGANISATION FOR THE SHEIKHUPURA DIVISION

The eleven pages of Exhibit II show the staff complement, vehicles, electronic equipment, furniture and accommodation requirements and the estimated capital and additional annual operating costs of the reorganized division.

After the Sheikhupura division has been reorganized the proposed staff establishment will be 693 which is nineteen less than the 712 employees now in the division. There will, however, be 45 positions created for which employees from other locations in WAPDA will have to be recruited while 64 present employees of the division staff will be made available for other assignments in the WAPDA organization.

The estimated capital costs for the reorganization of the Sheikhupura Division will be Rs.15,000,000 of which about Rs.11,000,000 will be recommended for USAID financing. The annual costs of the increased and upgraded staff, the additional costs of owing, maintaining and operating the vehicles, communications, accommodations, and other additional costs that will result from the reorganization total about Rs.1,900,000 per year.

The table below differs from the table in the Draft report of Sept 30, 1986 by including the construction of a Model Division Customer Service Center in Sheikhupura and a Model Sub-division Service Center in Khanqa Dogran as recommended from comments given on the Draft report.

As noted the construction costs of these Model Service Centers will be recommended for USAID financing. The cost of land will be a WAPDA project and which already is under study.

Summary: Sheikhupura

Capital Costs Rs.

	USAID*	WAPDA
Model Division Customer Service Center*	7,500,000	
Model Sub-division Service Center*	1,000,000	
Land		2,700,000
Vehicles		961,000
Computer*	150,000	
Mobile Radios*	1,042,000	
Radio Towers*	804,000	
Test Equipment*	476,000	
Furniture		334,000
Total	10,929,000	4,061,000

*Recommended for USAID financing: Rs. 10,927,000
WAPDA Cost : Rs. 4,061,000

Additional Annual Operating Costs Rs.

Building depreciation	213,000	Building maintenance is equal to the cost of renting accommodations
Vehicles	510,000	
Electronic	168,000	
Staff	1,023,000	
Total	1,914,000	

With the management structure of the new organization and with upgraded equipment the division will be capable of serving more than 60,000 customers.

4.0 IMPORTANT LETTERS, MEMORANDA, ORDERS AND PRESENTATIONS RELATING TO INSTITUTIONAL IMPROVEMENTS

REQUEST FOR APPROVAL OF REORGANIZATION OF POWER DISTRIBUTION

On September 30, 1986, Member Power submitted a request to the Secretary to the Government of Pakistan, Ministry of Water and Power for approval of the proposed Institutional Improvement Plan for reorganization of the Power Distribution organization. A copy of the Member Power's letter along with a working paper of Institutional Improvement Plan is attached.

APPROVAL OF IMPROVEMENT OF DISTRIBUTION DEPARTMENT OF WAPDA BY THE GOVERNMENT OF PAKISTAN.

The meeting of the Standing Committee on the improvement of Distribution Department of WAPDA was held on January 12, 1987 under the Chairmanship of Deputy Chairman, Planning Commission and it was decided that a separate organization for Distribution at the Headquarters level be created with Deputy Managing Director Distribution redesignated as Managing Director Distribution. It was further decided to approve a number of BPS 20 posts. The office memorandum dated January 15, 1987 from the Planning and Development Division is attached.

An addendum to the minutes of the meeting held on January 12, 1987 in the Planning and Development Division was issued by the Planning Division on January 25, 1987. The addendum specified the manner in which the approved posts are to be filled up. The office memorandum dated January 25, 1987 is attached.

Vide his letter dated January 22, 1987 (copy attached) the Member Power brought to the notice of the Planning Division that instead of the post of Chief Engineer Headquarters the post of Director in BPS 19 was approved. Further, the post of Chief Engineer Construction, Maintenance and Operation was approved but was not to be placed under General Manager Operations. In his letter the Member requested the Planning and Develdopment Division to issue a correction. The required correction is still awaited.

On may 18, 1987 WAPDA issued an office order covering the creation of new posts, upgrading and redesignation of existing posts and abolishing of the post of Chief Engineer Headquarters Distribution. Copy of the office order is attached.

Appointment of persons to the different position is under implementation.

Phones : 211010
69911/221
Grams : WAPDA

PAKISTAN
WATER AND POWER DEVELOPMENT AUTHORITY

WAPDA HOUSE, LAHORE

Member Power

Ref. MP/PS/2400-B
Dated 30th September, 1986.

4.1 The Secretary to the Government of Pakistan,
Ministry of Water and Power,
ISLAMABAD.

SUBJECT: INSTITUTIONAL IMPROVEMENT - REORGANIZATION OF POWER DISTRIBUTION.

As fore-most utility in the country, Power Wing of WAPDA has experienced a phenomenal growth in the previous few years. The distribution Organization in particular has undergone a tremendous change in the last seven years. This is evident from the fact that the number of consumers has doubled since 1979 and at present the number stands at a little under 5.00 million. It is estimated that the number of consumers will further increase to around 12 million by the year 1993 alongwith the increase in generation capacity and further expansion of transmission net-work. The problem of coping with the future increase in demand for power will be further compounded with the enormous effort required to meet the target of 90% village electrification by 1990 as per the directive of the Prime Minister.

2. The present position is that distribution Departmen is organizationally inadequate at the Headquarters level. It cannot even meet the present work load. The strain introduced by the continuous expanding system is affecting the level of efficiency at various echelons. There is a certain lack of operational responsiveness to the ever increasing staff work. This situation can partially be attributed to chronic inadequacy of funds required for reinforcement and improvement of the entire distribution system. The inherent organizational deficiency were not initially discernible due to the manageable work load. The rapid expansion in the system however, has accentuated the inadequancy in the organization resulting in delays in the execution of rehabilitation programmes unacceptable high losses and increase in the volume of corruption.

3. In the past all the adjustment/marginal increase in staff to meet the demand of ever-expanding system were met on adhoc basis. This course of action has not solved the problem. The fact remains that the present organization structure at the headquarter level does not possess the requisite articulation/flexibility to meet with the rapid expansion of the system in future. The present organization suffers from shortage of training staff, poor coordination among functinal units/inadequate communication and almost total absence of management service.

4. With a view to affecting institutional improvements in Power distribution, an in-depth study has been carried out by WAPDA in conjunction with PTAF-US Aid Consultants.The study focusses mainly on examining the adequacy and efficacy of the present organization structure of distribution viz-a-viz its future enlarged activity. It has been determined that distribution department would have to perform as a self contained entity. All functions of distribution would be consolidated in a single distribution unit under direct control of its head as opposed to the existing fractured arrangement,where support functions report to other organizations within WAPDA. The proposed strategy is to create a team of top functionaries in the headquarters. These staff managers would analyse the different functions, lay down procedures and system and develop practical achievable standards and keep them under constant scrutiny so that changes are made commensurate with the growth and other peculiarity of the system. They will also be in a position to provide the management with productive information and not merely the stereo-typed data.

5. As a first step towards bringing about institutional improvement in the distribution department there is a need to establish a headquarter organization as under :

a.	Deptuty Managing Director	Existing
b.	General Manager(Admn) Dist.	To be created
	Two D.Gs grade-20	1 existing 1.to be created
c.	General Manager,Management Services	One existing. To be made GM
	Manager Computer System)	
	D.G.Computer Operation)	Two to be created
d.	G.M.Finance (D)	Redesignation to be done.
e.	G.M. Customer Services	One existing.
	D.G. Energy Management)	
	D.G. Commercial)	Two to be created.

f. G.M. Operation : Already existing to be redesignated.

g. G.M. Planning, Engg. & Standard. : To be created.

C.E. Distribution, Engg)
C.E. Construction, Maintenance & Operation Standard.) Existing to be redesignated.

h. Chief of Training : Already existing.

6. As would be seen from the above, the proposal envisages creation of eight new Grade-20 appointments. The creation of these additional appointments is in consonance with the primary objective to consolidate all requisite functions into a self-contained system and the above incumbents would control and guide the resources (human, financial etc.) required to develop and implement their plans in the context of enlarged activities in the future.

7. The anticipated additional expenditure for the reorganization at the Headquarters level has been worked out and the summary of the same is tabulated below:

YEAR	1986-87	1987-88	1988-89	1989-90	TOTAL
Expenditure (Rs. 000)	6622	5536	6930	2336	21424

Average increase/annum ..... = 5356
(Rs.000)

SAY ..... = 5.3 Millions.

8. It would be seen from above that the additional expenditure is of a nominal amount and can be absorbed conveniently in the annual increase of about 15% of the expenditure on establishment allowed under Self Financing by the Government of Pakistan.

9. In view of the position explained above the Ministry is requested to approve the proposed Organization at the Headquarter's level appended in para-5 above and creation of eight additional posts of General Managers and Chief Engineers/ Director General as under (already included in the proposed

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establishment):-

a. G.M. Administration (Distribution).
b. G.M. Planning (Distb) and Engineering.
c. G.M. Customer Services (Distribution).
d. Director General, General Services (Distb.)
e. Director General Energy Management.
f. Chief Engineer, Distribution Planning.
g. Manager Computer System.
h. Director General, Computer Services.

10. A working paper giving details of the proposed incumbents is attached as Annexure 'A'. Copy of the PTAT report on the subject is also attached for reference.

11. In the above context reference may also kindly be made to para 4 of US AID letter of August 13, 1986, addressed to you, wherein Mr. Stapples has requested for an early meeting with GOP and WAPDA to review all activities of the Power Distribution Programme.

for WATER & POWER DEV. AUTHORITY

M. Ayub Sadozai
(M. AYUB SADOZAI)
MEMBER (POWER).

Encl:
As above.

POWER WING (DISTRIBUTION)
WORKING PAPER ON
INSTITUTIONAL IMPROVEMENT PROGRAMME

M/s. PTAT have developed an institutional improvement programme in consultation with WAPDA Functionaries for commencement of implementation with effect from the current financial year. Preliminary discussion with the Authority took place early last year and the revised draft was submitted in May, 1986.

2. The recommendations pertain to 'Interim Consolidated Distribution Organization' ith brief description of responsibilities of various functional heads. These were examined by the Authority in detail and somewhat modified according to the present needs. Authority's views are given in succeeding paragraphs:-

DEPUTY MANAGING DIRECTOR (DISTRIBUTION)

The post of Deputy Managing Director (Distribution) already exists and he exercises the powers of a Managing Director. He functions as Chief Operating Officer of the Distribution Organization and Distribution Operations. He is assisted by 8 functional heads to provide adequate coverage of all administrative and technical support functions including Training, General Administration, Finance, Customer Services, Management Services, Operations, Planning and Engineering and Purchasing and Inventory Control.

It is proposed to re-designate this post as Managing Director (Distribution) so as to enable him to exercise his powers effectively and without any inhibition.

TRAINING

Against the recommended post of Chief of Training, the post of Chief Engineer (Training) already exists. He will be attached with the Managing Director (Distribution He is primarily responsible for implementing the training programme for Distribution according to established policy, procedures and operational manuals. He makes the annual projections for training and formulates on overall plan to meet the training needs of Distribution personnel of all categories and levels. He co-ordinates and directs other domestic as well as foreign training programmes. His role in the Career Management of Distribution personnel is of great importance.

ADMINISTRATION

In the proposal, a General Manager (Admn) has been recommended through the upgradation of the existing post of Chief Engineer (Admn) Power, which is presently under - Member (Power). The General Manager (Admn) Distribution will be responsible for the overall supervision of the functioning of the Personnel and General Services Departments headed by Director General in BPS-20. These two departments will establish and maintain departmental policies, procedures and practices for implementation throughout Distribution and willprovide functional (staff) guidance to Personnel and General Services functions within Area Electricity Boards.

Out of the recommended 3 posts in BPS-20 one post already exists and two posts are to be created.

MANAGEMENT SERVICES

In the proposal 3 posts in BPS-20 have been recommended. The General Manager, Management Services against the existing post of Director General, WAPDA Computer Cell is responsible for the evaluation, planning, development, operation and maintenance of all computer equipment used throughout WAPDA. He is also responsible for evaluation, acquisition, installation, operation and maintenance of special purposes computer equipment or programmes. For the discharge of the responsibilities it has been proposed that he should be assisted by Manager Computer System and Director General, Computer Operations (both in BPS-20) as against the existing posts of Chief System Analyst and System Manager in BPS-19.

One post in BPS-20 already exists and two posts are to be created.

FINANCE

In the proposal, a General Manager Finance has bee recommended as against the existing post of General Manage Finance (Power) with Managing Director (Power). His responsibilities would be to act as Financial Adviser on all accounting, budgeting and financial matters of Distributio He will be responsible for developing and implementing the policies for management of cash, funds, custody of assets. He will also be responsible to formulate and administer the personnel policies in finance and ensure proper delegation of administrative and financial powers to WAPDA Officers/Officials and their judicial exercise at all level

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The General Manager Finance (Distribution) would be assisted by Deputy General Manager (Field) and Deputy Genera Manager (Co-ordination) (Both in BPS-20) which in the present set up already exist as Manager Finance (Distributio and Deputy General Manager Finance (Power). As such no new post of BPS-20 is required to be created. Only re-designation is involved.

CUSTOMER SERVICES.

A General Manager, Customer Services assisted by Director General, Energy Management and Director General Commercial (all the three in BPS-20) have been recommended for developing and administering the policies, procedures and practices of WAPDA Customer Services function dealing with the customer relations, customer contact, customer energy conservation and load management. He will also recommend changes in policies, procedures, practices and programmes that affect all classes of customers

He will, however, work directly under Managing Director (Distribution). One post in BPS-20 already exists and requires re-designation while two posts in BPS-20 are to be created.

OPERATIONS

In the proposal, the existing post of General Manager (Distribution) is to be re-named as General Manager Operations, and he will be assisted by Chief Engineer, Headquarter. He will be responsible for efficient operation and management of the Area Electricity Boards. He will recommend the policies and procedures and budgets for efficient functioning of Area Electricity Boards and would

assist Managing Director (Distribution) to ensure the close co-ordination of the Headquarters functional staff and the Area Electricity Boards operating staff. No new post in BPS-20 is to be created.

PLANNING AND ENGINEERING

In the proposal, following four posts in BPS-20 have been recommended for the Planning and Engineering function:-

a. General Manager, Planning, Engineering & Standards.

b. Chief Engineer, Distribution, Planning

c. Chief Engineer, Distribution, Engineering

d. Chief Engineer, Construction, Maintenance and Operations Standards.

General Manager, Planning, Engineering & Standards has the overall responsibilities for technical service support of all aspects of the Distribution System. His functions include co-ordinating financial and technical activities for distribution planning, engineering, design, construction, operation and maintenance and safety requirements in the areas of work.

The above indicated posts of Chief Engineers would assist the General Manager in carrying out the assigned responsibilities which through lack of attention have suffered a great deal. We already have a Chief Engineer (Design) and the Authority endorses the proposal of Consultants that a post of General Manager and a post of Chief Engineer, Distribution Planning be created. The existing post of Chief Engineer, Distribution Design would be re-named as Chief Engineer, Distribution Engineering. The post of Chief Engineer (REO) which is presently under General Manager

(Distribution) will be transferred to this set up and re-designated as Chief Engineer, Construction, Maintenance and Operation Standards.

PURCHASES AND INVENTORY CONTROL.

In the proposal, following positions in BPS-20 have been recommended for this function:-

a. General Manager, Purchasing & Inventory Control
b. Deputy General Manager (Stores Surveillance)
c. Chief Engineer (Inspection)
d. Deputy General Manager (Purchasing)
e. Deputy General Manager (Planning & Control)

The General Manager (Purchasing and Inventory Control) is responsible for the development and administration of purchasing and stores policies, procedures and systems; including material purchasing, store room operation, material planning and control, material cataloging, disposal of excess/obsolete/scrap materials and materials inspection.

There is no material change in the proposal from the one that already exists. It involved re-grouping, in that, the post of Deputy General Manager (Inventory Control) which is at present under General Manager (Dist.) will be transferred to General Manager (Inventory Control) and will be re-designated as Deputy General Manager (Purchasing). Others posts will be re-designated as per recommendations of Consultants.

Contd...P/7

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RECOMMENDATIONS

Following eight posts are recommended for creation in the above described set up:-

1. General Manager, Administration
2. Director General, General Services
3. General Manager, Customer Services
4. Director General, Energy Management
5. General Manager, Planning & Engineering
6. Chief Engineer, Distribution Planning
7. Manager Computer System
8. Director General, Computer Services.

ANNEXURES

Annex: - A Existing Organization of Distribution

Annex: - B Interim Consolidated Distribution Organization

Annex: - C Position Description of Appointments in BPS-20.

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Member (Power)
No.
Date
WAPDA

GOVERNMENT OF PAKISTAN
PLANNING AND DEVELOPMENT DIVISION
(FOREIGN LOANS AND ECONOMIC POLICY SECTION)

No.1(6)FLSEP/PD/86 Islamabad, Jan. 15, 1987

Member (Power)
Dy. No. 164-13
Date 22-1-87
WAPDA

4.2 **OFFICE MEMORANDUM**

Subject: **INPROVEMENT OF DISTRIBUTION DEPARTMENT OF WAPDA**

The undersigned is directed to say that the second meeting of the Standing Committe on the above subject was held at 4.00 p.m. on Monday dated 12th Jan. 1987 in the Committee Room of the Planning and Development Division. Deputy Chairman, Planning Commission, was in the Chair. Minutes of the meeting are herewith forwarded for information.

(Masood H. Kizilbash)
Chief

To

1. Mr. H.U. Beg,
Secretary,
Ministry of Finance,
Islamabad.

2. Mr. A. Wahab A. Shaikh,
Secretary,
Ministry of Water and Power,
Islamabad.

3. Mr. M. Akram Khan,
Additional Secretary (Power)
Ministry of Water and Power,
Islamabad.

4. Mr. M. Ayub Sadozai
Member (Power) WAPDA,
WAPDA House,
Lahore.

5. Mr. RiyazulHaq,
Joint Secretary,
Economic Affairs Division,
Islamabad.

6. Mr. Sadaqat Hasan Mir,
Senior Chief, Energy Appraisal Section,
Planning & Development Division,
Islamabad.

7. Mr. Ashfaq Mahmood,
Chief,
Energy Appraisal Section,
Planning and Development Division,
Islamabad.

Please show it to the Chairman.
to MCP
MCP
Chairman
for information.
Authority's approach to reorganization has been endorsed by GOP.
Ayub 22/1/87
Chairman
G.M. Arbab

Decision

Taking into consideration the observations of Member (Finance) WAPDA, it was decided that a separate organisation for Distribution at the Headquarter's level be created with DMD (Distribution) redesignated as M.D. (Distribution). It was further decided toapprove the following BPS 20 posts:

Personnel	Remarks
) Chief of Training	
) (i) General Manager (Admn.) (ii) Director General (Personnel).	The proposed post of Director general (Services) was not approved. Instead the post of Director(Services) in BPS 19 was approved.
) (i) General Manager (Management Services) (ii) Manager (Computer System) (iii) Director General (Computer Operation)	
) (i) General Manager (Finance) (ii) Dy. General Manager Finance, Field Operation. (iii) Dy. General Manager Finance, Coordination.	
) (i) General Manager, Customer Services. (ii) Director General (Energy Management) (iii) Director General (Commercial) (iv) General Manager (Operation)	The proposed post of Chief Engineer, Headquarters was not approved.
) (i) General Manager (Planning, Engineering and Standards) (ii) Chief Engineer (Distribution Planning) (iii) Chief Engineer (Engineering).	The proposed post of Chief Engineer (Construction, Operation and Maintenance was not approved). Instead the post of Director in BPS 19 was approved.
) (i) General Manager (Purchasing and Inventory Control) (ii) Dy. General Manager (Stores Surveillance) (iii) Chief Engineer (Inspection) (iv) Dy. General Manager (Purchasing) (v) Dy. General Manager (Planning and Control).	

LIST OF PARTICIPANTS

1. Mr. H.U. Beg,
   Secretary,
   Ministry of Finance,
   Islamabad

2. Mr. A. Wahab A. Shaikh,
   Secretary,
   Ministry of Water and Power,
   Islamabad.

3. Mr. M. Akram Khan,
   Additional Secretary (Power)
   Ministry of Water and Power,
   Islamabad.

4. Mr. M. Ayub Sadozai
   Member (Power) WAPDA,
   WAPDA House,
   Lahore.

5. Mr. Riyazul Haq,
   Joint Secretary,
   Economic Affairs Division,
   Islamabad.

6. Mr. Sadaqat Hasan Mir,
   Senior Chief, Energy Appraisal Section,
   Planning & Development Division,
   Islamabad.

7. Mr. Ashfaq Mahmood, Chief,
   Energy Appraisal Section,
   Planning & Development Division,
   Islamabad.

8. Mr. Masood H. Kizilbash,
   Chief,
   Foreign Loans & Economic Policy Section,
   Planning and Development Division,
   Islamabad.

GOVERNMENT OF PAKISTAN
PLANNING AND DEVELOPMENT DIVISION
(FOREIGN LOANS AND ECONOMIC POLICY SECTION)

No.1(6)FL&EP/PD/86 Islamabad, Jan. 25, 1987

Member (Power)
Dy. No. 214-8
Date 2-2-87
WAPDA

4.3 OFFICE MEMORANDUM

Subject: INSTITUTIONAL IMPROVEMENT - RE-ORGANISATION OF POWER DISTRIBUTION WAPDA.

In continuation of this Division's Office Memorandum of even number dated the 15th Jan.1987, on the above subject, the undersigned is directed to forward an addendum to the minutes of the meeting held on 12th Jan. 1987, in the Committee Room of the Planning and Development Division.

(Masood H. Kizilbash)
Chief

Encl: As above.

To

1 Mr. M.U. Beg,
Secretary,
Ministry of Finance,
Islamabad.

2. Mr. A. Wahab A. Shaikh,
Secretary,
Ministry of Water and Power,
Islamabad.

3. Mr. M. Akram Khan,
Additional Secretary (Power)
Ministry of Water and Power,
Islamabad.

4. Mr. M. Ayub Sadozai,
Member (Power) WAPDA,
WAPDA House,
Lahore.

5. Mr. Riyazul Haq,
Joint Secretary,
Economic Affairs Division,
Islamabad.

6. Mr. Sadaqat Hasan Mir,
Senior Chief, Energy Appraisal Section,
Planning and Development Division,
Islamabad.

7. Mr. Ashfaq Mahmood,
Chief,
Energy appraisal Section,
Planning and Development Division,
Islamabad

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ADDENDUM TO THE MINUTES OF THE SECOND MEETING OF THE STANDING COMMITTEE.

ADDENDUM

The posts approved for a separate organisation for distribution at the Headquarter's level will be filled up inthe the following manner:-

a)	Chief of Training	Existing
b) i)	General Manager(Administration)	New
ii)	Director General Personnel)	CE(Administration) Power to be redesignated.
c) i)	General Manager Management Services	New
ii)	Manager Computer System	New
iii)	Director General Computer Operation	Existing
d) i)	General Manager Finance	Existing to be redesignated.
ii)	Deputy General Manager Finance Field Operations.	-do-
iii)	Deputy General Manager Finance Coordination	Existing
e) vi)	General Manager Customer Services	Existing to be redesignated.
ii)	Director General Energy Management	New
iii)	Director General Commercial	New
iv)	General Manager Operation	Existing to be redesignated
f) vi)	General Manager(Planning, Engineering and Standards)	CE(REO) to be redesignated.
ii)	Chief Engineer(Distribution Planning)	New
iii)	Chief Engineer(Distribution Engineering)	Existing - to be redesignated
g) i)	General Manager,(Purchasing and Inventory Control)	Existing - to be redesignated.
ii)	Deputy General Manager(Stores Surveillance)	-do-
iii)	Chief Engineer(Inspection)	-do-
iv)	Deputy General Manager(Purchasing)	-do-
v)	Deputy General Manager (Planning and Control)	New

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Phones : 211910
69911/221
Grams : WAPDA

PAKISTAN
WATER AND POWER DEVELOPMENT AUTHORITY

WAPDA HOUSE, LAHORE

Member Power

Ref. MP/PS/ 806
Dated 22 January 1987
25.

4.4 Mr. Masood H. Kizilbash,
Chief, Planning & Development Division,
Government of Pakistan,
(Foreign Loans & Economic Policy Section),
Islamabad.

Ref: Planning & Development Division's Memo. No.1(6)FL&EP/PD/86 dated January 15, 1987.

My Dear Kizilbash

I have the honour to bring to your notice that:

1. The post of Chief Engineer, Headquarters was not approved. Instead the post of Director in BS-19 was approved.
2. The post of Chief Engineer (Construction, Maintenance & Operation) was approved but this post was to be placed under G.M.(Operation).

I will be very grateful if you will issue this correction.

With best wishes,

Yours Sincerely,

(M. AYUB SADOZAI).

N.o.o

cc: Mr. W. Ruotolo, General Manager, EBASCO, Lahore, alongwith copy of the decisions communicated by GOP under memo referred to above.

Decision

Taking into consideration the observations of Member (Finance) WAPDA, it was decided that a separate organisation for Distribution at the Headquarter's level be created with DMD (Distribution) redesignated as M.D. (Distribution). It was further decided toapprove the following BPS 20 posts:

		Personnel	Remarks
a)		Chief of Training	
b)	(i)	General Manager (Admn.)	The proposed post of Director general (Services) was not approved. Instead the post of Director(Services) in BPS 19 was approved.
	(ii)	Director General (Personnel).	
c)	(i)	General Manager (Management Services)	
	(ii)	Manager (Computer System)	
	(iii)	Director General (Computer Operation)	
d).	(i)	General Manager (Finance)	
	(ii)	Dy. General Manager Finance, Field Operation.	
	(iii)	Dy. General Manager Finance, Coordination.	
e)	(i)	General Manager,Customer Services.	The proposed post of Chief Engineer, Headquarters was not approved.
	(ii)	Director General (Energy Management)	
	(iii)	Director General (Commercial)	
	(iv)	General Manager (Operation)	
f)	(i)	General Manager (Planning, Engineering and Standards)	The proposed post of Chief Engineer (Construction, Operation and Maintenance was not approved). Instead the post of Director in BPS 19 was approved.
	(ii)	Chief Engineer (Distribution Planning)	
	(iii)	Chief Engineer (Engineering).	
g)	(i)	General Manager (Purchasing and Inventory Control)	
	(ii)	Dy. General Manager (Stores Surveillance)	
	(iii)	Chief Engineer (Inspection)	
	(iv)	Dy. General Manager (Purchasing)	
	(v)	Dy. General Manager (Planning and Control).	

LIST OF PARTICIPANTS

1. Mr. H.U. Beg,
   Secretary,
   Ministry of Finance,
   Islamabad

2. Mr. A. Wahab A. Shaikh,
   Secretary,
   Ministry of Water and Power,
   Islamabad.

3. Mr. M. Akram Khan,
   Additional Secretary (Power)
   Ministry of Water and Power,
   Islamabad.

4. Mr. M. Ayub Sadozai
   Member (Power) WAPDA,
   WAPDA House,
   Lahore.

5. Mr. Riyazul Haq,
   Joint Secretary,
   Economic Affairs Division,
   Islamabad.

6. Mr. Sadaqat Hasan Mir,
   Senior Chief, Energy Appraisal Section,
   Planning & Development Division,
   Islamabad.

7. Mr. Ashfaq Mahmood, Chief,
   Energy Appraisal Section,
   Planning & Development Division,
   Islamabad.

8. Mr. Masood H. Kizilbash,
   Chief,
   Foreign Loans & Economic Policy Section,
   Planning and Development Division,
   Islamabad.

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PAKISTAN WATER AND POWER DEVELOPMENT AUTHORITY

Telephone : 69911/-10
Telegrams : WAPDA LAHORE

301-Wapda House,
Lahore.

No. DG /AD(E-IA)07001/15/32963-33117 Dated: 18-5-1987

4.5 OFFICE ORDER

As a result of re-organization of Distribution at Headquarter's level, of Power Wing, Authority is pleased to:-

a) create the following posts:-

1. General Manager(Admn) Distribution.
2. General Manager(Management Services).
3. Manager (Computer System).
4. Director General(Energy Management).
5. Director General(Commercial).
6. Chief Engineer(Distribution) Planning.
7. Deputy General Manager(Material, Planning & Control).

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b) up-grade and re-designate the following posts:-

1. Deputy Managing Director(Distribution) as Managing Director(Distribution).
2. Chief Commercial Manager as General Manager(Customer Services).
3. Chief Engineer(REO) as General Manager (Planning, Engineering & Standard).

c) abolish the post of Chief Engineer(HQ) Distribution;

d) re-designate the existing posts as given below:-

Existing Post	Redesignated as
1. General Manager(Distb.)	General Manager(Operation)
2. General Manager(I.C)	General Manager(Purchasing & Inventory Control)
3. General Manager(Finance) Power	General Manager (Finance)
4. Deputy General Manager Finance(Distribution)	Deputy General Manager Finance (Field Operation)
5. Deputy General Manager Finance(Power)	Deputy General Manager Finance (Coordination) Head Quarter
6. Deputy General Manager (I.C) Distribution	Deputy General Manager (Purchasing)
7. Deputy General Manager (Disposal)	Deputy General Manager (Store Surveillance)

contd...

8. Chief Engineer(Training)	Chief of Training
9. Chief Engineer(Admn)Power	Director General(Personnel)
10. Chief Engineer(Design) Distribution	Chief Engineer(Distribution Engineering)
11. Chief Engineer(Material Inspection)	Chief Engineer(Inspection).

2. Consequently, the revised set up of Distribution side will be as per Annexure.

3. Job Descriptions of the posts will be notified separately.

4. Pending other arrangement to be made, Director General (Personnel) and General Manager(Finance) will continue to perform their existing function, in addition to their assignments on Distribution side.

(MUHAMMAD MAQBOOL)
DIRECTOR GENERAL(S&GA)

CC:-

1. Secretary, Government of Pakistan, Ministry of Water & Power, Islamabad, w.r.t. Planning & Development Division(Foreign Loans and Economic Policy Section)'s O.MNo.1(6)FL&EP/PD/86 dated 15.1.1987 and 25.1.1987.
2. Secretary, Government of Pakistan, Planning & Development Division, (Foreign Loans & Economic Policy Section), Islamabad, with reference to his aforesaid letter.
3. Secretary, WAPDA.
4. All General Managers, WAPDA.
5. All C.Es/D.G.Ms/D.Gs/Heads of Divisions.
6. Director General, WAPDA Audit, Lahore.
7. Chief Commercial Manager.
8. Chief Auditor, WAPDA.
9. Director General, WAPDA Computer Centre.
10. Director General, Public Relations.
11. Director(Estates & Services),
12. P.As to Chairman/Members/G.M(Admn).
13. Assistant Director(C.M), S&GA.

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5.0 List of

SYSTEMS AND PROCEDURES

To assist WAPDA in implementation of the proposed Institutional Improvement Plan the Principal Technical Assistance Team has prepared a wide range of systems and procedures.

5.1 DISTRIBUTION TRAINING PUBLICATIONS

MAJOR REPORTS:

Comprehensive Power Distribution Training Plan

Position Description Manual - Distribution Training Organization

Procedures Manual - Distribution Training Program

CURRICULUMS:

TECHNICAL:

Lineman - Trainers manual (Vol. I., II., & III.)
Lineman - Trainee manual

Assistant Lineman - Trainers manual (Vol. I., & II.)
Assistant Lineman - Trainee manual

TRAINING OF TRAINERS:

Training of Trainers - Trainers manual
Training of Trainers - Trainees manual
Training of Trainers - Reference manual

INVENTORY CONTROL:

Gate Clerk - Trainers manual
Gate Clerk - Trainee manual

Stock Clerk - Trainers manual
Stock Clerk - Trainee manual

Store Clerk - Trainers manual
Store Clerk - Trainee manual

MANAGEMENT:

Basic Supervision - Trainers manual (Vol. I. & II)
Basic Supervision - Trainee manual (Urdu)
Basic Supervision - Trainee manual (English)

May 19, 1987

COMMERCIAL/FINANCIAL:

Bill Distributor - Trainers manual
Bill Distributor - Trainee manual

Meter Reader - Trainers manual
Meter Reader - Trainee manual

General Clerk - Trainers manual (Vol. I., II., & III)
General Clerk - Trainee manual

Commercial Clerk (Computer) - Trainers manual (Vol. I., II., & III)
Commercial Clerk (Computer) - Trainee manual

Commercial Clerk (Manual) - Trainers manual (Vol. I., II., & III)
Commercial Clerk (Manual) - Trainee manual

MISSELLANEOUS PUBLICATIONS:

Curriculum Style Book

MIS for Distribution Training Program

MIS for Distribution Training Program (Revised)

AEB/CTC Training Facilities Visitation & Summary Report

AEB/CTC Training Facilities - Conceptual Designs

Wang Professional Computer Word Processing Training Program

Mapping & Survey Guides for CSC Crews & Contractors

Model Literacy Report

Quarterly Report: July - September, 1986

Quarterly Report: October - December, 1986

Quarterly Report: January - March, 1987

WAPDA Safety Code (Revised)

May 19, 1987

TRAINING PUBLICATIONS NEXT THREE MONTHS:

Accounts Clerk - Trainers manual (Vol. I., II., & III)
Accounts Clerk - Trainee manual

Middle Management - Trainers manual (Vol. I. & II)
Middle Management - Trainee manual

General Safety - Trainers manual
General Safety - Trainee manual

Accident Prevention - Trainers manual
Accident Prevention - Trainee manual

Accident Investigation - Trainers manual
Accident Investigation - Trainee manual

SPECIAL PROJECTS OR PUBLICATIONS:

Slide/Tape Safety Program

5.2 GENERAL ADMINISTRATION

POLICIES AND PROCEDURES

Dated: 5.17.1987

A. SAFETY	STATUS
1. Revision of existing Safety Code	Done/Approved
2. Installation of Safety Organization:	
- Phase I	Done/Approved
- Phase II	Done/Under Approval
3. Development of Accident Investigations	Done/Approved
4. Procedure for Implementation of Model Divisions Reorganization	Done
5. Generate awareness of safety practices in Power Distribution through extensive Safety Orientation meetings, audio-visual programs, posters etc.	Continuing at full speed
6. Establishment of Safety Advisory Committees at Headquarters, AEBs, Circles and Divisions	
7. Improvement of preventive measures through analysis of accidents, improving availability and quality of Personal Protection Equipment	

B. PERSONNEL	STATUS
1. Reorganization of Distribution Organization:	
- Divisions	Done/Approved
- Circles	Done/Under Approval
- AEBs	Done/Under Approval
- Headquarter	Done/Approved
2. Procedures for Implementation of Model Divisions Reorganization	Done
3. Revision of Personnel Policies and Procedures:	
- Employees Record Management Policy	Done
- Wage and Salary Package	
- Performance Evaluation Policy	
- Recruitment Policy	Being Done
- Transport Policy	
- Retirement Policy including Gratuity, Provident Fund Policies	
- Separation and Disciplinary Policy	
- Reduction in Force Policy	
4. Development of Human Resource Information System	
5. Development of Positions Classification System	
6. Employees Development System	

C. TRANSPORT	STATUS
1. Reorganization of Transport function:	
- Divisions	Done/Approved
- Circles	Done/Under Approval
- AEBs	Done/Under Approval
- Headquarter	Done/Approved
2. Procedures for Implementation of Model Divisions Reorganization	Done
3. Revision of Vehicles Repair and Maintenance Policy	Done
4. Revision of Policy to Eliminate Misuse of Vehicles	Being Done
5. Review of Transport Procurement Procedure	
6. Review of Repair and Maintenance Facilities and recommend yardsticks	
7. Develop realistic vehicles yardstick based on functional and responsibility level:	
- Divisions	Done/Approved
- Circles	
- AEBs	
- Headquarter	
8. Develop detailed procedures for implementing revised policies:	
- Divisions	
- Circles	
- AEBs	
- Headquarter	

D. GENERAL SERVICES	STATUS
1. Reorganization of General Services function:	
- Divisions	Done/Approved
- Circles	Done/Under Approval
- AEBs	Done/Under Approval
- Headquarter	Done/Approved
2. Procedures for Implementation of Model Divisions Reorganization	Done
3. Revision of Housing Policy	Done
4. Development of procedures for Land Acquisition Protection and Disposal	Being Done
5. Development of standards for office space and office furniture	
6. Revision of procedures to ensure efficient office services support	

5.3 MANAGEMENT INFORMATION SERVICES

DOCUMENT TITLE	STATUS	COMPLETED/PENDING DATE
Distribution Work Order System	In use	Jan 1986
Specifications for Revisions to the Electricity Billing System	Completed	Feb 1986
Specifications for Wapda Customer Information System	In Progress	
Customer System Operations Guide	In use	Jan 1987
Computerized Financial System - Part I	Completed	May 1986
Computerized Financial System-Part II	Completed	Aug 1986
Specifications for Accounting System	Completed	July 1986
Computerized Financial System Operations Guide	In pilot test	
Computerization - Stores Inventory Report	Completed	June 1986
Computerized Stores Inventory System Report	Completed	March 1987
Computerized Inventory System Operations Guide	Awaiting Pilot Test	
RFQ 391-0473/000-1 Tender for Computer Equipment	Completed	Nov 1986
Evaluation Report for Tender RFQ-391-0473/000-1	Completed	Apr 1987
Contract 391-0473/000-2 IBM 4381-12 and Associated Equipment	Completed	Dec 1986
RFQ 391-0473/000-3 Tender for Uninterruptible Power Supply and Stabilizer Equipment	Completed	March 1987

DOCUMENT TITLE	STATUS	COMPLETED/PENDING DATE
Contract No. 391-0473/WCC-1-01:DEC Eqpt.	In progress	April 1987
Contract No. 391-0473/WCC-1-02:AST Eqpt.	" "	" "
Contract No. 391-0473/WCC-1-03:IBM Eqpt.	" "	" "
Contract No. 391-0473/WCC-1-04:VITCO Eqpt.	" "	" "
Contract No. 391-0473/WCC-1-05:COMPAQ Eqpt.	" "	" "
Computer System Plan Reports	Completed	Nov 1985(Rev)
Computer Department Training Proposal	In progress	
Energy Loss Reduction System Operation Guide	In Pilot Test	
Feeder Data Base Operations Guide	In progress	
Detailed Work Order System Specifications	In progress	
Work Order System Operations Guide	Future	
Payroll/Personnel System Proposal	In progress	
Management Reporting System Proposal	In progress	

5.4

F I N A N C E

Key Documents List

Financial Work Plan

Management Information Requirements

Economic Regions Study (Financial Analysis)

Inventory Valuation

Fixed Asset Accounting Manual

Financial Statements - Recommendations

Cash Management Improvements

Terms of Reference for Upgrading WAPDA Internal Audit

Utility Financial Management Course Outline

Preliminary Rate Design Study

Cost of Service and Rate Study

Tariff Change Monitoring - Manual Procedure

Tariff Change Monitoring - Spreadsheet Procedure

Confirm Current Assets

Confirm Current Liabilities

Confirm Fixed Assets (Pilot Test)

Confirm Fixed Assets - Work Plan

Revise Account Code

Computerized AEB/Div Accounting (Part I)

Computerized AEB/Div Accounting (Part II)

Asset Revaluation - Phase I

Location Codes

5.5 CUSTOMER SERVICES

II. LIST OF PROCEDURES

Annex	Title
"A"	Derrick Hayes - End of Tour Report - Commercial Procedures Enhancement Concepts.
"B"	Proposed Commercial procedures.
"C"	Standard Classification Codes Proposal.
"D"	Master Record Proposal.
"E"	Sample copies of Energy Surveillance Computer Generated Exception Lists.
"F"	50 Customers B-3 Study.
"G"	Power Factor Clause Proposal.
"H"	Energy Conservation/Load Management - Customer Relations Function Proposal.
"I"	Model Division Organization and Manning Charts.
"J"	Division Supervisory Position Description.
"K"	Area Electricity Board Organizational and Manning Charts.
"L"	Area Electricity Board Position Descriptions.
"M"	Customer Services Organization.
"N"	Headquarters Organizational Chart.
"O"	Headquarters Position Descriptions.
"P"	Sister Utility Schedule.
"Q"	Model Division and Sub-Division Customer Service Centre Conceptual Drawings.

5.6 OPERATIONS (DISTRIBUTION) PROCEDURES AND GUIDELINES

1- WAPDA Distribution Construction, Maintenance & Operation

- Distribution Construction Procedures Manual.
- Distribution Maintenance Procedures Manual.
- Distribution Operating Procedures Manual.

These procedures have been developed for use by line crew personnel and for management and supervisors who supervise the line crews.

The manuals contain procedures and guides to install, maintain and operate the power distribution equipment in a safe, unifofm and efficient manner.

The procedures are in strict adherence to the WAPDA Safety Code.

2- Distribution Communications Systems Report

The report lays down basis for radio communications equipment requirements for safe and efficient operation of distribution systems. Identifies maintenance and operations organization and personnel training for the recommended communications system.

3- Distribution Measurements

- Meter Standards Manual

  The manual lays down standards for testing, repair, storage and installation of WAPDA energy meters and the allied equipment.

- Centralized Meter Test Laboratory Report

  The report provides WAPDA with a description of a typical centralized meter test laboratory. This information can be used as a bench-mark in establishing centralized meter test labs in WAPDA System

4- <u>Distribution Mapping</u>

- Distribution Mapping Report M-I

  The report recommends survey criteria and lays down standards for distribution property record mapping and feeder one-line maps with an analysis of distribution mapping cost estimation.

- Report on WAPDA Distribution System Mapping Project

  The report discusses mapping requirements for providing accurate data to be used in load management planning and engineering, organization to produce and to maintain the maps and procedures to be used to assure accuracy and uniformity of distribution maps.

- Terms of Reference and Contract Document for the first WAPDA mapping project.

5- <u>WAPDA Power Distribution Load Management Program</u>

The program determines the normal diversified hourly load characteristics of each principal customer class, the impact of direct control load management on these customer classes, the effectiveness of the load management control strategy, customer attitudes, reliability of load management equipment installations and practicability of direct control load management on the WAPDA System.

6- WAPDA Distribution Switching Operation Procedure Manual

The procedure manual details the manner whereby distribution lines and equipment are energized, de-energized or re-energized. Compliance to the manual will ensure safety of equipment, employees and the general public.

7- WAPDA Distribution Field Switching Guide

The Guide, with reference to Switching Operation Procedures Manual, delineates responsibility and action of the organizations involved for issuance of Permit-to-work clearance on distribution facilities.

8- WAPDA Distribution Work Order System

The work order system has been developed to assist WAPDA Distribution personnel to plan, execute, manage, and account for distribution works.

9- Capacitor Bank Field Maintenance Procedure

The document lays down procedures for inspection, testing and maintenance of H T line capacitor banks and their allied control equipment.

10- Institutional Improvements Program

- Model Division Reorganization (Implementation)

  - Organization, staffing, transport and equipment as related to Service (Construction), Maintenance Operations functions.

- New (connections) application procedure (as related to division service engineer and sub division service supervisor).

- Operation of the Despatch andComplaint Centres

- Division operations coordinating centre.

- Radio operating procedures.

- Meter Electricians' Training Course.

- Area Electricity Boards and Circles (Construction, Maintenance & Operation functions)

Draft recommendations on organizational changes and related staff requirements have been developed after discussion at various levels in the WAPDA distribution function.

11- <u>Monitoring, Inspection and Certification</u>

- Distribution System Line Construction Monitoring and Inspection Procedures.

Draft procedures have been developed to define the scope and coverage of distribution system line inspection and monitoring during the active construction phases and as the reference for determining the completed work. The procedures are in the process of finalization.

12- <u>WAPDA Crash Rehabilitation Program</u>

- General procedure for feeder rehabilitation.
- Formats for collection of feeder physical and electrical data

- PC based distribution feeder operating condition analysis program.

- Economic justification formula for rehabilitation of feeders.

- Engineering proposals and work orders for rehabilitation of 45 feeders in Lahore and Peshawar AEBs.

5.7 PLANNING & ENGINEERING PROCEDURES AND GUIDELINES

1. **Planning Guide**

2. **T-Reports**

T-1 Current Carrying Capacity for Overhead Conductors

T-2 Economical Evaluation of Distribution High Tension Conductor Sizes

T-3 Application of Line Regulators

T-4 Ampere Rating of Underground Cables

T-5 Economical Evaluation of Grid Station Transformer Sizes

T-6 Economical Evaluation of Three Phase Distribution

T-7 WAPDA Distribution System Engineering Economic Studies

T-8 WAPDA Distribution System Over Current Protection Report

T-9 WAPDA Distribution System Planning Guide to determine equivalent demand on grid station transformers

T-10 WAPDA Distribution System Planning Criteria

T-11 WAPDA Distribution System Voltage Flicker Guideline

T-12 Low Tension Conductor and Service Guidelines

3. **Load Forecasts**

i) Master Plan Annex B (Basis of Forecast):

- Basis of forecast which gives procedures and methodology of preparation of system wide load and demand forecasts.

ii) Working Paper on Prime Minister's Directive for 90% Village Electrification by 1990.

iii) Unfinished Report on Forecasting Statistics

4. Energy Loss Reduction

i) WAPDA Energy Loss Reduction Program:

- gives procedures for determination of system wide capacitor application; steps necessary to reduce distribution system losses

ii) Method for Economic Evaluation of ELR Work

iii) Procedures and steps necessary to implement low tension network rehabilitation

iv) Procedure and Methodology of preparation of work orders for FAR agreement.

v) Sample bid documents for ADB financed energy loss reduction program.

5. Planning

i) Procedure for development of a comprehensive rural electrification planning

ii) Procedure for development of urban system planning

iii) Area Improvement Plan (WAPDA Chunian Division)

- A sample long term rural area improvement plan prepared using existing WAPDA statistics and a PC load flow program

iv) Chunian Division Area Improvement Plan

- A sample short term rural area improvement plan by use of CADPAD.

v) Work Plan for ADB Energy Loss Reduction Program

vi) Detailed specifications for establishment of a feeder data base

vii) Sample long term area improvement plan for Lahore

- includes methodology for preparation of load forecasts for major urban areas (un-finished).

v) Computer calculated sag tension tables:

- to guide sag/span/tension selection for various conductors.

- Dated 03-10-86

vi) Recommended spans for using WAPDA 31ft. LT structure for rural lines

- study to guide

vii) Tie wire application guide for side ties on 11 kV insulators

- PTAT 110386

viii) Tie wire application guide for top ties on 11 kV pin insulators

ix) WAPDA distribution system line anchors:

- a guide to the design & selection of: analysis of permissible sag span for existing WAPDA type L-31 ft structure (extended by 3.6 ft) for use as HT structure.

x) Use of LT pole structure Type L for HT & composite lines

xi) Sag-span tension tables for various distribution conductors under different ambient temperatures with and without vibration armour.

- PTAT/WAPDA-85-091 dated 8.9.85 and PTAT/86-03-13L dated Mar 10, 1986.

xii) Standardization of Design Instruction (SDI) for switched capacitor banks

- PTAT/WAPDA/P&E-52 DATED March 29, 1987

xiii) Standardization of Design Instructions (SDI) for unswitched capacitor banks

xiv) Aluminum Conductor Report

10. Load Management

i) Pilot program implementation study

ii) Load management potential evaluation procedure.

5.8 PURCHASING AND INVENTORY CONTROL

CONTENTS

I. Institutional Improvement

Present Organization
Proposed Organization

II. Organizational Chart - Proposed Organization
(Includes staffing requirements - Grade 17 and above)

III. Implementation Schedule

IV. Computerized Stores Inventory System

Proposed System
Implementation Plan

V. Reorganization of Area Electricity Boards

VI. Purchasing, Inventory Control, Stores Procedures Manual

Description of Manual
Section II - Material Planning Procedures
Section V - Purchasing Procedures
Section VIII - Stores Procedures (completed chapters)
Section IX - Stores Surveillance Procedures
Section XI - Warehouse Practices

VII. Procedures Currently Under Development

VIII. Output Reports

April, 1985 - Regional Store Reports (all)
April, 1985 - Conceptual Design - Model Stores
November, 1985 - Management of Repairable Transformers
November, 1985 - Procurement and Management of Donor Funded Project Materials
November, 1985 - Modifications to Inventory Control Reports

IX. Status of Purchasing and Inventory Control

6.0 STATUS REPORTS OF PTAT ACTIVITIES

- The background and status of the Institutional Improvement Plan and other activities of the respective functional areas.
- Methods and strategies for the implementation of the procedures.
- Outstanding decisions required including time restraints.

6.1 TRAINING PROGRAM STATUS REPORT

TRAINING ADMINISTRATION & ORGANIZATION:

The design and staffing of the WAPDA Distribution Training organization is complete until the permanent DTI is operational.

All training condition precedents are meet and approved. The Procedures Manual is the only major publication awaiting WAPDA approval. The document was submitted for approval and comments in December 86.

The MIS system is operational with Quarterly reports being generated. Every training center in Pakistan within WAPDA that trains Distribution Personnel is now reporting their triaining outputs.

CURRICULUM DEVELOPMENT:

Thirty two curriculums have been identified for formal development.

Nine are developed and implemented through out the training system, five are awaiting pilot testing, three have completed pilot testing and are in final production for implementation and four are under development. The remain eleven will be scheduled for development in late 1987 and throughout 1988.

To date 65 publications have been completed by the Training Section.

DISTRIBUTION TRAINING FACILITIES:

All eight AEB Commercial centers are operational. Twenty four of the 26 Circle Training Centers are operational. The two left for full operations are Kyber and Swat. These two circles just posted their staff and completed the TOT program. It is expected during the next quarter that they will be operational.

The Distribution Training Institute - Lahore is fully operational and averages over 100 students per month being trained.

The Distribution Training Institute - Islamabad has selected the 1sit of prequalified contractors and bids should be let within the next few months. It is anticipated that construction will begin in Mid October 87.

The AEB/CTC commodities procurement is nearing completion, two of the five major items have been procured and placed at the facilities. The Photocopier and typewriters are awaiting additional funds from USAID. The fifth item the public address system will be further evaluated to see if it is actually needed within the training facilities.

OUT OF COUNTRY TRAINING:

Utility Personnel Development Program:

220 WAPDA personnel are scheduled to receive training under this program. To date 160 have completed and 40 have been identified and are in the process of receiving their approvals for participation. All the remaining groups are scheduled to complete in 1987.

Long Term Academic Program:

Twenty WAPDA Personnel will receive training under this program. Eleven will be selected for various Master Degree Programs and nine will receive long term technical training. Of the twenty particiants 11 have been identified.(9 masters degree candidates and 2 long term technical). The respective Chief Consultants will review candidates for recommendation during the next year. The identified candiates are in various stages of seeking approvals to pariticpate.

Sister Utility Exchange:

Within Training 11 particpants have completed their exchange under the catagory of implementation staff. An addtional 8 are scheduled to go in July. The remaining six particiants in this catagory are scheduled for the summer of 88.

In catagory C(Pakistani subcontract staff) two have completed their exchange the remaining two are scheduled for July 87.

In catagory D(AEP volunteers to Pakistan) two exchanges have been completed. The remaining ten exchanges are expected to be utilized to provide short term specific training as other components identify their needs.

INCOUNTRY TRAINING:

As stated earlier most of the training facilities are operational. The MIS system reports that approximately 4000 WAPDA emloyees have been trained since July 86 at the AEB/CTC, DTI and other WAPDA Training facilities. Over 800 have been trained in short term specialized courses during the same period. Over 26000 have been trained on the Safety program initiated during the later part of 1985. It is anticipated that as the new curricula and training materials are distributed to the various facilities that the numbers of those reported trained will increase drastically. In addition, the WAPDA Training Administration is establishing a uniform schedule of classes for the times and duration of courses to be offered in all AEB/CTC's.

PROBLEMS AND CONSTRAINTS:

PROCEDURES MANUAL:

The Approval Copy of the Distribution Training Procedures Manual has been under review by the Authority for over six months. The major and only objection raised to the document is the consideration of incentives for the trainers and trainees. It is recommended that the trainers receive additional compensation for becoming trainers and leaving the field work. A similiar incentive package as is requested for Distibution staff was given to the staff at Tarbela.

TRAINING MATERIALS: (SUPPLIES, MATERIALS, BOOKS)

There is extreme difficulty on the part of WAPDA to secure sufficient quantities of training material. Not one of the AEB/CTC's is properly equipped to meet its expected training needs. Steps are under way to correct some of this but progress has been very slow.

An even greater problem is the inability of the WAPDA printing press to keep up with the training materials (trainee manuals) required by the centers for the students. After initial implementation WAPDA is required to provide the trainee materials. Recommendations have been made to WAPDA and other outside agencies to establish a separate Distribtuion printing section to meet the needs of all distribution and to produce in quanitity and in a timely manner the required training materials.

TRAINING ACTIVITIES - JANUARY THROUGH MAY, 1987

A. The second and third quarterly training reports were prepared and issued as planned.

B. All but two Circle Training Centers have become operational. All the Circle Training Centers have received curricula materials, Trainer and Trainee Manuals for Lineman and Assistant Lineman courses and Overhead Projectors. Implementation of Lineman and Assistant Lineman curricula has been completed.

C. The Distribution Training Institute at Lahore started in December, 1986. Furniture and other commodities have been purchased. Training has started. The number of graduating trainees through April was 558. A Commercial/Financial laboratory complete with computers has been established.

D. The Commercial Clerk Computer Billing course has been produced and is ready for implementation. General Clerk course was produced and is ready for implementation. Accounts Clerk is complete and ready for Pilot Test. Three Safety Curricula are complete and ready for Pilot Test. Commercial Clerk Manual Billing has been pilot tested and is being produced for implementation. The Middle Management Curriculum is complete and will be pilot tested in July.

E. PTAT Training and Implementation personnel were moved to the DTI.

F. Under the Long Term Academic Training Program, four office orders have been received for two Master Degree candidates in Instructional Technology and two in Vocational Education. They are pending GOP approval.

A Computer Master Degree program candidate is approved and plans are underway for placement in an appropriate University by HRT/EAD.

Two candidates have been selected for Intensive Technical Training Section in Inventory Control.

G. The Second group completed Training in Management Concepts Course under the Utility Personnel Development Program.

TRAINING PLANNED ACTIVITIES - JUNE THROUGH SEPTEMBER, 1987

A. Two Circle Training Centers are to be made operational. All Circle Training Centers to be provided with typewriter, photocopier and calculator.

B. Formal inauguration of the DTI Lahore will occur at an open house.

C. Twelve new curricula will be pilot tested and implemented in the Commercial/Financial, Safety and Management areas.

D. An Area Electricity Board/Commercial Training Center Renovation Handbook has been prepared and will be issued soon, after which, work can proceed in upgrading these facilities.

E. The final quarterly report for the fiscal year will be completed and issued.

F. Continue to monitor the development of the plans for construction of the Distribution Training Institute.

G. The Utility Personnel Development Program will be completed with the last groups in Management Concepts, Organization and Operation of Electrification Systems and Internal Audit proceeding to the United States.

H. Interview candidates for the last two openings in the Long Term Academic Training Masters Degree Program.

I. Interview candidates for the last seven openings in the Long Term Academic Training Intensive Technical Training Program.

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POWER DISTRIBUTION WING

IMPLEMENTATION PLAN

6.2 GENERAL ADMINISTRATION

DATED: MAY 19, 1987

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- SAFETY
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- GENERAL/ORGANIZATIONAL
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5. DECISIONS REQUIRED

6. OTHER CONSTRAINTS

1. POLICIES AND PROCEDURES COMPLETED

SAFETY

1. WAPDA Safety Code

2. Accidents Investigation Procedures

3. Safety Organization for Power Distribution

4. Interim Procedures for Model Division Reorganization

5. Continuing Safety Orientation meetings throughout Power Distribution to generate awareness of safety practices

PERSONNEL

1. Interim Procedures for Model Division Reorganization

2. Proposed Reorganization for:

   Divisions
   Circles
   Area Electricity Boards
   Headquarters

3. Developed Position Descriptions for key positions in the Divisions, Circles, AEBs and Headquarters

4. Developed Employees Record Management Policy

GENERAL SERVICES

1. Reorganization of General Services function for:

   Divisions
   Circles
   Area Electricity Boards
   Headquarters

2. Position Descriptions developed for the key positions in the Divisions, Circles, AEBs and Headquarters

3. Developed Interim Procedures for Model Division Reorganization

4. Developed Revised Housing Policy

TRANSPORT

1. Reorganization of Transport Function for:

   Divisions
   Circles
   Area Electricity Boards
   Headquarters

2. Developed Position Descriptions for the key positions in the Divisions, Circles, AEBs and Headquarters

3. Developed Interim Procedures for Model Division Reorganization

4. Developed Vehicles Repair and Maintenance Policy

2. POLICIES AND PROCEDURES IN DEVELOPMENT

PERSONNEL

1. Recruitment Policy

2. Wage and Salary Package

GENERAL SERVICES

1. Procedures for Land Acquisition, Protection and Disposal

TRANSPORT

1. Revision of Policy to Control Misuse of Transport System

3. POLICIES AND PROCEDURES TO STUDY, MAKE RECOMMENDATIONS

SAFETY

1. Establishment of Safety Advisory Committees at Headquarters, AEBs, Circles and Divisions

2. Improvement of preventive measures through analysis of accidents, improving availability and quality of Personal Protection Equipment

3. Continue Safety Orientation meetings, audio-visual programs, etc. to generate awareness of safety practices in Power Distribution

PERSONNEL

1. Revision of Personnel Policies and Procedures including:

   - Wage and Salary Package
   - Performance Evaluation Policy
   - Recruitment Policy
   - Transfer Policy
   - Retirement Policy including Gratuity, Provident Fund Policies
   - Separation and Disciplinary Policy
   - Reduction in Force Policy

2. Development of Human Resource Information System

3. Development of Positions Classification System

4. Employees Development System

TRANSPORT

1. Review of the existing Repair and Maintenance Facilities and recommend yardsticks

2. Review of Transport Procurement Procedures

3. Develop realistic vehicles yardstick based on functional and responsibility level:

   - Divisions
   - Circles
   - AEBs
   - Headquarter

4. Develop detailed procedures for implementing the revised policies:

   - Divisions
   - Circles
   - AEBs
   - Headquarter

GENERAL SERVICES

1. Revision of procedures to ensure efficient office services support

2. Development of standards for office space and office furniture

4. METHODS/STRATEGIES FOR IMPLEMENTATION

We have two objectives to achieve:

- Development of comprehensive and realistic policies
- Successful implementation of these policies

We intend to adopt the following methods:

GENERAL/ORGANIZATIONAL

1. Starting point is to push for the posting of General Manager Administration (Distribution).

2. After step 1 is implemented, we will assist the General Manager Administration (Distribution) in the selection/posting of key personnel in his organization.

3. Will hold on orientation meeting for the key personnel and explain to them the objectives of institutional improvements that we aim to achieve.

4. The same exercise of positioning people in the reorganized set-up will be repeated and also orientation meetings held at the Area Electricity Boards, Circles and Divisions.

5. Will assist Administration personnel of Power Distribution in developing position descriptions, redefinition of duties, additional functions, work flow etc.

POLICIES

1. Meetings will be held with the knowledgeable and key personnel of Power Distribution to elicit their views regarding present policies, problems and solutions as they see them. This will be done at the starting point of developing a policy.

2. Before finalization of a policy, meetings will be held again to discuss the main features of the policy under development.

3. Step 1 and 2 will expedite the approval process because the approving authority will ask views of the same key personnel on the policies proposed by us. In case of variance in our views with WAPDA personnel we should be able to justify our recommendations before the approving authority.

5. DECISION REQUIRED

1. Safety Organization for the Divisions proposed in July 1986 has not been approved.

2. Proposed Reorganizations for Area Electricity Boards and Circles are awaiting approval.

6.3 INFORMATION SERVICES DEVELOPMENT PLAN

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PLAN DESCRIPTION

II. IMPLEMENTATION STATUS AND STRATEGY

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ATTACHMENTS

ATTACHMENT A - DOM PLAN ACTIVITIES
ATTACHMENT B - INDEX OF REPORTS AND PROCEDURES
ATTACHMENT C - EQUIPMENT DELIVERY SCHEDULE
ATTACHMENT D - COMPUTER SYSTEMS SCHEDULE

MANAGEMENT SERVICES - IMPLEMENTATION PLAN

I. PLAN BACKGROUND:

A general review was completed during the period of October 6, 1984 through January 25, 1985 by the WAPDA Computer Department and by the PTAT Management Services Specialists of the status of the computer systems at the Water And Power Development Authority primarily in the areas of:

- the computer applications systems in use at WAPDA with detailed concentration on those systems supporting Distribution functions;
- the computer equipment and systems programs in use at WAPDA;
- the organization of the WAPDA Computer Department and how well the structure supports its responsibilities;
- the technical capability of the Computer Department staff and their training and recruitment programs;
- the standards and techniques used to develop and operate computer systems and an evaluation of their effectiveness;
- the potential for use of computer systems to assist with Distribution functions.

That study was documented in a series of reports which described the current computer systems environment and made detailed recommendations for a comprehensive program designed to provide WAPDA Distribution with a basic set of electric utility automated systems, a modern computer network, and a professional Computer organization capable of building and operating the needed systems. A presentation was made to WAPDA Mangement and to representatives of the United States Agency for International Development (USAID) on January 28, 1985, summarizing the proposals, costs and implementation plans. As a result of that presentation an agreement in principle to the concepts and direction presented was given by the Authority.

Initial Status:

In October 1984, WAPDA had a medium-size IBM 4331 computer installation at the Lahore Headquarters; a small IBM 370-115 computer also installed at Lahore and used for the Gujranwala Area Electricity Board (AEB); and a small IBM System 34 installation at Peshawar used to bill a portion of that AEB's accounts. The single major Distribution computer system in use at WAPDA was an Electricity Billing System used to calculate and print bills, and to maintain customer accounts' receivable records, for approximately thirty-five percent of their customers, or about 1.35 million accounts. The accounts at the Islamabad AEB, about .7 million, were totally processed by a local bank's billing service at a fixed rate per account. The remaining AEB accounts, about 2.5 million, were billed manually. Other computer systems used at WAPDA, primarily in the planning and operation of Generation, Transmission and Water facilities were, in general, purchased programs from other utilities and are operated and maintained by their users.

A review of the Computer Department organization, methods and personnel disclosed that while the staff has good basic skills, they lacked exposure to current data processing techniques. The Department reported through the Financial Wing of the Authority, and was organizationally isolated from the WAPDA Distribution functions which are the electric utility's natural prime candidates for automation. Consequently there was poor understanding of which automated Distribution systems were needed, what functions they should perform or how they should be designed. There was no organized, approved WAPDA computer plan to guide equipment planning and systems development.

One serious consequence of the lack of consistent planning, was the uncoordinated variety of equipment types being used for customenr billing. Each of the three WAPDA computers being used for customer billing required different programs and different operating systems. As a result, minor changes in billing procedures required three different sets of program changes with the inevitable errors and inconsistencies. The programming staff was required to spend the large majority of their time correcting errors and making minor changes, and never had enough time available to address the requirement for new system development or major improvement.

Implementation Plan Description:

The Management Services implementation plan which has evolved out of those initial studies and reports consists of seven major activities which are listed in Attachment A. These activities are summarized below under three major categories:

1. preparation and implementation of a Management Services Department organization plan including initiation of key work activities;

. planning, design and development of the basic computer application systems required as a minimum in Distribution functions;

3. planning, procurement and installation of a decentralized WAPDA computer network to operate the automated systems.

The implementation plan for each of these activities was developed jointly by the WAPDA Computer Department and the PTAT, was presented to WAPDA and USAID in 1985, was approved and is in development. The plan includes:

1. a proposed organization with descriptions of the work of each section;

2. preliminary staffing requirements and budget;

3. general descriptions of each of the basic computer application systems recommended, and a preliminary development schedule;

4. an equipment proposal including types, numbers and locations of computer equipment;

5. preliminary equipment budget.

The proposed Computer Systems Plan, which was last revised in November 1985, is included in the accompanying documents and in is shown in the index (Attachment B).

II. IMPLEMENTATION STATUS AND STRATEGY

Planning:

The general Management Services planning objectives to be addressed initially were:

- formulation and adoption of a general WAPDA computer systems equipment and technical facilities architecture to guide the system design of initial WAPDA Distribution computer systems and the procurement of needed equipment;

- analysis and general design of key Distribution computer systems within that general architecture;

- preparation of a detailed set of equipment proposals to implement the general architecture, secure WAPDA and USAID approval of the equipment plan and budget, and proceed with procurements;

- planning and implementation of key organization changes needed to staff critical activities, and to train current and additional WAPDA personnel.

General System Architecture

A recommendation for a basic architecture for proposed WAPDA information systems including equipment and program products was built and presented to WAPDA MAnagement. That architecture is designed to provide computer support at Divisions, Circles, Area Boards and at WAPDA Headquarters, with each location able to perform routine computerized activity independently. WAPDA Management and USAID/TAM have each approved the basic design, and all systems developmet and equipment procurements are based on that architecture.

Management Services staff have visited seven of the eight AEB locations, and many of the proposed Circle computer center locations and Divisions, verifying the feasibility of computer operations at the AEB, Circle and Division level. These visits were used in determining the types of equipment recommended and in building a practical schedule for systems deployment.

In addition, the Management Services TEAM has modified the existing WAPDA Electricity Billing System to pilot test decentralized operations at two Circle Centers and three Divisions. The experience has guided system design and equipment proposals, and validated the general architecture.

Equipment Planning and Procurement-Status:

Equipment planning and procurements is near completion, and implementation is moving into equipment installation. The equipment plan consists of the following activities:

1. WAPDA Headquarters Computer Centers:

A large IBM 4381/12 was purchased by USAID and has been installed at Lahore. In addition, a Development and Testing facility is being purchased for the use of the Management Services staff so that their work will not impact use of the large processor. The Planning and Design computer facility has also been established at Lahore.

2. Area Electricity Board Computer Centers:

The IBM 4331 previously used at Lahore has been relocated to Peshawar AEB, and the IBM 370/115 previously at Lahore transferred to Gujranwala. WAPDA purchased and installed an IBM 4361 at the Islamabad AEB. This machine is virtually the same as the 4381 and 4331 equipment, giving WAPDA three large systems at their three key AEB locations. In addition, WAPDA purchased three small IBM System 36 computers which will be used at Lahore, Islamabad and Peshawar for data entry and to off-load work from the large processors.

Contracts have been negotiated for the purchase of new computers by USAID for the five other AEB's: Gujranwala, Multan, Faisalabad, Hyderabad and Quetta. The equipment will be able to run the same programs and use the same file formats as at Lahore, Peshawar and Islamabad, assuring WAPDA of a single, consistent set of procedures.

3. Circle Computer Centers:

Equipment is being purchased by USAID to establish computer centers at thirteen Circles. This equipment will be virtually the same as that at AEB's, and will execute the same programs. These centers will be used primarily for customer billing and local Circle needs.

4. Microcomputers:

Contracts have been negotiated for additional USAID purchases of microcomputers. Forty units have been purchased to-date and are in use at WAPDA and PTAT locations. An additional two hundred seventy-five units have been approved and will be delivered during the next year. These will be primarily for use at Division offices, AEB offices, and computer centers.

5. Associated Equipment and Supplies:

Additional purchases have been planned to support the computer equipment. Contracts are now being finalized for USAID purchase of uninterruptible power supply units for all computer centers, and for voltage stabilizers for all microcomputers. Purchase of initial operating supplies is also being planned. These include microcomputer diskettes, printer ribbons, magnetic tapes, cartridge tapes, program packages and other items.

Equipment Procurements and Deployment-Future Activities:

The schedule for equipment delivery and deployment is shown in Attachment C. Procurements of UPS and stabilizer equipment and of miscellaneous supplies will be coordinated with this schedule. The underlying stratgy of the schedule is based on the following objectives:

- the Gujranwala AEB, the Sheikhupura Circle and its Divisions will be equipped early in the schedule so that Model AEB, Circle and Division operations will not be delayed by computer needs;

- the Faisalabad AEB and its Circles will be equipped as a high priority to free Lahore of the burden of the Faisalabad billing, to allow the Lahore facilities to be used for other work;

- automation of the remaining portions of Peshawar and Islamabad will be addressed prior to beginning Multan conversions;

- The Multan, Hyderabad and Quetta conversions will follow completion of the installations in currently automated locations.

- The installation of microcomputers at Divisions is coordinated with the availability of large processors to support their use.

- The schedule is flexible in that delivery dates may be delayed or moved forward, and locations may be respecified.

Distribution Computer Application Systems

Recommendations for planning and development of key Distribution computer systems were included in recommendations made to WAPDA. Initial applications being addressed and significant items completed to-date are:

1. The Electric Billing System which was being used for a portion of WAPDA consumers has been revised and is evolving into a more comprehensive Customer System. A Customer System User Committee has been formed and is meeting regularly to identify, prioritize and define necessary system improvements. They have made recommendations for changes to key areas and a list of future action topics has been developed.

Technical redesign of the system has begun and documentation of technical changes to programs and files is underway. The new system includes the use of microcomputers at Division offices to assist with monitoring of applications for service, to answer customer inquiries, and to validate local transactions. It also includes billing of accounts at Circle locations. Pilot tests of these functions has been in progress for six months.

The billing of Islamabad AEB accounts is now being converted to the WAPDA computer programs. This will ensure all WAPDA billing is done consistently, using the same procedures and the same programs. Changes to the system have been made to accomodate some of the unique Islamabad AEB requirements which have been permitted to evolve due to its isolation from normal automated procedures. These unique requirements have caused conversion problems, and are representative of the types of errors common to non-planned growth of automation..

Approximately 1.5 million accounts at Faisalabad, Jhang, Sargodha, Mardan, Gujrat, and Islamabad have been converted to the WAPDA automated system in the past two years since plan approval. Conversion of the remaining 1.5 million will be completed during the next year if equipment installations continue as planned.

2. The WAPDA Distribution Work Order System was initially installed as an interim manual system of revised and extended procedures and forms, with automation of some manual activities to follow. The first series of Work Order System microcomputer programs have been developed and are being tested. They will assist with the planning and evaluation of work order proposals by allowing the Planner to easily select the appropriate WAPDA construction standards, and will automatically price the plan using current Stores prices. For approved plans, the system will then prepare a Bill of Quantities and Stores Requisition; and will audit the use of materials and adherence to standards during actual construction.

3. A WAPDA Stores Inventory and Control System was defined and developed, and a pilot test was completed. The system is awaiting WAPDA approval for use in the Model Divisions and at the Gujranwala MEH.

4. A WAPDA Accounting System was designed and developed, and is currently in pilot test at Muridke and Sheikhupura Model Divisions. That test will be extended to Gujranwala in the next month.

5. A Distribution Planning and Design System has been prepared. It consists of two major components:

- a computer facility at WAPDA Headquarters operating the purchased CADPAD planning system;

- a microcomputer system developed by Management Services to assist with local (AEB, Circle or Division) planning.

Both components include calculation of energy loss and voltage drops, and assistance with capacitor placement, of existing and proposed feeder configurations based on alternative rehabilitation plans. The CADPAD facility, however, also supports area planning and offers a more sophisticated set of analysis tools. A companion Feeder Data Bases System has also been built to record feeder information used in planning studies.

6. A Payroll-Personnel System proposal is being prepared. If accepted by WAPDA, the system will be developed by the WAPDA Management Services staff.

7. A Management Reporting System is being designed and will be developed jointly by the WAPDA and PTAT.

8. An Automated Mapping System was added to the implementation plan. This system will be addressed if WAPDA elects to proceed with automated mapping. The system would share information with the Distribution Planning System, and would receive updated information on facility changes from the Work Order System. The architecture for the system has been generally determined, and system needs have been recommended for incorporation into future mapping contracts.

Computer Application Systems-Future Activities:(Attachment D)

1. The Customer System will be deployed as an improved version of the existing system without waiting for all of the improvements and changes being defined by the Customer System User Group. Those changes will be tested at Sheikhupura and Gujranwala, approved by WAPDA, and then added to the automated system. This strategy is based on the belief that many of the benefits of automation can be gained by the improved current system; and that conversion to the new system is far less risky if done in two steps rather than as a single, major conversion. The initial system to be deployed will include the newly designed master record, recoded programs which can be run at all computer sites, and will have corrected many of the flaws and errors of the current system. It will fully support microcomputer use at Divisions and billing at Circles.

2. The Distribution Work Order System will be developed and ready for pilot test in the third quarter of 1987at Model Divisions. Deployment to other AEB locations will occur after pilot test acceptance. Additional facilities will be added to the WOS in 1988 to tie the system to the Stores and Accounting systems.

3. The Stores Inventory and Control System and the Accounting System will be deployed to all AEB's and Divisions after pilot operation at the Model AEB and Divisions is approved. Deployment of the Stores, Work Order and Accounting Systems must be coordinated with the installation of equipment for the Customer System. Additional development work is scheduled in 1988 to automate the interfaces of these three systems.

4. The Payroll-Personnel System proposal will be completed in third quarter 1987. Implementation will be addressed by the WAPDA Management Services when approved.

5. The Management Reporting System development will be completed in 1987. It will initially use data furnished by the Accounting System and Stores System for preparation of reports. Other data sources will be added as systems are completed.

6. The Distribution Planning and Design System microcomputer modules will be deployed to Model Divisions and to AEB's in 1987. WAPDA and the PTAT must determine whether data from an automated Mapping System will be transferred automatically to CADPAD and th the microcomputer modules. The work plan includes PTAT Management Services in 1988 to assist with these steps if required.

7. Other systems to be reviewed in 1988 for possible development include Automated Mapping System, Transformer Load Monitoring, and Distribution Operations Reporting.

Organization and Staffing-Current Status:

Needed expansion of the capabilities of the Computer Department staff is underway. Approval to add a limited number of programmers, to promote grade 19 and grade 18 staff into key positions, and to begin training was received. WAPDA also approved changing the promotion intervals for computer personnel to help retain these scarce and trained resources. New personnel have been recruited and training has begun in specific areas with USAID assistance. Definition of a Computer Department training plan was begun and development of microcomputer and computer center operator courses has begun.

A request has been made by the Director General of the Computer Department to adjust benefits and location allowances for computer personnel. These changes are being reviewed by WAPDA.

Organization and Staffing-Future Activities:

The implementation plan includes transfer of the Computer Department to the Distribution Wing and redesignation as WAPDA Management Services. A General Manager is to be named to head the organization; however, if no suitable candidate is available, the organization will be restructured to be headed by the Director General. Staff must be recruited and trained for operation of the nineteen computer centers and the Division microcomputers. Their hiring and training will be coordinated to the equipment procurement and installation schedule.

The WAPDA Management Services training plan will be completed by the Department Training Coordinator. USAID assistance in the procurement of training materials will be requested once the plan has WAPDA approval.

Out-of-country training will continue through 1988. An additional thirteen Department staff are scheduled for training in 1987-1988 at AEP. In addition, one will leave for a two year MSc. program in the third quarter of 1987, and three will have six month assignments next year.

ATTACHMENT A

WPPA PLAN ACTIVITIES - MANAGEMENT SERVICES

28.01 Preparation of a Computer Systems Master Plan:

- define and begin implementation of the Management Services organization at all levels; and support the WAPDA Distribution reorganization.

- define and begin implementation of the Management Services Computer Systems Plan including definition of a general systems architecture, identification of needed systems, and design, procurement and installation of the computer network for systems operation.

28.02 Electricity Billing System Improvements:

- define and develop both technical and functional improvements to the WAPDA Electricity Billing System including decentralization of billing to local offices.

28.03 Development of Distribution Work Order and Stores Inventory and Control Systems:

- design and develop basic systems to assist with Work Order design, estimation, scheduling and control; and to assist with the inventory, control and tracking of the materials used in work orders.

28.04 Development of an Accounting System:

- design and develop a basic Distribution Accounting System to support the accounting procedures.

28.05 Development of a Payroll-Personnel System:

- design and develop a Payroll-Personnel System based on current WAPDA practices and improvements defined by the WAPDA/PTAT Administration team.

28.06 Development of a Management Reporting System:

- develop a Management Reporting System to consolidate summary information from other automated systems into a WAPDA management data base, and extract and report information as required by WAPDA management.28.07 Implementation of a Distribution Planning and Design System:

28.07 Implementation of a Distribution Planning and Design System:

- assist with implementation of the WAX/CADPAD Planning and Design System, and provide added features for AEB, Circle and Division use including automated transfer of data to a WAPDA Mapping System.

ATTACHMENT B

INDEX OF MANAGEMENT SERVICES REPORTS AND OPERATING PROCEDURES

DOCUMENT TITLE	STATUS
COMPUTER SYSTEMS PLAN REPORTS	Nov.1985(revised)
DISTRIBUTION WORK ORDER SYSTEM GENERAL DESIGN	Jan.1986(in use)
SPECIFICATIONS FOR REVISIONS TO THE WPPW ELECTRICITY BILLING SYSTEM	Feb.1986
COMPUTERIZED FINANCIAL SYSTEMS SPECIFICATIONS - PART I	May 1986
COMPUTERIZATION OF STORES INVENTORY SPECIFICATIONS REPORT	Jun.1986
SPECIFICATIONS FOR THE WPPW ACCOUNTING SYSTEM	Jul.1986
COMPUTERIZED FINANCIAL SYSTEMS SPECIFICATIONS - PART II	Aug.1986
CUSTOMER SYSTEM MICROCOMPUTER PROCEDURES OPERATIONS GUIDE	Jan.1987(in use)
COMPUTERIZED STORES INVENTORY REPORT	Mar.1987
COMPUTERIZED FINANCIAL SYSTEMS OPERATIONS GUIDE	Apr.1987(in use)
COMPUTERIZED STORES INVENTORY OPERATIONS GUIDE	(waiting field test)
PLANNING & DESIGN MICROCOMPUTER SYSTEM OPERATIONS GUIDE	(in pilot use)
RFQ 391-0473/WCC-1 FOR COMPUTER EQUIPMENT	NOV.1986
EVALUATION REPORT FOR RFQ 391-0473/WCC-1	Apr.1987
CONTRACT 391-0473/WCC-1.01 FOR AEM/CIRCLE COMPUTERS	Apr.1987
CONTRACT 391-0473/WCC-1.02 FOR MICROCOMPUTERS(AST)	Apr.1987
CONTRACT 391-0473/WCC-1.03 FOR MICROCOMPUTERS(IBM)	Apr.1987
CONTRACT 391-0473/WCC-1.04 FOR MICROCOMPUTERS(LTD)	Apr.1987
CONTRACT 391-0473/WCC-1.05 FOR MICROCOMPUTERS(COMPAQ)	Apr.1987
CONTRACT 391-0473/WCC-2 FOR COMPUTERS(IBM381/12)	Dec.1986
RFQ 391-0473/WCC-3 FOR UNINTERRUPTIBLE POWER SUPPLY AND STABILIZER EQUIPMENT	Mar.1987

DOCUMENT TITLE	STATUS
EVALUATION REPORT FOR RFQ 091-0473/WCC-3	(in progress)
COMPUTER DEPARTMENT TRAINING PROPOSAL	(in progress)
FIDER DATA BASE MICROCOMPUTER SYSTEM OPERATIONS GUIDE	(in progress)
DETAILED AUTOMATED WORK ORDER SYSTEM SPECIFICATIONS	(in progress)
AUTOMATED WORK ORDER SYSTEMS OPERATIONS GUIDE	(in progress)
PAYROLL-PERSONNEL SYSTEM PROPOSAL	(in progress)
MANAGEMENT REPORTING SYSTEM SPECIFICATIONS REPORT	(in progress)
DETAILED SPECIFICATIONS FOR THE WWTA ELECTRICITY BILLING SYSTEM	(in progress)

ATTACHMENT C

COMPUTERS AND ASSOCIATED EQUIPMENT DELIVERY SCHEDULE

COMPUTER CENTER EQUIPMENT	1986										1987										1988										1989				
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J
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VAX/CADFAD P&D Facility										XX		XX																														
Lahore CC 4381-12																	XX																									
Lahore Dev/Test Facility																					XX																					
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Islamabad AEB CC 4361-3												XX																														
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Multan Region	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
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Bahawalpur CC																											XX															
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Hyderabad AEB CC																													XX													
Sukkur CC																													XX													
Nawabshah CC Sys34																															XX											
Larkana CC 370/115																															XX											
Quetta Region	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Quetta AEB CC																														XX												
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INSTALL DIVISION MICROS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
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Multan																								XXXXXX																		
Hyderabad																									XXXXXXXX																	
Quetta																									XXXXXX																	
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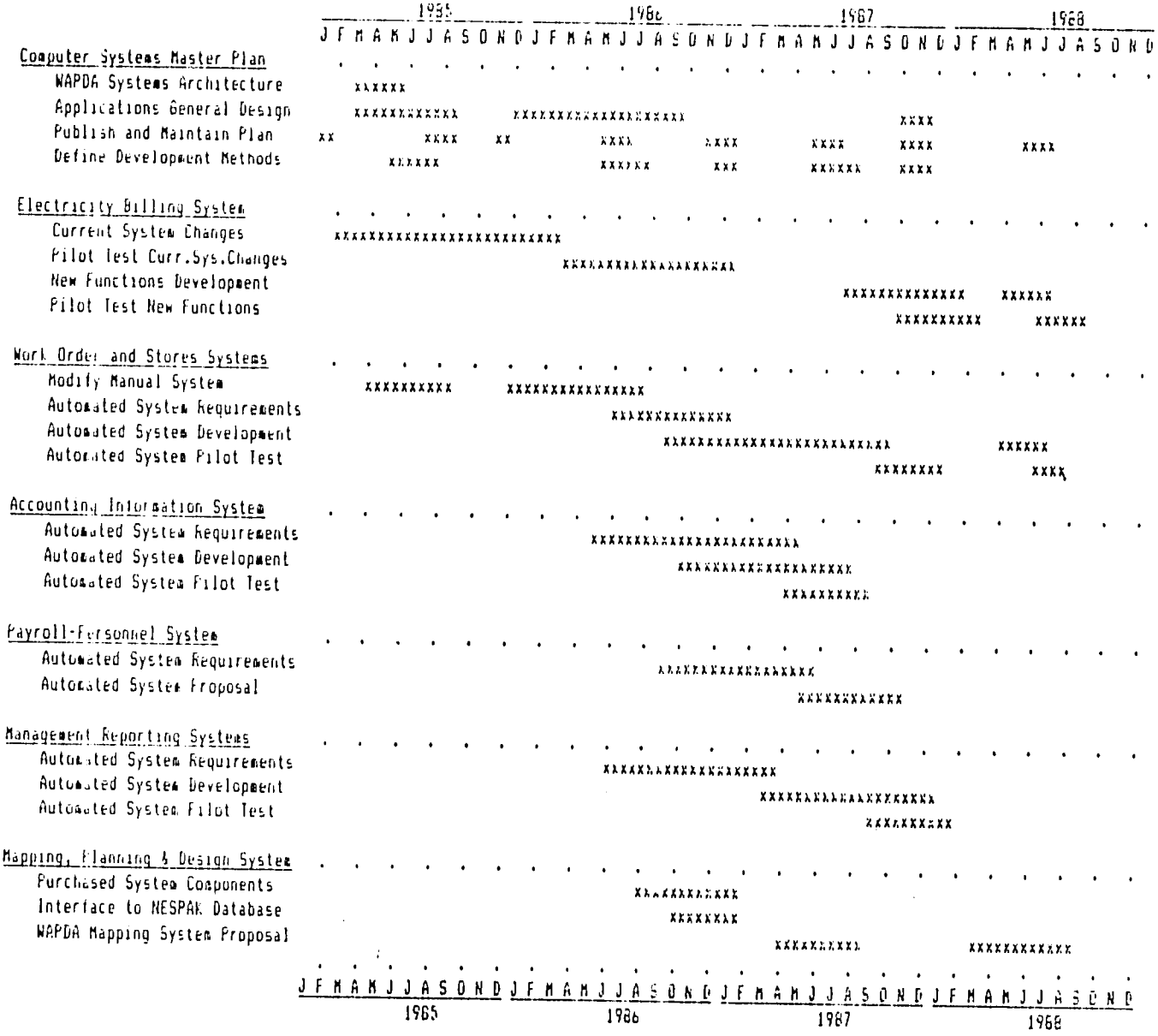
	1986												1987												1988												1989					

ATTACHMENT D

MANAGEMENT SERVICES COMPUTER APPLICATIONS SYSTEMS SCHEDULE



WAPDA

POWER DISTRIBUTION WING

IMPLEMENTATION PLAN

6.4 FINANCIAL COMPONENT

MAY 21, 1987

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   Short-Term Expatriates & WAPDA Counterparts
   AEP Volunteer Consultants
   Future Short-Term Expatriates and/or Volunteer Consultants
   Sister Utility Exchange - On The Job Training
   Sister Utility Exchange - WAPDA Implementation Staff Training
   Sister Utility Exchange - PTAT Staff Training

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   Internal Audit
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Depreciation Rates
Financial Accounting
Management Information
Organization and Staffing
Cost of Service and Rates
Internal Audit
Computerized Financial Systems

6. Implementation

7. Problems and Constraints

1. Background

WAPDA's past and present deficient accounting practices have resulted in recorded asset and liability account balances that are in many instances grossly inaccurate. These deficient accounting practices have also produced distortions in recorded operation and maintenance expenses. These same practices have resulted in WAPDA's inability to produce accurate financial statements, provide management with sound financial information on a timely basis or determine the cost of providing services to its customers.

All financial systems, with the exception of computerized billing in some AEBs, are based on antiquated manual procedures that are inherently laborious and inaccurate.

During the early development stages of this project, WAPDA's top management indicated that institutional improvements in the financial area were not needed. This clearly indicated that the gross deficiencies in WAPDA's financial operations were not understood by the Authority. The Financial Consultancy portion of the project was included upon USAID insistance.

The Internal Audit Consultancy was incorporated into the project in 1986 by mutual agreement between WAPDA, USAID and the World Bank.

The studies, analyses and confirmations completed todate have clearly indicated the major deficiencies within WAPDA's financial operations to the Authority members and other executive management personnel. The major emphasis is now focused on the means to correct the deficiencies rather than denial of their existence.

2. Organization, Staffing and Training

The Financial Project Team was organized in mid 1984 and has carried out the approved work plan in close cooperation with WAPDA Counterparts.

Long-Term Expatriates

Allen H. Stuhlmann	-	Chief Consultant - Financial
William R. Pethtel	-	Principal Consultant - Internal Audit

Pakistani Nationals (Sub Contractors)

Jameel Ur Rehman	-	Consultant - Financial
Akhlaq Ahmad	-	Jr. Advisor - Financial
M. Younas Khan	-	Jr. Advisor - Financial/Technical

WAPDA Assigned Staff

Mohammad Saleem	-	Sr. Budget & Accounts Officer
Sh. Mohammad Naeem	-	Accounts Manager

Principal WAPDA Counterparts

M. Rafiq Chaudhry	-	General Manager Finance (Power)
M. Ibrahim Cheema	-	Dy. General Manager Finance (Distribution)
Meraj Ahmed	-	Director Tariffs
Tajammul Hussain	-	Chief Auditor

Short-Term Expatriates & WAPDA Counterparts

Richard Shamblen Property Accounting Specialist (April-July 1985)	-	D. H. Naqvi Director Asset Accounting
Jack Pease Managerial Reporting Specialist (July-Sept 1985)	-	M. A. Hashmi Director Accounting System Cell
David Moore Cash Management Specialist (Sept-Nov 1985)	-	M. A. Durrani Director Banking
Manzoor A. Sheikh Financial Systems Specialist (Feb-Oct 1986)	-	M. Ibrahim Cheema Dy. General Manager Finance (Distribution)
Regis McCafferty Financial Systems Specialist (Jan 1987 to Present)	-	M. Ibrahim Cheema Dy. General Manager Finance (Distribution)

AEP Volunteer Consultants

Garry Johnson (Apr-May 1987)	-	Cost of Service Specialist
William Willis (Apr-May 1987)	-	Rate Design Specialist

Future Short-Term Expatriate and/or Volunteer Consultants

Financial Accounting
Depreciation
Asset Evaluation

Sister Utility Exchange - On The Job Training

D. H. Naqvi, Director Asset Accounting (Sept-Oct 1985)

M. A. Durrani, Director Banking (Apr-May 1986)

Noor Mohammad, Sr. Audit Officer (Aug-Oct 1986)

Ijaz Rasool, Sr. Audit Officer (Aug-Oct 1986)

Sister Utility Exchange - WAPDA Implementation Staff Training

M. Ibrahim Cheema	-	October-November 1984
Mohammad Jahangir	-	October-November 1984
Mohammad Saleem	-	October-November 1984
Sh. Mohammad Naeem	-	October-November 1984
M. Rafiq Chaudhry	-	October 1985
Shameem A. Chowdhry	-	October 1985

Sister Utility Exchange - PTAT (Sub-Contractor) Staff Training

Jameel Ur Rehman	-	October-November 1984
Akhlaq Ahmad	-	October-November 1984

In addition 25 WAPDA Finance Officers attended the Financial Management Course in Washington, DC.

3. Accomplishments To Date

The following summarizes the major accomplishments achieved to date in accordance with the Financial Work Plan:

Key Documents Produced

Financial Work Plan
Management Information Requirements
Economic Regions Study (Financial Analysis)
Inventory Valuation
Fixed Asset Accounting Manual
Financial Statements - Recommendations
Cash Management Improvements
Terms of Reference for Upgrading WAPDA Internal Audit
Utility Financial Management Course Outline
Preliminary Rate Design Study
Cost of Service and Rate Study (1986)
Cost of Service and Rate Study (1987)
Tariff and Rate Design Study (1987)
Tariff Change Monitoring - Manual Procedure
Tariff Change Monitoring - Spreadsheet Procedure
Confirm Current Assets
Confirm Current Liabilities
Confirm Fixed Assets (Pilot Test)
Confirm Fixed Assets - Work Plan
Revised Account Code
Computerized AEB/Div Accounting (Part I)
Computerized AEB/Div Accounting (Part II)
Asset Revaluation - Phase I
Location Codes

Current Assets and Current Liabilities

A detailed appraisal of WAPDA's Distribution current assets and current liabilities has been completed and documented. A high level committee has been appointed by the Authority to take follow up action.

Inventory Valuations

WAPDA's inventory valuation policies and procedures have been studied and documented. Recommendations for improvements have been implemented with one exception.

Cash Management

WAPDA's cash management policies and procedures have been studied in detail and recommendations for improvements have been documented. Most of the recommendations have been accepted by WAPDA. A number of revised procedures have been implemented on a trial basis.

Fixed Assets

The fixed assets in Samanabad pilot test division have been verified and documented in a study report. The work plan for verification of all Distribution fixed assets has been prepared, approved and issued. Verification of fixed assets is approximately 50% complete in Lahore AEB and 20% complete in Multan AEB.

A preliminary revaluation of WAPDA fixed assets has been completed and documented.

Construction/Retirement and Fixed Assets Accounting

WAPDA's asset accounting policies and procedures have been studied and evaluated. A Fixed Asset Accounting Manual has been developed, documented and issued.

Management Information

WAPDA's management information requirements and existing systems have been studied and evaluated. A study report has been developed and documented that recommends an improved system of managerial reports. A revised Account Code has been developed and is under review.

Financial Accounting

WAPDA's financial statements have been reformatted to achieve compliance with the International Accounting and Reporting Standards. Recommendations have been made to prepare the 1986-87 financial statements in accordance with the proposed formats.

Organization and Staffing

Proposed organization charts and manning tables for the Headquarters and AEB Distribution Finance functions have been developed and reviewed with key WAPDA officials.

The Financial function reorganization in the model divisions has been implemented. The new consolidated accounting units have been established and fully staffed. They have taken over all full responsibility for Financial function from the old accounting units which have been eliminated.

Cost of Service and Rates

Cost of Service Studies covering WAPDA's fiscal years 1984-85 and 1985-86 have been completed and documented in a full reports covering study methodologies and recommendations. The cost of service program (COSAM) previously installed in the WAPDA mainframe computer system was used to run the latest study. WAPDA and PTAT staff members have been trained in the use of COSAM. Alternative rate design recommendations have been developed and documented.

Internal Audit

Terms of Reference for the Internal Audit Consultancy have been developed, documented and approved by WAPDA, USAID and the World Bank.

The Internal Audit Work Plan has been developed, documented and approved by the Chief Auditor.

The Internal Audit Project office at 208-A New Muslim Town was occupied on March 3, 1987 and has been placed in full operation.

The first Internal Audit Seminar has been conducted for the Deputy Chief Auditors of each Headquarters section and the Area Electricity Boards (AEB's).

Twenty (20) Audit Officers have been selected to attend the Internal Audit Management course which is to be conducted by Ohio State University/American Electric Power (OSU/AEP) with a proposed start date of July 6, 1987.

Computerized Financial Systems

The computerized AEB/Division level accounting and reporting system has been developed, documented, tested and implemented in the Model Divisions.

4. Current Activities

Current Assets and Current Liabilities

The high level WAPDA committee appointed to take follow up action is holding discussions with Director Accounts in the AEB's and reviewing current asset and current liability accounts and records.

Cash Management

Preparations are in progress to test selected improved cash management procedures in the model divisions.

Fixed Assets

Verification of fixed assets in the Lahore and Multan AEB's is continuing in accordance with the work plan.

Management Information

A system of location codes to identify all Distribution formations is under development.

Organization and Staffing

Operation of the new consolidated accounting units in the model divisions is being closely monitored.

Cost of Service and Rates

Results of the recently completed and documented Cost of Service and Tariff Change studies are being reviewed and evaluated. Efforts are continuing to fill the vacant position of Dy. Director Tariffs (Engineering).

Internal Audit

Work is continuing on the development of audit guides and procedures in many areas with current emphasis on Customer Services and Stores Inventory.

Preparations are in progress for sending 20 audit officers to the Internal Audit Management Course at OSU/AEP beginning on July 6, 1987.

Computerized Financial Systems

Operation of the division level computerized accounting and reporting system installed in the model divisions is being closely monitored.

The AEB level computerized accounting and reporting system is being tested for future installation in Gujranwala AEB.

Future Plans

Cash Management

Implement selected cash management procedure revisions initially in the model divisions and Gujranwala AEB. Implement improved cash management procedures throughout the Power Distribution Wing on a phased in basis.

Fixed Assets

Complete current verification of fixed assets in the Lahore and Multan AEB's. Carry out verification of fixed assets in all AEB's. Revalue fixed Distribution assets to current cost levels.

Construction/Retirement and Fixed Assets Accounting

Develop and implement revised accounting procedures covering the construction and retirement of fixed assets. Updated fixed asset accounting records based on verified data.

Depreciation Rates

Develop functional depreciation rates for major classes of property based on expected service lives.

Financial Accounting

Revise the form and format of financial statements to achieve compliance with International Accounting Standards.

Management Information

Implement the new location code, revised account code and up grade managerial reporting systems.

Organization and Staffing

Implement the approved Power Distribution Wing organization at Headquarters and AEB levels.

Establish new consolidated accounting units for all operation divisions in accordance with overall reorganization plan.

Cost of Service and Rates

Complete staffing of the Tariff Directorate. Train two (2) Deputy Directors at AEP under the SUE program. Establish a continuing load research program.

Develop and implement an ongoing program to monitor revenue requirements and provide updated cost of service studies and rate design proposals.

Internal Audit

Obtain Authority approval for reorganization of the Internal Audit Headquarters and AEB organizations.

Conduct a "Train the Trainers" course on site for sixteen (16) audit officers.

Train twenty (20) audit officers via the OSU/AEP Internal Audit Management course.

Develop and implement a program of continuing professional education. Incorporate personnel from disciplines other than accounting into the organization.

Continue development of audit guides and procedures.

Computerized Financial Systems

Test and implement the AEB level computerized accounting and reporting system in Gujranwala AEB.

Implement the division and AEB level computerized accounting and reporting system in additional operation divisions and AEB's in accordance with overall reorganization plan.

Develop and implement computerized systems for basic accounting applications such as accounts payable, disbursements, payroll, construction work in progress, fixed assets, etc.

6. Implementation

Reorganize Power Distribution Wing financial function in accordance with the approved plan.

Recruit and assign well qualified personnel at all levels to staff key managerial positions.

Integrate the PTAT staff into the new organization's Financial Systems Directorate as the primary vehicle for development and implementation of improved systems and procedures.

Expedite the management decision making processes to facilitate the timely implementation of improved policies, procedures and systems.

Place high priority on the development of computerized financial systems to replace manual procedures wherever practical.

Phase out the PTAT staff as Power Distribution Wing personnel assume responsibility for systems development and implementation.

7. Problems and Constraints

The basic conditions from which almost all major problems and constraints arise are:

a) Lack of well qualified and highly motivated personnel in many management positions.

b) Excessive work loads on a few key managers.

c) Long and drawn out decision making processes.

d) Lack of ability and/or will to implement decisions once they have been made.

e) Poor working conditions and lack of facilities, equipment, etc. required to properly handle responsibilities.

POWER DISTRIBUTION WING IMPLEMENTATION PLAN

"PROCEDURES"

6.5 CUSTOMER SERVICES

19 MAY 1987

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IV. Outstanding decisions required

- Reorganization

  . Headquarters
  . Divisions

- Energy Conservation/Load Management
- Security Deposits
- Customer Service Center

I. Background/Status of Institutional Improvements:

Studies of conditions in WAPDA carried out early in the project indicated that improvement in several areas was needed. Specially they were:

- Improvement of customer education and community relations programms and practices.
- Improvement of customer service facilities and procedures.
- Improvement of customer accounts management and distribution function accounting practices and procedures.

A work plan was developed targetting six specific areas where meaningful results could be obtained:

- Modification of WAPDA's current Commercial Procedures to provide better service to the customer, improvement in efficiency and increasing employee accountability.
- Modification of WAPDA's Energy Surveillance program to reduce losses resulting from energy theft and to improve the recovery of revenues.
- Modification to WAPDA's security deposit policy to reduce losses from bad debts.
- The design and construction of two types of model Customer Service Centers to demonstrate the improvements to customer service that can be made by proper physical location and buildings.
- Establishment of an Energy Conservation and Load Management function within WAPDA emphasizing customer education to reduce unnecessary use and the waste of electric energy.
- Establishment of a Customer Service function to operate at all levels of WAPDA incorporating the current duties of the Division Revenue Office up through the Chief Commercial Manager in WAPDA Headquarters.

A total integration of organization and procedures was pre-eminent throughout development.

Reorganization:

Studies of the Customer Service functions at WAPDA showed that the functional responsibilities were not properly assigned to allow for the desired improvements in Customer Service. The overall Customer Services Organization which was proposed was designed for the concept of direction through functional guidance from headquarters through the field operations in the divisions and sub-divisions. Administrative authority for performance at the appropriate level was also designed into the organization. Customer Service function alongwith the officers in charge for the entire organization is shown in Annex "M".

A. **Division:**

A new division organization was proposed to group customer assistance employees giving them the responsibility to handle all customer inquiries, complaints, applications, and other contacts. Organization charts and manning tables were prepared (See Annex "I"). The proposal included transfer of meter readers to the Customer Service Section. The new division computers would be operated under the direction of the Customer Services Officer. As a result, customers will have one section to contact rather than being shuffled from place to place to resolve their problem. Job descriptions were prepared for Division Supervisors and Officers (See Annex "J").

The training program for affected division personnel was formulated and completed in February 1987. The Customer Services Section in the model divisions began functioning under the reorganized structure in March 1987 in spite of the fact that several supervisory posts were vacant. This situation exists yet today in both of the model divisions. A scheduled SUE exchange for three volunteer consultants and three WAPDA officers will commence in 1987 including two WAPDA Customer Services Officers and one WAPDA Sub-Division Officer.

Improved customer service with associated improvements in customer relations is a basic objective of the reorganization. The changes that are being proposed are designed to provide improvement in service to customers. Customer Assistance will be equipped to effectively handle customer requests and complaints. The concept of one-stop service will be emphasized. The current practice of repeated customer visits to handle a single business item will be reduced. The new organization with the use of computers in the division will improve the divisional efficiency and accountability. Customer Service employees will have less opportunity to use their personal discretion in customer financial transactions, and computer generated reports will provide managers with information on which to take appropriate action. Applications for service, meter reading, billing including adjustments, bill distribution, debtor control, service disconnects and reconnects authorization, customer enquiries, customer advice, and energy conservation and load management will all be in the Customer Service Section. All commercial functions dealing with the customers will be coordinated and directed by Customer Services.

A Customer Service Centre building or complex housing all division operations and support facilities will enhance the operation.

The proposed Customer Service function will be responsible for the following activities:

Customer Assistance:

Customers requesting a new service will make their application to Customer Assistance. The required documents will be prepared and processed. The design of the physical facilities will be done by the Planning Engineer. Applications for service above 70 KW will be forwarded to the Superintending Engineer for action. A proposed Energy Conservation and Load Management cell operating in the AEBs will handle the large customer applications.

Customer complaints regarding billing, meter reading, and tariff application, will be resolved by Customer Assistance.

After having been disconnected, customers will be provided assistance in making arrangements for restoration of service.

Bill distribution will be a function of Customer Assistance as will the litigation responsibilities.

Customer Accounts:

Customer Accounts will be responsible for the meter reading function. The meter reading will be entered into the computer in the division. Exception lists of irregular usage indicating possible error condition will reduce incorrect billings to customers. Estimating readings and adjustments to readings will then no longer be at the meter readers personal discretion which will reduce exposure to illegal gratification.

Adjustment to customers bills as well as billing factor changes will be performed by Customer Accounts. This data will be entered daily into the computer. Debtor control will also function in this section and operate under the guidelines promulgated by the regulations governing their application.

Computer Operations:

The use of computer system will be an important tool in providing management with information for improving control. In the division a computer will be available in the Customer Services Section and will be used for:

- data entry and validation of customer orders, adjustments, and meter readings;
- data entry and validation of stores transactions;
- data entry, validation and processing of division accounting activity;
- support of work order planning, estimating and the preparation of bill of materials;
- data entry and validation of payroll and personnel transactions and time reports.

The purpose of these changes is to reduce the delay between capture of data and the time it is ready for processing, to simplify the operations by automating some of the routine tasks and to provide support for new and improved division operations.

B. Area Electricity Boards/Circles:

The objective of institutional improvements being recommended for WAPDA's AEB and Circles Customer Services function is to improve the efficiency in the operation with resultant improvements in customer service. To

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B. Area Electricity Boards/Circles:

The objective of institutional improvements being recommended for WAPDA's AEB and Circles Customer Services function is to improve the efficiency in the operation with resultant improvements in customer service. To

accomplish this objective, changes in the organization structure as well as functional revisions are being proposed. Additionally, a new function (EC/LM) is being recommended to improve customer relations. Customer Service management will be strengthened with the improved monitoring and control facilities being proposed.

Other functional operations will also benefit from the improvements being recommended in Customer Services. More accurate and timely computerized reports will allow managerial decisions to be made sooner based on more factual information.

Support of field operations will be enhanced when the Headquarters, AEBs, Circles and Divisions are reorganized and functional responsibilities have direct and clearly defined lines of authority and responsibility.

The key to the success of the plans being laid in Customer Services is twofold. Well trained and experienced personnel must be placed in key positions. Secondly, the attitude of the implementors must reflect anticipated success.

Field observations, studies, and interviews were used to define problem areas. Organizational,functional, and procedural problems were identified at all levels of the organization. Customers opinions were obtained which contributed to the emphasis to improve service to customers.

Studies of the existing commercial procedures found that the divisions receive little or no functional guidance from AEB, Circles, or Headquarters organizations. Communication and problem solving frequently takes place between division and headquarters personnel, often through unrelated functional areas. For example, a division computer problem is solved by direct communication between the division and the WAPDA Computer Centre in Headquarters bypassing the Circle, the AEB, and the counterpart function in Headquarters. This deprives other divisions of sharing the solution to the problem which they may also be encountering.

Directives from Headquarter are often not implemented in the AEB's and Divisions because there is inadequate monitoring and control.

Personnel are assigned to positions without the proper training and/or experience often on a temporary basis. Managers tend to ignore monitoring and control responsibilities which is part of the problem of the inconsistancy in following procedures. Reorganized AEBs will provide continuous monitoring and control of division operations so that the procedures and directives will be strictly followed.

Customer Services personnel lack the business tools to effectively manage. Reports are not interpreted or used for developing correct and effective action. The majority of data is hand accumulated and transcribed several times leading to errors.

Managers and supervisors are somewhat reluctant to act on obvious subordinate misconduct.

There are other problems dealing with employee morale and motivation which must be first acknowledged and then addressed by WAPDA. These problems deal more with attitudes than organization, functions, and procedures.

Foremost, the AEBs need to be reorganized into functional components which reflect the activities at both headquarters, and the divisions they support (See Annex "K"). A Deputy Director - Customer Services, positioned in the Circle or Regional Office in a staff position will report to the Superintending Engineer. This Deputy Director will accumulate data from the divisions as prescribed by the Commercial Procedure and assemble reports as required by Customer Services AEB personnel. He will also coordinate, monitor, and control division functional activities as directed by the Superintending Engineer, and act to maintain the effective flow of communication between the AEB and its divisions.

Key posts must be filled with trained and experienced personnel who are dedicated to achieving the intended results. There should be ample opportunities for career advancement to motivate personnel and keep them committed to the Customer Services function.

These new Managers must demand strict adherence to established procedures. They must become involved with, and interact with circle/division personnel, monitoring their performance and effectively correcting deviations from the prescribed policies and procedures.

Enthusiastic attitudes must be instilled at all levels.

In order to accomplish the wide range of anticipated results, a plan of action is proposed:

- A reorganized Customer Services function be implemented in the Gujranwala AEB as a pilot operation.

- Adherence to the provisions of the position descriptions prepared for all key positions from BPS level 17 through 19 (See Annex "L"). The Director - Customer Services must hold his staff accountable for all provisions of their individual and common responsibilities.

- Implementation of computer generated reports which will compile information in a format designed for monitoring and control activities.

Implementation of enhanced commercial procedures, establishment of an Energy Conservation function, enhancement and expansion of the Energy Surveillance function, and a program to construct Customer Service Centres in all divisions as they are reorganized will all contribute to the planned improvements.

Benefits to be Realized:

- Headquarters will have an AEB organization which will be accountable by function for the adherence and implementation of policies and procedures.

- The AEBs/Circles will functionally control the activities of the divisions with uniformity and monitor, measure, and control activities improvement.

- Improved Customer Service and fewer complaints.

- Reduction of non-technical energy losses.

- Reduced energy losses through customer education programs.

- Improvement of Customer Service Division accommodations.

- Improvement of personnel's attitudes and morale.

- Improvement of WAPDA's image.

Institutional changes alone will not have the required impact in the attitudes that are needed. It is anticipated, however, that as institutional changes are implemented, the level of professionalism will increase with a commensurate positive change in attitude.

What has been designed as the Customer Services function is now headed by a Director - Commercial. The person in this position is responsible for functions carried out by the following subordinates:

- Deputy Director - Commercial
- Deputy Commercial Manager
- Deputy Director - Commercial Surveillance
- (Staff to handle Ombudsman Cases)

The Deputy Director - Commercial is currently directing the following activities as follows:

- Records line losses
- Handles customer complaints
- Committee member to investigate cases of theft
- Maintains MDI Customer Records

The Deputy Commercial Manager is concerned with division activities as follows:

- Commercial procedures in Sub-divisions and Revenue Offices.
- Maintains and reviews financial activities in Sub-divisions and Revenue Offices.
- Deals with outstanding audit notes relating to Revenue Offices.
- Directs the opening of new collection offices.

The Deputy Director - Commercial Surveillance supervises the investigation of non-technical losses regarding customers upto 500 KW of demand.

Commercial procedure training in the Sub-divisions and Revenue Offices is handled by the Deputy Director - Training.

A Junior Superintendent is responsible for Ombudsman Cases.

In the Circles, a Deputy Commercial Manager reports to the Superintending Engineer.

Responsibilities for the overall Customer Service activities in the proposed AEB/Circles will be divided by, and into, discret functions. These functions coincide with the planned organizations proposed for headquarters and divisions (See Annex "M"). A new function for improved customer services in the area of Energy Conservation and Load Management (EC/LM) will be for the AEB as shown. The Deputy Director - Energy Surveillance will need expanded staff to accommodate the increased activity being planned for the section. The Deputy Director (Commercial) position and associated staff will fall under the responsibility of the Training Component in the reorganized AEB. Duties of the current Deputy Director - Commercial and Deputy Commercial Manager will fall to the Deputy Director - Customer Assistance and Deputy Director - Customer Accounts respectively.

The Energy Surveillance and EC/LM function will be field oriented, investigating all classes of customers with some responsibility for giving functional guidance to divisions. Energy Surveillance will also have the support of computerized monitoring of customer's usage to point out exceptions and provide the basis for field investigations, in addition to routine checks. The Deputy Directors for Customer Assistance and Customer Accounts will be responsible for measuring, monitoring, and controlling their respective field functions.

Position descriptions contained in Annex "L" were designed to provide paths of advancement through the ranks of the Customer Service organization.

The organizational chart in Annex "K" shows the proposed reorganized Customer Services AEB/Circle. It is proposed that the existing Ombudsman Cases staff would report to the Deputy Director - Customer Assistance. It is also proposed to have additional leave reserve staff for all positions below BPS-12, in accordance with WAPDA's personnel policy.

C. Headquarters:

The headquarters organization which has been proposed is shown in Annex "N". The positions were designed to give the required functional guidance to the field operations and the opportunity to monitor and control results.

In the proposed organization a General Manager (GM) Customer Services will report to the Managing Director of Distribution. Reporting to the General Manager Customer Services will be two Director Generals (DG), DG Energy Management and DG Commercial. The functions of Energy Surveillance and Customer Relations - Energy Conservation/Load Management will fall under the DG Energy Management. The DG Commercial will be responsible for the functional areas of Customer Accounts, Customer Assistance and Commercial Systems Operation. The Commercial System Operation function will be the interface between commercial activities in Distribution and the WAPDA Computer Center.

Position description for these posts can be found in Annex "O".

To date the positions of General Manager Customer Services, Director General Energy Management, Director EC/LM and Director Customer Accounts are vacant.

Energy Conservation/Load Management:

A five member Energy Conservation Load Management WAPDA team was formed early in 1985. Training of the team included customer contact in two Divisions of each region and at the Karachi Electric Supply Corporation. A SUE team from AEP, with one member for each class of customers, visited Pakistan and worked with the WAPDA team for 4 weeks. The WAPDA team then worked at AEP for 13 weeks. An Energy Conservation Specialist visited Pakistan for 4 months and helped conduct a study of industrial customers on B3 tariff at Lahore. A computer program forecast a potential saving of 20 MVA by 50 customers through power factor improvement by installing capacitors (See Annex "F"). The average payback period was 7 months. A proposed power factor incentive class was also formulated and presented to WAPDA (See Annex "G"). This would give further capacity savings. Cogeneration potential was also studied and recommendations made. The Specialist also prepared and presented to WAPDA a proposal to create a customer information, energy conservation/load management cell (See Annex "H").

The WAPDA team has since carried out energy audits of 34 customers on 6 feeders and 29 furnaces in eight grid stations. They presented their recommendations to customers and convinced them of the potential savings. Eight customers have installed capacitors and achieved forecast benefits. Follow-up visits to these customers were made to confirm benefits. Customer billing complaints, WAPDA equipment defect complaints, voltage fluctuation complaints and delayed service complaints were also rectified.

The five WAPDA Engineers are continuing in their training. Courses are being arranged through the Punjab University in the fields of lighting, building energy estimating and energy management. They have also been currently assigned responsibility for revisions to the job descriptions of the proposed EC/LM Area Electricity Board team. The team would utilize their own experience to help train the Area Board staff. The work will be monitored by PTAT personnel.

A community relations program is planned to be built as part of the EC/LM function. It will include visual displays and lectures of short duration of schools, colleges, social and cultural clubs or appropriate gatherings. For rural customers, mobile audio visual aids could be used. Problem solving meetings and seminars will also be arranged to help the public use WAPDA services more efficiently.

A public relations SUE exchange is currently in progress. It is intended that the Public Relations Officer will be trained to support the EC/LM function in Customer Services.

Commercial Procedures:

Early in 1985, work on the revision of commercial procedures was started. A WAPDA/PTAT Users Committee was established in April. A

Deputy Commercial Manager of WAPDA was assigned to the Customer Accounts Section of American Electric Power Company's Division Office during June and July 1985, and a Customer Accounts Specialist from AEP was assigned to Pakistan as a short term expatriate. The Users Committee prepared a set of proposed commercial procedures which were submitted to WAPDA for review (See Annex "A"). The following objectives were targetted by the revisions:

- Improve computer controls for revenue, cash, and adjustments.
- Reduction of time between meter reading and delivery of bill by upto 5 days.
- Expansion of customer's record information to provide better quality of service.
- Elimination of personal discretion of meter readers, engineers and revenue officers.
- Increased accountability of distribution staff by giving management computerized tools for better control.
- Development of standard classification codes to assist in preparing consolidated reports by customer class.
- Consolidation of all commercial functions under the responsibility of a Customer Services Officer.
- Transfer of the accounting function from the Revenue Officer to the Budget & Accounts Section.
- Introduction of payment of bills at any convenient bank branch or Customer Services Center thus making it easier for the customer to pay power bills.
- Emphasis of better service to the customer by combining all commercial functions at a Customer Services Center where the customer can go for all contacts with WAPDA such as:
  - outages complaints
  - application for new or re-connection of service
  - billing complaints
  - energy conservation/load management
  - payments
- Overall increase in the efficiency of commercial functions, by the use of centralised payment and collection system and through the wide-spread use of computer.

In 1986, a plan was prepared for the pilot testing of the proposed commercial procedures at the two model divisions. A Sister Utility Exchange Program using a volunteer consultant from AEP and a team of WAPDA personnel studied the customer accounts procedures policies and practices to be used. This team consisted of Director Commercial Systems Operation, Deputy Commercial Manager (Sheikhupura Ciracle) Revenue Officer (Sheikhupura Division) and Revenue Officer (Muridke Division).

Final revisions to the proposed commercial procedures have been started by PTAT and WAPDA. Efforts include increased computerization where practicable to bring about those changes that will serve the best interest of WAPDA'a customers ana are acceptable to both WAPDA and PTAT. Expansion of the customer's master file information has been proposed. The revised customer record content has been forwarded to WAPDA for the preparation of programs prior to the start of pilot testing of commercial procedures at the two model division. Work continues on the final revision of other parts of commercial procedures. A Customer Accounts Specialist has been on site as a short term expatriate to assist with the enhanced commercial procedures. A draft of proposed commercial procedures to be tested in the model divisions has been prepared (See Annex "B").

Micro-computers were installed in specially equipped rooms in the model divisions. Data entry and validation was the first step in the overall plan to operate the computers using the proposed enhancements to the commercial procedures. As soon as the proposed master record (See Annex "D") and the proposed commercial procedures are programmed, a parallel test of the procedures will commence. Two Revenue Officers have been attached to the PTAT to assist in the test.

A proposal for 'Standard Classification Codes' has been developed to group customers by specific categories (See Annex "C"). The use of such codes in a computerized billing system will allow rapid access to billing history with resulting savings over manual data accumulation and improvements in the accuracy of the reports. The proposal has been released to the concerned officials in WAPDA, PTAT, USAID and ENERPLAN.

Preparations are being made to develop a training program based on the computerized commercial procedures, prior to their implementation WAPDA-wide.

Activities planned to complete the enhancement of the commercial procedures are:

- Complete working draft of proposed commercial procedures - July 1987.
- Computer programming of revised commercial procedures completed - December 1987.
- Pilot testing of revised commercial procedures at Sheikhupura and Muridke to commence - February 1988.
- Training of Customer Services Officers of Sheikhupura and Muridke Division at AEP offices in the USA completed - May 1988.
- Final revision of revised commercial procedures manual completed - March 1988.
- Implementation of all revised commercial procedures to be completed at Sheikhupura and Muridke Division - June 1988.

- Approval of the commercial procedures manual - July 1988.
- Implementation of commercial procedures at a selected AEB to commence - August 1988.
- Commencement of WAPDA-wide implementation of approved commercial procedures - January 1989.

Security Deposits:

Security deposits policies and procedures were studied in January 1985 and a proposal was made to WAPDA to increase the amount of individual deposit required equal to the customers two month average expected revenue, (Governmental accounts would be exempted and supplementary security deposits would not be requested from current customers with good records for paying bills on time). The proposal to increase security deposits was submitted by the Authority to the Ministry of Water and Power. The revised policy will be implemented after approval by the Ministry. (See Annex "T").

Model Customer Service Centres:

A survey was made of the physical locations of the offices which serve the public. It was found that they are often poorly located and not well suited for customer traffic. Conceptual designs for both a Division Customer Service Centre and a Sub-Division Customer Service Centre were completed in June 1986 (See Annex "R").

PTAT/WAPDA staff met regularly with the Architect to assure that the structures would have adequate space and that the flow of people, material and information would be efficient providing good services to customers. An in-country Architect enetered into a separate contract with USAID to prepare working construction drawings of both buildings. Since both the model division and the enhanced commercial procedures will be tested at the Sheikhupura and Muridke Divisions it was agreed to plan for construction of the buildings on sites in these two divisions. The Architect has visited sites in Sheikhupura and the local Superintending Engineer is pursuing the acquisition of the land.

Site selection for a Customer Service Centre in Sheikhupura is in progress. The layout of the center has had minor changes as the need for model division organization functions evolve into firm plans.

The PTAT and WAPDA will work with the Architect in the site selection and ultimate construction of a division Customer Service Centre and a sub-division Customer Service Centre at Sheikhupura.

Energy Surveillance:

WAPDA's Energy Surveillance Program is designed to detect energy theft and recover lost revenues. In some instances legal action is initiated against customers. While many 3 phase metering locations on the customers service have been made much more secure using anti theft boxes, energy theft remains a major problem. A computer program was developed to monitor customer billings and to identify accounts where electrical usage factors vary from predetermined limits (See Annex "E"). A similar program will be an integral part of the future system to help reduce energy theft.

During the months of August through October, 1986 all Area Electricity Boards were included in a study of the energy theft problem. The study also involved the Director Commecial and Deputy Director Energy Surveillance in the Area Electricity Boards and the Chief Commercial Manager and his Energy Surveillance staff at Headquarters.

Plans are being finalized for field trips with Area Electricity Board employees to investigate cases of energy theft, including meter testing. These results as well as previously gained experience will be the basis for a questionnaire to be sent to all division Executive Engineers and will help form the guidelines for the new program. The division questionnaires will be circulated and analyzed, and based on these results, a comprehensive Energy Surveillance Program will be designed. An SUE exchange involving one volunteer consultant and three WAPDA employees is currently underway. A short term expatriate is planned for a three month assignment for development and pilot testing in January 1988.

II. List of Procedures:

Annex	Title
"A"	Derrick Hayes - End of Tour Report - Commercial Procedures Enhancement Concepts.
"B"	Proposed Commercial procedures.
"C"	Standard Classification Codes Proposal.
"D"	Master Record Proposal.
"E"	Sample copies of Energy Surveillance Computer Generated Exception Lists.
"F"	50 Customers B-3 Study.
"G"	Power Factor Clause Proposal.
"H"	Energy Conservation/Load Management - Customer Relations Function Proposal.
"I"	Model Division Organization and Manning Charts.
"J"	Division Supervisory Position Description.
"K"	Area Electricity Board Organizational and Manning Charts.
"L"	Area Electricity Board Position Descriptions.
"M"	Customer Services Organization.
"N"	Headquarters Organizational Chart.
"O"	Headquarters Position Descriptions.
"P"	Sister Utility Schedule.
"Q"	Customer Services Implementation Schedule.
"R"	Model Division and Sub-Division Customer Service Centre Conceptual Drawings.
"S"	Implementation, Activity Schedule and Personnel Requirement Report.
"T"	Security Deposit Report.

III. Methods/Strategies for Implementation of Procedures:

It will be of great importance for the General Manager (GM) Customer Services to take the lead role in the remaining program development and the implementation of proposals already submitted. Certain unfamiliar areas will need the close consultancy of the PTAT, but as concepts become clear the courses of direction are set, the General Manager must demonstrate leadership. Training of the participants involved with proposal development and implementation has been and will continue to be used (See Annex "P"). Those Sister Utility Exchange (SUE) WAPDA employees who have received training at American Electric Power (AEP) will use that training to shape the WAPDA of the future. Future SUE participants will need to assume even more responsibilities, be highly qualified, and be expected to contribute for a prescribed minimum time. Officers selected for SUE participation must be of the highest calibre and pass the approval tests of both WAPDA and the PTAT. The rationale behind each of the exchanges will be detailed as each function is addressed.

Key activities and a plan of action is shown in the implementation schedule for Customer Services in Annex "Q". An orderly progression of activities has been planned to coordinate with the overall project time frame. It is planned that implementation will continue throughout WAPDA past the expiration of the current project. An implementation activity schedule and personnel requirements report developed jointly with WAPDA is shown in Annex "S".

Reorganization:

A. Divisions:

Both Customer Services Officers and a Sub-Division Officer (rural area) in the model divisions will be participating in a Sister Utility Exchange. This exchange will be followed by two additional Customer Services Officers and two Sub-Divisional Officers participating in the program. These officers who have been trained will be the ones to train others and lead the reorganization of Customer Services throughout WAPDA. The two Customer Services Officers have received special training to initiate the model division concept and should be considered for assignments in the overall reorganization process.

B. AEB/Circle:

A proposal to test a reorganized AEB is under consideration. In preparation for the overall implementation, a seminar is being scheduled for July 23, 24, and 25 and the Distribution Training Centre in Lahore for the Customer Services Directors in WAPDA. This seminar will attempt to explain the concepts contained in the proposed institutional improvements and will involve the directors in identifying and solving current problems. Participation will be stressed.

Each of the AEB Director Customer Services will be scheduled for training in the AEP System through an SUE experience. The AEB Directors will then be in a position to implement and manage the Customer Service function as reorganization takes place.

C. Headquarters:

Changes in headquarters will take place following the appointment of the General Manager (GM) Customer Services. The delegation of responsibilities and authority with the expectation of positive results will be the motivation for the adoption of the changes being sought. Assignment of the Director General - Energy Management and other staff will be a priority matter.

Both the Director General Commercial and the Director General Energy Management are scheduled for implementation staff training in the AEP system later this year.

Energy Conservation/Load Management (EC/LM):

An EC/LM function can be created within WAPDA following the listed steps. It is important to expedite decisions on this matter in order to maintain the enthusiasm and attitude of the engineers who have been trained:

- Sanction five EC/LM positions within WAPDA headquarters placing the five trained WAPDA engineers in the positions.
- Sanction five EC/LM positions in a test AEB (preferably Gujranwala).
- Staff and train the AEB EC/LM team.
- Monitor the AEB test and modify program as required.
- Develop criteria for divisions and test at Sheikhupura and Muridke.
- Staff and train EC/LM Cells in remaining AEBs.
- Monitor operation and develop revised staffing as required.

An SUE is currently in progress for public relations liaison purposes and a pakistani contractor staff training program is scheduled.

Commercial Procedures:

The testing of the proposed commercial procedures will be most critical to the overall success of the implementation process followed by the need for trained personnel to implement the procedures. Therefore all eight AEB Deputy Directors and the Headquarters Director Customer Account are scheduled for a SUE assignment. Implementation is planned on the following format:

- Final revisions of commercial procedures proposal.
- Adaptation and programming of revised procedures for pilot testing.
- Pilot test of revised commercial procedures at two model divisions.
- Preparation of training modules.

- Training of other division staff at model divisions.
- Pilot implementation of approved commercial procedures at the model divisions.
- Preparation of revised commercial procedures manual for approval.
- Pilot implementation of approved commercial procedures within one whole AEB.
- Implementation of approved commercial procedures at other AEBs.
- implementation and Monitoring of revised commercial procedures WAPDA-wide.

Security Deposits:

Implementation of an enhanced customer security deposit system are planned as follows:

- Ministry acts on authority's recommendation.
- New procedure is prepared to replace current format and sent to all holders of commercial procedure manuals.
- Changes are communicated to the training section and incorporated into the affected modules.
- Field operations are monitored to assure compliance.

Customer Service Centers:

Model Customer Service Centre Implementation Plans are as follows:

- Select and obtain suitable land for a Model Customer Services Centre (Sheikhupura) (See conceptual drawings in Annex "R").
- Direct the preparation of working construction drawings for the Customer Services Centres.
- Monitor construction of the building.
- Monitor the selection and procurement of office furnishing in conjunction with the General Service Section.
- Study and monitor the operation, recommending modifications as required.

Energy Surveillance:

The Headquarters Director and two Deputy Directors - Energy Surveillance are currently indoctrinating their AEP counterpart in existing policies and procedures. They will travel to the USA this fall for important on the job training at AEP. It is planned for the AEP SUE counterpart to return for a short term assignment early in 1988.

Energy Surveillance Implementation Plans are as follows:

- Complete field interviews and proceed with division questionnaire plan.
- EST to Pakistan.
- Finalize the development of the program.
- Measure the effectiveness of the program in a controlled test situation.
- Staff, equip, and train the personnel.
- Monitor the program and modify where needed.

Outstanding Decisions required:

Reorganization:

- Headquarters - sanctioning and posting of staff
- Division - posting of supervisory staff

Energy Conservation/Load Management - Customer Relations:

- Analysis of Power Factor Proposal
- Implementation of the plan to create an Energy Conservation/Load Management Customer Information Cell within WAPDA is pending the approval to proceed. Five WAPDA engineers, seconded to the PTAT staff, have been trained and are prepared to direct activities from WAPDA headquarters as soon as the function is sanctioned.

6.6 OPERATIONS (DISTRIBUTION)

TABLE OF CONTENTS

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I.	PROCEDURES AND GUIDELINES	1
II	METHODS/STRATEGIES FOR IMPLEMENTATION OF THE PROCEDURES	4
III	STATUS OF INSTITUTIONAL IMPROVEMENTS	5
IV	OUTSTANDING DECISIONS REQUIRED	7

I PROCEDURES AND GUIDELINES

A copy of these procedures and guidelines is attached.

1. WAPDA Distribution Construction, Maintenance & Operation.....

   - Distribution Construction Procedures Manual
   - Distribution Maintenance Procedures Manual
   - Distribution Operating Procedures Manual

   These procedures have been developed for use by line crew personnel and for management and supervisors who supervise the line crews.

   The manuals contain procedures and guides to install, maintain and operate the power distribution equipment in a safe, uniform and efficient manner.

   The procedures are in strict adherence to the WAPDA Safety Code.

2. Distribution Communications Systems Report

   The report lays down basis for radio communications equipment requirements for safe and efficient operation of distribution systems. Identifies maintenance and operations organization and personnel training for the recommended communications system.

3. Distribution Measurements

   - Meter Standards Manual

     The manual lays down standards for testing, repair, storage and installation of WAPDA energy meters and the allied equipment.

   - Centralized Meter Test Laboratory Report

     The report provides WAPDA with a description of a typical centralized meter test laboratory. This information can be used as a bench-mark in establishing centralized meter test labs in WAPDA System.

4. Distribution Mapping

   - Distribution Mapping Report M-I

     The report recommends survey criteria and lays down standards for distribution property record mapping and feeder one-line maps with an analysis of distribution mapping cost estimation.

- Report on WAPDA Distribution System Mapping Project

  The report discusses mapping requirements for providing accurate data to be used in load management planning and engineering, organization to produce and to maintain the maps and procedures to be used to assure accuracy and uniformity of distribution maps.

- Terms of Reference and Contract Document for the first WAPDA Mapping Project

5. WAPDA Power Distribution Load Management Program

   The program determines the normal diversified hourly load characteristics of each principal customer class, the impact of direct control load management on these customer classes, the effectiveness of the load management control strategy, customer attitudes, reliability of load management equipment installations and practicability of direct control load management on the WAPDA System.

6. WAPDA Distribution Switching Operation Procedure Manual

   The procedure manual details the manner whereby distribution lines and equipment are energized, de-energized or re-energized. Compliance to the manual will ensure safety of equipment, employees and the general public.

7. WAPDA Distribution Field Switching Guide

   The Guide, with reference to Switching Operation Procedures Manual, delineates responsibility and action of the organizations involved for issuance of Permit-to-work clearance on distribution facilities.

8. WAPDA Distribution Work Order System

   The work order system has been developed to assist WAPDA Distribution personnel to plan, execute, manage, and account for distribution works.

9. Capacitor Bank Field Maintenance Procedure

   The document lays down procedures for inspection, testing and maintenance of HT line capacitor banks and their allied control equipment.

10. Institutional Improvements Program

- Model Division Reorganization (Implementation)

  - Organization, staffing, transport and equipment as related to Service (Construction), Maintenance Operations functions.

  - New (connections) application procedure as related to division service engineer and sub division service supervisor).

  - Operation of the Despatch and Complaint Centres.

  - Division Operations Coordinating Centre.

  - Radio Operating Procedures.

  - Meter Electricians' Training Course.

- Area Electricity Boards and Circles (Construction, Maintenance & Operation functions)

  Draft recommendations on organizational changes and related staff requirements have been developed after discussion at various levels in the WAPDA distribution function.

11. Monitoring, Inspection and Certification

- Distribution System Line Construction Monitoring and Inspection Procedures

  Draft procedures have been developed to define the scope and coverage of distribution system line inspection and monitoring during the active construction phases and as the reference for determining the completed work. The procedures are in the process of finalization.

12. WAPDA Crash Rehabilitation Program

- General procedure for feeder rehabilitation.
- Formats for collection of feeder physical and electrical data.
- PC based distribution feeder operating condition analysis program.
- Economic justification formula for rehabilitation of feeders.
- Engineering proposals and work orders for rehabilitation of 45 feeders in Lahore and Peshawar AEBs.

II METHODS/STRATEGIES FOR IMPLEMENTATION OF THE PROCEDURES

With the reorganization of the Distribution Wing of WAPDA in accordance with the Institutional Improvement Program, operational procedures and guidelines have been developed to insure that the operations area functions as it was intended to.

The procedures that have been developed, in most cases, are self explanatory, however, as part of the methods/strategies for implementation of the developed procedures, frequent visits have been paid to the Model Divisions operations offices and field personnel as well as orientation meetings have been held with the concerned engineers and their staff. The philosophy behind the developed procedures and the beneficial change envisioned through their implementation has been explained with a step by step explanation being provided where necessary. The later part of each meeting was allocated to a question/answer session on the related subject, where every effort was made to provide satisfactory answers to all questions asked.

Visits under the Sister Utility Exchange Program have been planned in a manner that the volunteer SUE participants from AEP are available to their WAPDA counterparts to provide advice and guidance in implementation of the Model Divisions Rehabilitation (MDR) recommendations. This will be particularly helpful in the areas of construction, operation and maintenance. The availability of the experienced expatriates in setting up of the newly introduced Division Operations Coordinating Centre (Service Despatch Centre) and the radio communication operations, will insure that this important function is properly implemented.

In consultation with the PTAT Training component, a training course has been developed for the newly introduced meter electricians function in the Divisional area. This course will be implemented by the Training Section.

III STATUS OF INSTITUTIONAL IMPROVEMENTS

Model Divisions

- Staffing

Sheikhupura Division

All staff in place except the Radio Technician.

Muridke Division

The following staff shortages still exist:

Division Operations Coordinators (LS-I)	4
Radio Technician	1

- Accommodation & Furniture

Shortfall in accommodation has been made up by acquiring the required office space. The relocation process of various functions to job suited office locations is still in progress.

- Transport

The MDR approved level of transport has partly been achieved. WAPDA expects to make up the shortages of transport within a very short time as the delivery of most of the remaining vehicles is already in process. Jeeps and trucks are the main items of transport yet to be delivered. Motorcycles, pickups and Mazda light weight trucks suitable for ladders have been received.

- Radio Communications

A firm delivery date of radios ordered under the GSA Contract by USAID, Washington is still awaited from Motorola, USA.

Chairman AEB Gujranwala has processed the quotations received for procurement and installation of locally available radio antenna towers and a comparative statement to identify the lower quote has been provided by him.

Source of funding and subsequent placement of order for installation needs to be decided in consultation with USAID Islamabad. The work, however, needs to be completed prior to the arrival of radios.

- Material and Tools

  Availability and flow of T&P and material needs improvement. Development and maintenance work cannot be performed efficiently unless regular availability of tools and distribution commoditieis is ensured. The impact level expected from changes recommended in the division operations under the reorganized structure, cannot be achieved until improvement in this area is accomplished.

- Procedures and Guidelines

  Operational, construction and maintenance procedures and guidelines have been developed. Orientation meetings are continuing for providing guidance and interpretations where needed. AEP volunteer SUE participants are working in close coordination with their counterparts in the two divisions to further streamline the functions of construction (service), maintenance and operation of the distribution system. Setting up of the Division Operations Coordinator's office and explaining of its functions is in progress.

- Division Operations

  The Model Divisions both at Sheikhupura and Muridke have started limited operations under the reorganized structure. The personnel titles have been modified to conform to the new position titles, most of the staff is in place, additional transport is partly available, office accommodation is at hand and above all, determination to get things going is amply visible.

  Procedures, guidelines and field direction is ensured. Normal operations under the reorganized plan are expected to be fully underway in the near future.

Area Electricity Boards & Circles

Reorganization concept, recommendations on structural changes, allocation of functions at the two levels along with staffing levels and position descriptions have been developed in consultation with WAPDA counterparts and field staff at various levels in the distribution function.

Internal review of the recommendations developed is underway.

IV OUTSTANDING DECISIONS REQUIRED

- Funding and procurement of locally available radio antenna towers.

- Erection of towers before the arrival of the radio equipment.

- Firm date for the shipment and receipt of radio equipment from Motorola, USA.

- Appointment of the staff for the Division Operations Coordinating Centre at Muridke division needs to be completed before the arrival of the radios.

- Availability of recommended and approved level of transport.

- WAPDA approval is awaited on the following documents submitted earlier.

  . Distribution Construction Procedures Manual for line crews.
  . Distribution Maintenance Procedures Manual for line crews.
  . Construction Operating Procedures Manual for line crews.
  . Meter Standards Manual.
  . Centralized Meter Test Laboratory.
  . Load Management Program Report.
  . Distribution Communications System Report.

DISTROFR/019
May 20, 1987

6.7 PLANNING & ENGINEERING PROCEDURES AND GUIDELINES

PLANNING AND ENGINEERING
PROCEDURES AND GUIDELINES

TABLE OF CONTENTS

1. Copies of procedures with a list of those procedures in development

2. Methods/Strategies for implementation of the procedures

3. Background and status of Institutional Improvement and other activities for the respective functional areas

4. Outstanding decisions required, including time constraints

1. PLANNING & ENGINEERING PROCEDURES AND GUIDELINES

1. Planning Guide

2. T-Reports

T-1 Current Carrying Capacity for Overhead Conductors

T-2 Economical Evaluation of Distribution High Tension Conductor Sizes

T-3 Application of Line Regulators

T-4 Ampere Rating of Underground Cables

T-5 Economical Evaluation of Grid Station Transformer Sizes

T-6 Economical Evaluation of Three Phase Distribution

T-7 WAPDA Distribution System Engineering Economic Studies

T-8 WAPDA Distribution System Over Current Protection Report

T-9 WAPDA Distribution System Planning Guide to determine equivalent demand on grid station transformers

T-10 WAPDA Distribution System Planning Criteria

T-11 WAPDA Distribution System Voltage Flicker Guideline

T-12 Low Tension Conductor and Service Guidelines

3. Load Forecasts

i) Master Plan Annex B (Basis of Forecast):

- Basis of forecast which gives procedures and methodology of preparation of system wide load and demand forecasts.

ii) Working Paper on Prime Minister's Directive for 90% Village Electrification by 1990.

iii) Unfinished Report on Forecasting Statistics

"pepgline
069/ms"

4. Energy Loss Reduction

i) WAPDA Energy Loss Reduction Program:

- gives procedures for determination of system wide capacitor application; steps necessary to reduce distribution system losses

ii) Method for Economic Evaluation of ELR Work

iii) Procedures and steps necessary to implement low tension network rehabilitation

iv) Procedure and Methodology of preparation of work orders for FAR agreement.

v) Sample bid documents for ADB financed energy loss reduction program.

5. Planning

i) Procedure for development of a comprehensive rural electrification planning

ii) Procedure for development of urban system planning

iii) Area Improvement Plan (WAPDA Chunian Division)

- A sample long term rural area improvement plan prepared using existing WAPDA statistics and a PC load flow program

iv) Chunian Division Area Improvement Plan

- A sample short term rural area improvement plan by use of CADPAD.

v) Work Plan for ADB Energy Loss Reduction Program

vi) Detailed specifications for establishment of a feeder data base

vii) Sample long term area improvement plan for Lahore

- includes methodology for preparation of load forecasts for major urban areas (un-finished).

6. Model Division Reorganization

i) Technical Audit

ii) Division Planning Guide

7. CADPAD

i) Proposed CADPAD Parameters

ii) CADPAD file: naming; maintenance; and retrieval procedures

iii) CADPAD file naming convention

iv) Responsibilities for CADPAD operation

v) CADPAD Users Guidelines

vi) Sample plan for Chunian Division

8. Rural Electrification

i) Guidelines towards collection of field data.

ii) Draft Tender Documents for construction contract under WAPDA/USAID Electrification Program.

9. Engineering Guidelines & Procedures

i) Technical instruction construction for installation of switched capacitor banks

- PTAT/WAPDA/P&E- dated May , 1987

ii) Selection tables for compression connectors

- PTAT/WAPDA/P&E-27 dated Feb 15, 1987

iii) Poles & Spans for single phase 11 kV Rural Extensions

- PTAT/WAPDA/P&E-37 dated March 03, 1987

iv) Recommendations for testing of capacitor banks & controls and capacitor hanger tests

- 05-12-86

v) Computer calculated sag tension tables:

- to guide sag/span/tension selection for various conductors.

- Dated 03-10-86

vi) Recommended spans for using WAPDA 31ft. LT structure for rural lines

- study to guide

vii) Tie wire application guide for side ties on 11 kV insulators

- PTAT 110386

viii) Tie wire application guide for top ties on 11 kV pin insulators

ix) WAPDA distribution system line anchors:

- a guide to the design & selection of: analysis of permissible sag span for existing WAPDA type L-31 ft structure (extended by 3.6 ft) for use as HT structure.

x) Use of LT pole structure Type L for HT & composite lines

xi) Sag-span tension tables for various distribution conductors under different ambient temperatures with and without vibration armour.

- PTAT/WAPDA-85-09L dated 8.9.85 and PTAT/86-03-13L dated Mar 10, 1986.

xii) Standardization of Design Instruction (SDI) for switched capacitor banks

- PTAT/WAPDA/P&E-52 DATED March 29, 1987

xiii) Standardization of Design Instructions (SDI) for unswitched capacitor banks

xiv) Aluminum Connector Report

10. Load Management

i) Pilot program implementation study

ii) Load management potential evaluation procedure.

2. METHODS/STRATEGIES FOR IMPLEMENTATION OF THE PROCEDURES

2. METHODS/STRATEGIES FOR IMPLEMENTATION OF THE PROCEDURES

- Planning Guides and T-Reports

  a. The planning guide and T-reports need to be approved by WAPDA [GMD presently and GM (Planning & Design) as per reorganized Headquarters organization].

  b. The guides need to be circulated as a WAPDA document to AEBs and other levels where planning & engineering decisions are taken.

  c. Existing TIC's (Technical Instruction for Construction), SDI (Standard Design Instruction) and Memorandum No. 4 (WAPDA Planning guide) need to be replaced with new documents.

- Load Forecasts

  a. The master plan for Power Distribution System Rehabilitation and Expansion (1985-1993) prepared by PTAT includes a system wide load and demand forecast. This needs to be updated every year as per methodology presented in above documents.

- Energy Loss Reduction

  a. The methods and procedures presented in the documents need to be utilized for preparation of PC-I documents for seventh plan period.

  b. The work order system should include economic justification as per PTAT recommendations enclosed.

- Planning

  a. Rural expansion should be planned at headquarters level (initially) as per methodology and procedures presented. CADPAD facilities should be utilized for circuit analysis.

  b. Area improvement plans for all operating divisions of WAPDA need to be prepared.

- Model Division Reorganization

  a. Dedicated computer for planning and engineering purposes be made available at Division levels.

  b. PTAT to help division staff prepare sample new connection proposals as and when division planning staff is in place.

- CADPAD

  a. A director be appointed to head the CADPAD analysis group.

  b. Realistic and achievable targets for analysis of feeders for ELR and expansion be fixed.

  c. The CADPAD group be given the primary responsibility for execution of ADB ELR program.

- Engineering Guidelines & Procedures

  a. Engineering guidelines and procedures need to be approved and released as WAPDA documents.

3. BACKGROUND AND STATUS OF INSTITUTIONAL IMPROVEMENT AND OTHER ACTIVITIES FOR THE RESPECTIVE FUNCTIONAL AREAS

3. BACKGROUND AND STATUS OF INSTITUTIONAL IMPROVEMENT AND OTHER ACTIVITIES FOR THE RESPECTIVE FUNCTIONAL AREAS

PTAT Planning and Engineering efforts have been concerned with developing a master plan, engineering studies and procedures to assist WAPDA to become a self-sufficient distribution organization.

The current efforts of the PTAT P&E staff have been directed towards; (1) institutional reorganization of WAPDA at headquarters, division and AEB levels; (2) assisting WAPDA with the development of data bases for rural electrification and H.T. distribution feeders; (3) preparation of specifications, product descriptions and engineering standards; (4) assisting in performing circuit analyses; and (5) development of sample procedures for area plans. WAPDA progress towards becoming self-sufficient in these areas has been negligible.

Institutional Reorganization of WAPDA Planning and Engineering

On April 28, 1986 PTAT/WAPDA-86-04-37L transmitted a detailed proposal for organization and staffing for construction operations and maintenance and planning and engineering functions at the Headquarters level. This was submitted to PTAT Management and WAPDA. In November 1986 tacit approval by both managements was given to a plan which excluded a vitally needed projects section.

On August 6, 1986 the technical functions at WAPDA headquarters, AEBs and divisions were identified in detail and forwarded to PTAT management. On or about 20 November 1986 additional headquarters staffing requirements were identified by CED(D) and forwarded to WAPDA management for approval.

To-date WAPDA has identified a Chief Engineer Planning and a Chief Engineer Engineering but no staff have been assigned to assist them and signature authority remains with the CED(D). The $440,699 CADPAD investment remains idle because WAPDA personnel assigned to CADPAD have no director even though he has been named and was trained in the United States on the CADPAD system. Those assigned to CADPAD apparently lack authority or initiative to seek out areas requiring study and collecting necessary data to proceed.

The proposed planning and engineering requirements at the division level were included in the Model Divisions Reorganization Plan Institutional Improvement Program dated 23 November 1986. Although the model divisions were established on 1 March 1986 the planning staff is incomplete in Muridke and the planners in both model divisions have not been released from their prior duties. The division planning guideline and energy audit procedure for new load applications which were submitted to CED(D) on 11 February 1987 and supplied in draft form to the model divisions are not being implemented apparently because the GM(D) has not endorsed their use.

Development of Data Bases

Substantial progress has been made towards establishing a data base for HT feeder load information. To satisfy Asian Development Bank (ADB) requirements, the feeder data base needs to be modified to show historical data, length of feeders and to code feeders so those with identical names but eminating from different grid stations can be identified and sorted. The feeder data base is being maintained by WAPDA personnel on a PTAT hard disk micro computer. PTAT assistance will be required to modify the program and do the sorting required by ADB.

The village data base work has used PTAT staff and micro computers to develop village data files for a sample district in each AEB. PTAT has 4 persons assigned to village data base work. WAPDA field forces collect the data, and one person from REO assists in the coordination and collection of field data. The WAPDA headquarters planning staff needs to assign 8 or 9 people and two micro computers to this task so the PTAT personnel can develop district master plans for the 8 sample districts and turn this effort over to WAPDA in November, 1987.

The collection of data on service continuity and reliability has not been started. Following division reorganization the PTAT expects that data can be collected in a form which will lend itself to reliability studies.

Preparation of Product Descriptions, Specifications and Engineering (Construction) Standards

The PTAT has two people assigned to this task and has tried to encourage WAPDA to take over this work. The latest WAPDA request for product descriptions and specifications for testing equipment for inspection of

tools, plant and line hardware was returned to WAPDA because it is beyond PTAT's Scope of Work or financial ability. Present PTAT efforts on product descriptions and specifications is directed towards preparation of the technical portions of ADB tender documents using the WANG word processing equipment.

Updating the Engineering (construction) Standards is a critical item because the standards have not been revised when new product descriptions and technical specifications were adopted. As a consequence inspection teams will not be able to certify that installations using the newer improved materials are in accordance with construction standards. PTAT/WAPDA-86-03-35L dated March 17, 1986 requested WAPDA to depute officers and staff to work with PTAT on review, revision and preparation of new WAPDA standards. To date no WAPDA engineer has been assigned although two draftsmen have been supplied. The following PTAT prepared standards have been submitted with no action forthcoming:

PTAT 041386	Filled Cable Trench	17 April 1986
PTAT 040286	6 Units Capacitor Rack	17 April 1986
	-do- (Rev)	13 May 1986
PTAT 061986	Switched Capacitor Bank Rack Assembly	24 June 1986
	(Rev)	03 Sept 1986
PTAT 052686	Galv. Angle Iron Cross Arm for LT Lines	24 July 1986
PTAT 051886 (10 sheets)	Angles, Tee-Offs and Taps for Cross Arm Mounted LT Conductor	24 July 1986
	Guidelines for sizing LT Conductor (Report T-12)	06 August 1986
PTAT 071986	Unswitched Capacitor Bank Assembly	03 Sept. 1986
PTAT 101256-1	11 kV Single Crossarm Assy	14 Oct. 1986
PTAT 101256-2	11 kV Double Crossarm Assy for steel lattice and PC Pole	14 Oct. 1986
PTAT 101286-3	11 kV Vertical angle assembly (with extension link) for steel lattice and PC pole	14 Oct. 1986

PTAT 101286-4	11 kV Vertical Assembly (w/o extension link) for Steel Lattice and PC Pole	14 Oct. 1986
PTAT 101286-5	11 kV Horizontal single Dead End Assembly for Steel Lattice and PC Pole	14 Oct. 1986
PTAT 101286-6	11 kV Horizontal single Dead End Assembly for Steel Lattice and PC Pole	14 Oct. 1986
PTAT 101286-7	11 kV Offset Single Crossarm Assembly for Steel Lattice Pole	14 Oct. 1986
PTAT 101286-8	11 kV Offset Double Crossarm Assembly for Steel Lattice Pole	14 Oct. 1986
PTAT 101286-9	11 kV, 400 volt Composit in Line Assembly for Lattice Steel Poles	14 Oct. 1986
PTAT 101286-10	33 kV Single Crossarm Assembly for Lattice Steel Pole	14 Oct. 1986
PTAT 101286-11	33 kV Double Crossarm Assembly for Steel Lattice Pole	14 Oct. 1986
PTAT 101286-12	33 kV Horizontal Single Dead End Assembly for Steel Lattice Pole	14 Oct. 1986
PTAT 101286-13	33 kV Horizontal Single Dead End Assembly (Steel crossarm) for Steel Lattice Pole	14 Oct. 1986
PTAT 101286-14	11 kV Single Cross Arm Assembly with Angle Iron Crossarm	14 Oct. 1986
PTAT 110386	Tie Wire Application Guide for Side Ties on 11 kV Insulators	13 Nov. 1986

PTAT 110286	Tie Wire Application Guide for Top Ties on 11 kV Insulators	13 Nov. 1986
PTAT 102886	100 & 200 kVA Distribution Transformer Station on Double Structure	03 Dec. 1986
PTAT 251186	25 or 50 kVA Distribution Transformer Station on Single Structure	03 Dec. 1986
PTAT 111986	11 kV Vertical Dead End Assembly with Extension Link for Lattice Steel and PC Pole	03 Dec. 1986
PTAT 113086	11 kV Horizontal Double Dead End Assembly for Steel Lattice and PC Pole	03 Dec. 1986
PTAT 111886	11 kV Tee-Off Assembly from an Existing Line Steel Lattice or PC Pole	03 Dec. 1986
PTAT 120286	33 kV Horizontal Double Dead End Assembly (wood crossarm) for Steel Lattice and PC Pole	03 Dec. 1986
PTAT 120186	11 kV Cross over and Tap Assembly for Steel Lattice and PC Pole	03 Dec. 1986
PTAT 011287	600 kVAR Fixed Capacitor Bank Assembly for Steel Lattice Pole	01 Feb. 1987
PTAT 010187	11 kV and 400 Volt Composite Line Assembly using steel Lattice Structure and Standard Galvanized Angle Iron Cross Arm: LT Line Angle below 3°	11 Feb. 1987
PTAT 010487	11 kV and 400 Volt Composite Line Assembly using Steel Lattice Pole and Standard Galvanized Angle Iron Crossarm: LT Line Angle above 3°	11 Feb. 1987

PTAT 122486	11 kV and 400 Volt Composite Line Assembly using PC Pole and Standard Galvanized Angle Iron Crossarm: LT Line Angle below 3°	11 Feb. 1987
PTAT 122986	11 kV and 400 Volt Composite Line Assembly using PC Pole and Standard Galvanized Angle Iron Crossarm: LT Line Angle above 3°	11 Feb. 1987
PTAT 012887	11 kV and 400 Volt Composite Line Assembly using Steel Lattice Pole and Wood Crossarm: LT Line Angle above 3°	11 Feb. 1987
PTAT 011587	11 kV and 400 Volt Composite Line Assembly using Steel Lattice Pole and Wood Crossarm: LT Line Angle below 3°	11 Feb. 1987
PTAT 011887	11 kV and 400 Volt Composite Line Assembly using PC Pole and Wood Crossarm: LT Line Angle above 3°	11 Feb. 1987
PTAT 011787	11 kV and 400 Volt Composite Line Assembly using PC Pole and Wood Crossarm: LT Line Angle below 3°	11 Feb. 1987
PTAT 022387	Un-switched Capacitor Bank Assembly for Pole Mounting on 11 kV Lines	04 March 1987
PTAT 031287	Un-switched Capacitor Bank Assembly for Pole Mounting on 11 kV Lines	15 March 1987
PTAT 031987	Switched Capacitor Bank Assembly for Pole Mounting on 11 kV Lines	19 March 1987

The facts that WAPDA has not assigned an engineer to work on standards and that the 41 standards submitted have neither been rejected nor approved indicate that the standards work by PTAT should be discontinued until WAPDA assign engineers to this task.

Assisting in Performing
Circuit Analyses

The PTAT has had two engineers assigned to assist WAPDA with the use of CADPAD facilities for circuit analyses. One, on loan from the MIS group returned to that group on 22 April 1987 and is no longer available. The second engineer has received no requests for assistance from CADPAD for the past month. The WAPDA personnel assigned to CADPAD include only 5 of the 8 trained in Columbus, Ohio and the director of the group has not assumed his duties. Although the group claims to have analyzed the feeders to be included in the USAID financed ELR program neither their analyses nor the work order proposals have been submitted to PTAT for review. One should note that the arbitrary selection of feeders for the USAID funded ELR program will not satisfy USAID FAR criteria for feeder selection. Comparisons of alternative plans and alternative feeders on the basis of benefit to cost ratios calculated as described in the FAR agreement dated 20 November 1986 are required.

The PTAT has assigned one advisor, one principal engineer and one senior engineer and one technician to assist WAPDA with feeder analyses and planning in addition to the CADPAD engineer.

WAPDA planning staff has a Chief Engineer apparently without signature authority, a Director, Power Market Survey and Load Forecasting who also continues his duties as Director Quality Control but lacks a director planning, 5 deputy directors and 20 assistant directors even though they were requested in October 1986. The WAPDA Planning staff is urgently needed to obtain field data, coordinate planning, locate capacitor banks, develop programs for ADB funded ELR work and to develop long range expansion plans. The PTAT has set guidelines for planning, developed a PC program for capacitor locations and HT and LT calculations, and has made sample studies of area plans, mini hydel sources on canal systems, in addition to the master plan for power distribution rehabilitation and expansion, a single phase study and a higher primary voltage study. The PTAT staff is not adequate to act as a job shop for WAPDA distribution planning.

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Sample Procedures for Area Plans

The PTAT is participating in the collection of village data in eight of 56 districts in Pakistan. Data for one area in Chunian (Lahore) was used to develop a long range forecast and alternative methods of serving loads in a portion of the Chunian area. Also an EST was used to demonstrate how the CADPAD facilities could be used for Area Planning studies. No load forecasts or area plans have been developed by WAPDA distribution planners.

Action Plan

All future standards, product descriptions and technical specification work will be undertaken by WAPDA, not PTAT. Under the proposed level of effort no PTAT Pakistani staff will be available for standards and specification work after May 1987. The Chief Consultant Planning and Engineering is allocated one man month for this type of work over the rest of his term. The Advisor Standards will have until 30 June to complete monitoring what ever pole tests, load management device tests remain after terminating the standards work.

Institutional reorganization to improve WAPDA will require the services of three of PTATs Pakistani engineers. Messrs U.H. Rana and S. Mian are assigned to this task at least until the end of the year. Extra assistance, part time, will be provided by Z. Siddiqi who apparently is not needed to assist WAPDA with the CADPAD facilities.

PTAT assistance to WAPDA on the development of updated district master plans for rural expansion will be phased out in November 1987 and village data for the 8 sample districts should be entered in the computer files by the end of July 1987.

PTAT assistance to WAPDA on planning work will continue with limited staff. M.A. Munis, F. Aftab and Aslam Chohan will cease village data and district master plans work in November 1987. Mr. Qureshi will not be replaced. Z. Siddiqi, who was to have assisted in CADPAD circuit analysis work for ADB will spend a portion of his time on Institutional reorganization. Hifazatullah and Khurshid Alam will continue to assist in the development of data bases and area plans. At the present time the needed indexing of feeders for the ADB program is being held up for need of a programmer to alter the PTAT created feeder data base program. The restrictions on PTAT employment until progress is shown on WAPDA Institutional Improvement will continue to impede ADB work.

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4. OUTSTANDING DECISIONS REQUIRED INCLUDING TIME CONSTRAINTS

4. OUTSTANDING DECISIONS REQUIRED INCLUDING TIME CONSTRAINTS

- Creation of new positions as per Distribution function reorganization and posting of personnel to fill the new/redesignated positions in the office of General Manager (Planning & Design).

- Indentification of a group to implement ADB ELR program.

- Posting of a Director CADPAD

- Approval of all PTAT planning & engineering, guidelines, procedures and reports.

6.8 PURCHASING AND INVENTORY CONTROL

VIII. STATUS OF PURCHASING AND INVENTORY CONTROL

PURCHASING AND INVENTORY CONTROL

STATUS

May 19, 1987

Organization and Staffing

Job Descriptions (for officers) have been drafted.

Staffing requirements have been determined for Grade 17 and above.

The reorganization of Purchasing and Stores is delayed as the new organization has not been established or a General Manager appointed.

Inventory Control and Planning

A Deputy General Manager - Planning and Control has been appointed, but is not functioning as the organization is not in place.

Material Planning Procedures have been developed and were released to WAPDA on September 30, 1986. The Procedures Review Committee has reviewed these procedures as follows:

1. On May 12, 1987, they recommended minor changes in Chapter 1.

2. On May 19, 1987, they reviewed the complete procedure and recommended only minor changes. After changes are made, they will send to the Authority and recommend approval.

Material Control Procedures are currently under development and should be released to WAPDA by June 30, 1987.

Purchasing

Revised Purchasing Procedures were presented to WAPDA on September 30, 1986. After review by the Procedures Review Committee, the procedures were approved by the Authority during November, 1986. Implementation is pending the establishment of the new organization.

Material Inspection

This function is currently under an assigned Chief Engineer and is operating under the existing procedures.

Revision and implementation of these procedures are scheduled for the period July-December, 1988.

Stores Operations

Stores Surveillance Procedures have been revised and were released to WAPDA on November 30, 1987. The procedures are awaiting review and approval.

Implementation and Monitoring Procedures are currently being developed.

Warehouse Practices and Procedures

Warehouse Practices have been developed and were released to WAPDA on January 29, 1987. The procedures are awaiting review and approval.

Computerized Inventory Control

The computerized Stores Inventory System has been programmed and parallel field tested at three stores at the Lahore Area Electricity Board. The results from the computerized system were verified to the manual system records and were correct. The input forms and the output reports were satisfactory.

A report recommending implementation of the computerized Stores Inventory System was released to WAPDA on March 15, 1987. The report also stated that implementation would require the assignment of ten (10) WAPDA employees to implementation teams (two (2) teams of five (5) people each) and require approximately two (2) years to complete. The report is awaiting approval.

USAID Materials

A report recommending transfer of purchasing responsibility for USAID Materials from Chief Engineer REO to the Distribution Purchasing Organization was released to WAPDA in November, 1985. WAPDA has not officially responded to the report.

Management of Reclaimed Transformers

A report recommending transfer of the Distribution Transformer Rebuild Shops from General Manager - ST&G to General Manager - Distribution was released to WAPDA in November, 1985. WAPDA rejected the recommendations.

Model Warehouse

Regional Store - a site has been selected at Islamabad (on WAPDA land) and the WAPDA Architect is to design the building.

Field Store - a site has been selected at Sheikhupura and WAPDA is in the process of acquiring the land. An Architect under contract to USAID is to design the building.

Remote Store - There has been no action on this.

Regional Warehouse Project

During the period February 3 - April 4, 1985, WAPDA and PTAT personnel visited all Regional Stores and issued reports recommending improvements. The reports were sent to all Regional Directors Inventory Control and other WAPDA Management. The recommendations were implemented to varying degrees at the different stores.

PURCHASING AND INVENTORY CONTROL

HEADQUARTERS IMPLEMENTATION

The Purchasing and Inventory Control Organization will be implemented in phases and will include the development of job descriptions for all officers; determination of staffing requirements; development of a Purchasing and Inventory Control Procedures Manual; the deployment of a Computerized Stores Inventory System; and the combining of the functions of inventory control, material disposal, material inspection and stores operations, currently under the General Manager Inventory Control, with the existing Distribution Purchasing and Stores Operation.

PURCHASING

The Distribution Purchasing Function should be responsible for the purchase of all distribution materials including common use and project materials that are currently purchased by other groups. Purchasing procedures will establish guidelines for the purchase of centralized materials by the Headquarters Organization and the purchase of de-centralized materials by the Area Electricity Boards.

Revised Purchasing Procedures, including donor funded project materials and common use materials, will be developed and implemented during the period April through September, 1987.

MATERIAL PLANNING AND CONTROL

Material Planning will provide a quarterly/annual material requirement forecast to aid purchasing in procuring the needed distribution materials in a timely manner. The forecast will be prepared for each division/sub-division with separate reports for centralized and de-centralized materials. The forecasts will be prepared at the Area Boards where centralized forecasts will be forwarded to Lahore Headquarters for consolidation into a National requirement. Forecasts will be updated on a quarterly basis so purchase quantities can be adjusted to fit changing conditions.

Material Control Procedures will establish guidelines for the movement of materials within the Area Boards and between Area Boards. Area Board personnel will control movement between the Regional and Field Stores within that Area Board. Lahore Headquarters personnel will control movement between Area Boards.

Catalog and Facilities will be responsible for maintaining a Distribution Materials Catalog and a Purchasing, Inventory Control and Stores Procedures Manual. Revisions to both the catalog and procedures manual will be issued as required.

Material Planning and Control Procedures, including procedures and training for personnel at the Area Board level, will be developed and implemented during the period July, 1987 through September, 1988.

MATERIAL INSPECTION

Guidelines will be established for Lahore Headquarters personnel to physically inspect all materials, purchased by both the Lahore Headquarters and Area Board personnel, to certify that they meet the proper standards and specifications. They will also inspect manufacturers facilities to determine their qualifications as potential suppliers.

Material Inspection Procedures will be developed and implemented during the period July-December, 1988.

STORES OPERATIONS

Stores Surveillance Procedures will establish guidelines for Lahore Headquarters personnel to monitor all Distribution Stores on an annual basis. This will include an annual inventory, review of inventory records and inspection of store building and yard facilities.

Implementation and Monitoring Procedures will be established for Lahore Headquarters personnel to implement all new and/or revised procedures in all Distribution Stores. They will also monitor, on a continuing basis, to insure the all store are following currently approved procedures.

Establish guidelines for the verification and sale of excess, obsolete and/or scrap materials. The guidelines will be flexible enough to respond to prevailing market conditions.

Stores Operations Procedures, including Surveillance and Monitoring Procedures, will be developed and implemented during the period July, 1987 through March, 1988.

COMPUTERIZED STORES INVENTORY SYSTEM

Design and parallel field test a Computerized Stores Inventory Records System. This will include computer generated reports for management, stores control, material planning and control and receipt of purchased materials.

Development of a Computerized Stores Inventory System began in March, 1986. The system is currently being paralleled field tested. Implementation of the system in WAPDA Distribution's 10 Regional, 75 Field and 12 Remote Stores will occur during the period March, 1987, through June, 1989. This schedule will require WAPDA to form two (2) implementation teams of five (5) persons each, and to assign a person to revise stores procedures.

WAREHOUSE PRACTICES AND PROCEDURES

Establish guidelines for the operation of all Distribution Stores. This will include the physical control of materials, receipt and issue procedures and accounting procedures.

Warehouse Procedures, including warehouse and yard storage layout, housekeeping practices and utilization of material handling equipment, will be developed and implemented during the period July, 1987 through December, 1988.

PURCHASE AND INVENTORY CONTROL

PROBLEM AREAS

Procedures

1. Revised Purchasing Procedures were presented to WAPDA on September 30, 1986. After review by the Procedures Review Committee, the procedures were approved by the Authority during November, 1986. Implementation is pending the establishment of the new organization.

2. Material Planning Procedures have been developed and were presented to WAPDA on September 30, 1986. During May, 1987, the Procedures Review Committee finally reviewed this procedure and revisions were made in accordance with their recommendations. The procedure is awaiting action by the Authority.

3. Stores Surveillance Procedures have been revised and were presented to WAPDA on November 30, 1986. The procedures are awaiting action by the Procedures Review Committee.

4. Warehouse Practices have been developed and were presented to WAPDA on January 29, 1987. The practices are awaiting action by the Procedures Review Committee.

Computerized Inventory Control

A computerized Stores Inventory System has been programmed and parallel (field) tested at three (3) stores in the Lahore Area Electricity Board. The results of the computerized system were verified to the manual stores records system and were correct. The computerized system is programmed to operate on Micro computers at either the Division or Area Board level.

Computerized Inventory Control (Contd)

A report recommending implementation of the computerized Stores Inventory System was presented to WAPDA on March 15, 1987. This report stated that implementation would require the assignment of ten (10) WAPDA employees to implementation teams (two (2) teams of five (5) people each) and would require a minimum of two (2) years to complete.

The report is awaiting WAPDA review and approval.

Candidates for Long Term Training

During May, 1987, five (5) WAPDA employees were interviewed as candidates for long term (six (6) months) technical training in inventory control. The training will be conducted in the United States. Two of candidates were selected and are awaiting approval of their paperwork.

The balance of the candidates were all qualified, but in answer to questions, refused to consider possible transfers to Lahore at the completion of their training. These three (3) persons were eliminated from consideration as it appeared they only wanted a trip to the United States.