environments are as follows:

(1) External Environment

1. Presidential directive to reduce the NRW ratio to 30 percent originally by the year 2000 and now by the end of 1995
2. Recent legislative measures centered on the National Water Crisis Act to possibly restructure the water supply sector administration
3. The GOP policy to introduce private sector participation in public corporations
4. The GOP policy to promote the principle of competition in public corporations
5. The IBRD and the ADB covenants and requirements such as ROR exceeding 8 percent, accounts receivable balance within three billing months, reduction of NRW
6. Consumers' demands that MWSS provide more customer-oriented services
7. General public perception that MWSS is not satisfying its mandates.

(2) Internal Environment

1. Bureaucratic red tape and sectionalism
2. Some duplicated and overlapping positions and functions
3. Insufficient corporate planning function
4. Complex and lengthy operating procedures partly due to the government's regulation
5. Declining profitability and financial capacity
6. Outdated technology

2.2.4 MWSS Organization

(1) Overview

Situated under the Board of Trustees is the Executive Committee, which is chaired by the Administrator who functions as a chief executive officer. The Executive Committee is composed of eight officers, namely, the Administrator, the Senior Deputy Administrator (SDA) and six Deputy Administrators (DA).

MWSS organization is basically laid out based on functions and duties rather than products or objectives. There are six major functional groups called Areas, which are further divided into

Departments/Groups/Sectors, Divisions/Branches and Sections. The six Areas, each headed by a DA, are Engineering, Construction, Operations, Customer Service, Finance and Administration.

The responsibilities of functional groups are detailed in **Part IV of the Data Report.**

The current MWSS organization chart (up to department level) is shown as follows:

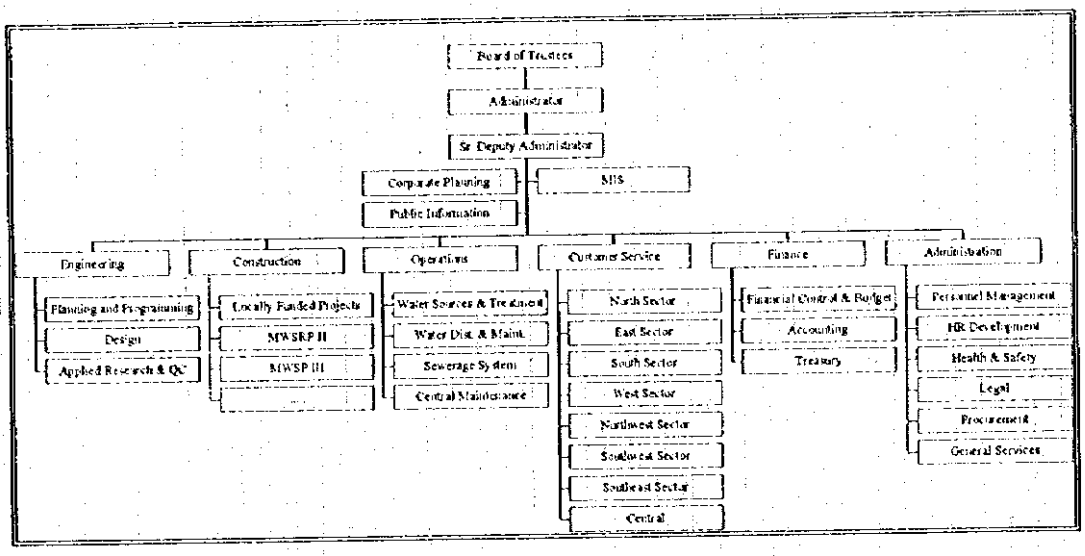

Figure 4.2.1 MWSS Organization Chart

(2) Issues and Concerns

1. MWSS's current centralized organization appears to have been designed mainly for the execution of capital projects, which may not be ideal for operations and maintenance and customer service functions that require distribution and delegation of authorities for speedy decision making.
2. There are a great number of departments, divisions and sections, which lead to a lot of middle managers each with a narrow control span. The natural consequence is a bureaucratic attitude and a slow and inefficient decision making process. It also means managers spending more time on "management for the sake of management".
3. The "self-sufficiency" principle of MWSS appears to be a problem in terms of operational efficiency. MWSS needs many functions within itself in order to be self-sufficient. This increases complexity of operations and contributes to inefficiency. In addition, this tendency is also observed within the functional areas.

4. There are some instances where duties are spread over different operating groups without considering the correlation of duties. This is typically shown by the fragmentation of planning, monitoring and evaluation functions. As a consequence, the monitoring and evaluation function only refers to previous or historical data rather than plans. Furthermore, plans are sometimes established using previous performance or historical data rather than analysis thereof.

2.3 MWSS Operations

2.3.1 Corporate Planning

(1) Overview

Corporate planning is a process to plan, coordinate and monitor future activities in the context of strategy and direction provided by a higher authority such as the NEDA and the Board of Trustees. This includes mid- to long-term business , project and annual operational types of planning.

In effect, mid- to long-term business plans are considered by the Board of Trustees with the assistance of the Corporate Planning Group (Corplan). This process is largely influenced by trends in the national economy and the GOP policy through such agencies as NEDA and NWRB. To date, however, the Study Team is not aware of a comprehensive corporate-wide strategic plan prepared either inside or outside of MWSS.

Project planning is carried out mainly by the Planning and Programming Department (Engineering Area) in the framework a mid- to long-term business plan provides.

Corplan prepares financial projections for future years reflecting the mid- to long-term business plan and the project plans for management's decision-making.

All operating groups participate in annual operational planning through the annual corporate budget system.

(2) Issues and Concerns

1. In order to develop effective corporate plans, it is important that Corplan coordinate with other operating units more extensively to consolidate and integrate functional plans developed by them.
2. It was observed that planning activities are not effectively followed up in the evaluation process, so the results are not taken up in the next planning cycle. Currently Corplan does not evaluate corporate and functional performance, which is recorded by the Performance Monitoring and Evaluation Division (MIS Group) on the operational side and analyzed by the Financial Control and Budget Department (Finance Area) in the

financial aspect.

3. MWSS does not appear to have clear perceptions of the mid- and long-term economic developments that affect water demand in the service area . MWSS should regularly collect, maintain and update information such as national plans, economic forecasting, infrastructure development, industrial development, population growth, etc. for the purpose of mid- and long-term corporate planning activities.
4. Lack of coherence and coordination between operating units' plans and the corporate-wide integrated plans makes it difficult to secure enough management resources for critical and strategic business processes or activities. Operating units make their own plans without interfacing with Corplan, and activities executed by them are based only on their own plans.

2.3.2 Financial Management

(1) Overview

Financial management consists of financial accounting, managerial accounting and budget. These functions are all performed within the Finance Area.

The primary objective of financial accounting is to account for MWSS activities in an accurate and timely manner for internal and external reporting purposes. Accounting data are often compared with non-accounting data such as headcount and service volume in order to evaluate the past activities. There is nothing unique in MWSS's financial accounting function except that the COA plays a significant role there.

In effect, managerial accounting is to specifically interpret financial accounting records for the purpose of management's decision-making. Accounting data may be regrouped by function, by location or by service line (cost accounting) rather than by the nature of the account. Safeguarding of assets is another function. MWSS prepares expense data by function and separate financial statements for water and sewerage operations.

The budget system consists of the DBM Budget (budget for the GOP's equity contribution) and the Corporate Budget (MWSS's own annual operational budget). MWSS spends much energy in the budget control, but it appears to function mainly as a funding control mechanism rather than a tool

for decision-making by management.

(2) Issues and Concerns

1. There are a few financial accounting practices that may not provide accurate data on MWSS's activities. They include evaluation of foreign loans and net realizable value of accounts receivable.
2. The current allocation method for overhead expenses appears to be inappropriate. In order to accurately evaluate the operations of water and sewerage, it needs reconsideration.
3. In the budget preparation, it appears that satisfying the required ROR plays a very significant role, which effectively sets the upper limit of annual expenditures regardless of needed activities. The annual budget tends to be established based on the prior year's actual budget, not necessarily reflecting the expenditure level that is necessary to support proper operations and maintenance.
4. At least in the past, the original budget was prepared based on an unrealistic target of the NRW ratio and therefore had to be revised during the budget year. Such a target was set without concrete measures to reduce the NRW. An effective budget needs to be set based on an attainable level which requires full-blast efforts to reach.
5. The MWSS budget rather functions as a monetary constraint than a target. This may be typical of governmental budgets, but for an organization where efficiency and effectiveness are critical it should work as a yardstick against which the actual performance is measured.

2.3.3 Construction Management

(1) Overview

Unlike regular enterprises, development of infrastructure is a constant necessity for utility companies, and therefore, constitutes one of the core business processes. In MWSS basic logistics such as feasibility studies, designing, planning and evaluation and technical know-how are provided by the Engineering Area while actual implementation is undertaken by the Construction Area.

The current capital projects are explained in the technical analysis in this report.

(2) Issues and Concerns

1. The Planning and Programming Department (Engineering Area) appears to be short of manpower required to develop project plans from the perspective of management and control, especially long-range ones. In addition, it does not undertake monitoring and evaluation process for coordination on all ongoing projects for corporate-wide infrastructure programs.
2. Although the final responsibility of project management should belong to project managers in the Construction Area, close coordination with the Engineering Area and Corplan is essential in the light of MWSS's scarce resources in funds, manpower, equipment and materials. Maximum flexibility to respond to unexpected problems could be achieved through a continuous construction management cycle of project planning, execution and evaluation by a centralized group.
3. At present, there exist various communication problems between the Engineering and the Construction Areas. Project management may not be handled as effectively through the function-oriented organization of MWSS which focuses on departmental control rather than corporate-wide objectives.
4. Documentation of vital information during the implementation phase is very critical when the project is transferred to the Operations Area so that, in case facilities need repairs, necessary background information is readily available without further consulting with Engineering and Construction. In addition, reference manuals such as AWWA Standards reference manuals and handbooks need to be properly kept at the proper place such as a central engineering library.
5. In project planning, not only the Planning and Programming Department but such other operating units as the Operations Area, the Quality Control (Engineering Area), Corplan and the Finance Area should be involved or consulted with at an early stage to make the maximum of MWSS's capacity since these units will have involvement in projects one way or another now or in the future.

2.3.4 Maintenance and Logistics

(1) Overview

The operation function of MWSS's system is to transform raw water to potable one and to deliver it to customers' faucets. Maintenance and logistics are to support this most important business process.

The responsibility of operation and maintenance of facilities mainly rests with the Operations Area, while the procurement of supplies and parts is undertaken by the Procurement Department (Administration Area) for physical custody by the Treasury Department (Finance Area). MWSS operates such facilities as water sources, water treatment plants, reservoirs, deep wells, pumping stations, a distribution piping network, a discharge piping network and sewerage treatment plants.

Supply materials, spare parts, tools and maintenance equipment are generally purchased through regulated and lengthy procedures and stored in warehouses and stockrooms. There are also various repair shops.

(2) Issues and Concerns

1. There is a lack of maintenance planning and coordination among operation, maintenance, material control and procurement activities. In spite of the fact that those activities are closely related to each other, they are performed by different areas and departments and each unit is functioning rather independently resulting in inefficient maintenance and repair work.
2. It is extremely important for MWSS that the procurement planning of materials, spare parts, tools and equipment required for maintenance and repair work be performed based on the maintenance plan and schedule far in advance since the procurement process is long and requires many steps. Presently materials, spare parts, tools and repair equipment are often not available when preventive maintenance or emergency repair is necessary. Therefore, requisition orders for materials and parts are prepared as a result of the fact that items are found out-of-stock when maintenance or repair is performed. Critical spare parts should be maintained as stock item and whenever those items are used, inventory must be replenished before they become out of stock. Critical materials are also to be procured in advance based on the maintenance plan and schedule.

2.3.5 Customer Services

(1) Overview

Customer service is MWSS's direct interface with its customers including initial connecting service, meter reading, billing and collection, minor repair service and complaints handling. These activities are now performed by the sector and branch offices in the Customer Service Area by virtue of the sectoralization scheme which MWSS has been implementing since January 1994. The sectoralization scheme was initiated in order to make service more customer-oriented and to address the issue of NRW more closely. There are eight sectors supported by twenty-three branches.

At the end of 1994, there were some 820,000 water service connections and 91,000 sewerage service connections, representing service coverage of 58 percent (excluding public faucets) and 9 percent, respectively. The number of service connections has been fairly static recently due to the limited water and sewerage availability.

(2) Issues and Concerns

1. In some cases, new customers have to wait for more than six months before they can get new water services, despite MWSS's policy that the time to provide water service installation should be fifteen days. The major cause for delay appears to be the lack of clear definitions of responsibilities for the parties concerned.
2. MWSS implemented the Sectoralization Scheme, which has been generally well accepted by the customer service area including sector and branch offices. However, there is some confusion on the definition and segregation of responsibilities among operating units, especially maintenance and leak repair work of the distribution network system between the Operations and the Customer Service areas.
3. Some customers seem to have less consciousness about the importance of water service. The majority are not aware of MWSS operations in expanding reliable water service and in coping with the problem of low water supply capacity; they think that water supply is unlimited. Consumers unconsciously waste water for non-essential purposes. There is definitely a need for more public campaigns on the proper use of the water service.

2.3.6 Human Resources

(1) Overview

Human resources is responsible for dealing with all human-related matters in MWSS's organization and operations. This function consists of personnel management and human resources development.

At the end of 1994, there were 7,795 employees, of which 4,615 were permanent and 3,180 were casual. The difference between permanent and casual is that the latter are not eligible for retirement allowance and that their status is supposed to be for six months, a rule not strictly adhered to at MWSS. Because of tight governmental control on the number of authorized permanent positions, MWSS tends to hire casual employees to go around the regulation. The majority of them are project workers.

Because of the salary standardization law, which is being phased out, the compensation level of MWSS is generally lower than private companies'.

(2) Issues and Concerns

1. It seems that jobs are divided into very small segments, each of them being assigned to one employee. While this scheme gives a clear job objective to each, it may give workers a wrong job achievement goal without considering efficiency improvements in performance. Furthermore, many small segments result in management and supervision time over subordinates to be thinly spread.
2. While there are obviously a lot of managers and employees who are highly motivated and devote themselves to accomplishing the objectives and goals of their units, there appears to be a morale issue in MWSS. Contributing factors for this may be as follows:
    - Low compensation and lack of incentive systems
    - Lack of recognition of subordinates by middle and upper managers
    - Slow promotion due to limited available positions
    - Bureaucratic red tape and slow decision making process
    - Few role models in middle and upper management
3. The existing Performance Appraisal Rating (PAR) System mainly focuses on individual performance and is not designed to encourage team or group efforts. It is not directly integrated with either cash/non-cash incentive systems or compensation, and

consequently the PAR System does not motivate employees as originally planned. In addition, it may not be appropriate to apply a unified evaluation system for all employees whose jobs are of a different nature and require different skills.

4. Many training programs are provided for officers/employees without any systematic scheme through which they can develop and improve their skills step by step throughout their career. On the other hand, there is no distinctive on-the-job training system developed at MWSS. The training programs should be systematized for efficient and effective skills development of all workers.
5. As the Engineering and Construction Areas go through various implementation phases, personnel acquire skills and experience which may not be available in a written form. These skills should be transferred to other employees through programs MWSS could develop either through lectures or on-the-job training, so that the number of skilled and experienced personnel increases. In the process, those with leadership qualities could become principal engineers, more of whom are needed as projects are implemented. Hence continuous skills transfer programs are relevant to build a pool of such engineers.

2.3.7 Information System and Communication

(1) Overview

The management information function is centralized under the MIS Group. The information currently processed by the MIS Group is rather limited to part of customer service operations and payroll calculations. MWSS is now in the middle of designing and implementing various management information systems which effectively cover most of its operations through a program called ISP. ISP will be implemented with the help of CMP, which will address the institutional issues arising from computerizing the operations, such as user training, manual preparations, transition and possible changes in organization and responsibilities.

MWSS's communication system consists of hardware such as telephone equipment, communication lines and a computer network. It also includes a reporting system, inter-office letters and meetings.

(2) Issues and Concerns

1. Judging from current insufficient project manpower in both the MIS function and user departments and delay in user preparation, the current implementation schedule of ISP appears too aggressive and therefore the implementation project is at high risk in time and cost. To lessen this risk, MWSS has recently decided to adopt a phased approach for the implementation of ISP and to focus their efforts on the Customer Servicing System and the Financial Management System. In addition, ISP also requires CMP to be carried out in order to maximize its objective of streamlining various functional operations corporate-wide. A detailed action plan for CMP developed by its project team has not been reviewed by the Executive Committee yet. In order to take full advantage of the implementation of ISP together with CMP, the two projects must be carried out under close coordination in such a manner as to complement each other to yield great synergy.
2. Activities performed in various functional areas of MWSS are planned, monitored and evaluated using various data and information. A major issue of communications is a lack of an information control system that includes data gathering, storing, updating and sharing. The information control system must be supported by a good hardware (eg, communication lines and equipment) and software system (including a reporting mechanism and cross functional coordination) in order to develop smooth and accurate communication in the organization. However, existing communication systems in MWSS are very weak in both hardware and software. Another barrier to smooth communications is the corporate culture, such as bureaucratic red tape that blocks smooth flow of communication among departments and divisions with high invisible walls.

2.3.8 Other Supporting Functions

(1) Public Relations

This is a MWSS window for the public in general. The Public Information Department is responsible for preparation of PR materials including publications and video media. It also has the MWSS Action Center, which performs part of the customer service function.

(2) Research and Development

MWSS's activity in this area is limited to applied research, however it may participate in R&D

projects conducted by some other governmental agencies, if there is a need for it.

(3) Quality Control

Quality control is conducted mainly in two areas, a) water quality and b) materials and workmanship.

The Central Laboratory, belonging to the Engineering Area, conducts water sampling tests and maintains its facility at the Balara Head Office compound. The Division owns various testing instruments and equipment such as autoclave, incubator, gas chromatograph, pH meter, microscope, etc. However, many of them are either out-of-order or obsolete and most of them are neither repaired nor replaced due to insufficient budget. There is much testing equipment and apparatus to be repaired, replaced or newly procured to support day-to-day laboratory activities.

Material tests such as resistance to pressure are conducted based on international standards at laboratories in La Mesa and Balara. MWSS complies with several international standards, such as ISO, AWWA and JIS for testing materials.

(4) Legal

This Department is short of staff - especially corporate attorneys - due to low compensation compared with the private sector. Recently there have been many lawsuits lodged against MWSS so it is encountering difficulty in recruiting personnel with appropriate legal background.

Funding requirements for lawsuits is another problem of MWSS. Due to budget constraints, docket fees to file lawsuits are always limited.

Chapter 3.

Strengthening Plan

Chapter 3. Strengthening Plan

3.1 Institution

3.1.1 General

A restructuring of MWSS has become more critical than ever because of the recent enactment of the National Water Crisis Act of 1995, triggered by strong criticism from stakeholders of the ineffective operation of MWSS, requirement for adherence to IBRD and ADB covenants on financial performance and the GOP policy to aggressively seek private sector participation in infrastructure development.

In addition to the above external factors, MWSS is also under pressure from internal ones, such as inefficient operations, poor operations and maintenance, delays in capital expansion to meet growing needs of customers, high NRW and slow expansion of service coverage. The fundamental cause of inefficient and ineffective operations is directly related to its institutional setup resulting in:

- Lack of competition because of a natural and integrated monopoly from sourcing of water supply through treatment and transmission to distribution to ultimate users
- Lack of application of commercial principles because MWSS, a GOCC, is heavily regulated by various laws and rules

There are several approaches that have been developed and used in the water sector in other countries to cope with the same or similar institutional issues as mentioned above. Approaches that are commonly adopted by water utilities in other countries which may also be applied to the situation confronting MWSS are as follows:

- Unbundling
- Private sector participation

The above approaches would introduce competition and commercial principles to MWSS's operations, thus creating incentives for better performance and easing governmental controls. All these are expected to improve the overall efficiency of operations.

Another important issue that affects the institutional setup of MWSS is the implementation of sewerage and sanitation programs. Fundamental issues of the sewerage and sanitation operations to be addressed are as follows (more in **Section 3.1.5 of Part IV**):

- Which agencies can/should implement sewerage and sanitation programs effectively?
- Is sewerage and sanitation operation a social function or a commercial one where beneficiaries shoulder full costs?

3.1.2 Unbundling

(1) Objectives

The objective of unbundling is to attain overall efficiency of operations through disintegrating or breaking up the whole organization into several smaller and more manageable pieces. While the critical mass is still maintained, a competitive environment would be created among the smaller organizations and the integrated monopoly would be reduced or would disappear entirely.

(2) Rationale

a) Natural and Integrated Monopoly

Lack of competition due to a natural and integrated monopoly has led MWSS to inefficient operations. The GOP cannot remove the natural monopoly of water supply operations, but the integrated monopoly can be displaced through unbundling. The existing integrated organization may be broken up into multiple operations, e.g., vertical disintegration between wholesale (water source development, treatment and transmission) and retail (distribution and customer service) or horizontal break-up of the entire customer service area into two or more service areas or franchises.

b) Size of Organization

The existing organization is just too big to effectively manage, and there is a potential loss of control. It would be more desirable if it was broken up into smaller multiple organizations in more manageable sizes without losing the economy of scale and the integrity of water supply system.

c) Centralized and Bureaucratic Organization

The existing centralized bureaucratic organization of MWSS should also be transformed into a combination of centralized and decentralized ones, and in the process bureaucratic inefficiencies can be eliminated. For example, the resource planning and management and infrastructure development functions may still be centralized to maintain economy of scale while the O&M and customer service functions, being closer to customers who demand faster services, should be decentralized to enhance their autonomy and independence in making timely decisions on day-to-day operations.

d) Introduction of PSP

The MWSS operations should be broken up between areas in which private sector participation is (PSP) suitable for efficient operations due to its commercial and economic nature on the one hand, and areas in which public authority must be imposed such as resource management, program development, regulatory and monitoring activities. Unbundling of operations needs to be considered with a possible introduction of PSP.

(3) Options

Taking organizational, physical, and geographical setup into consideration in assessing the unbundling process and options for the water supply function of MWSS, the Study Team identified five basic options for unbundling as follows:

1. Functional Unbundling
2. Segregation between Planning/Development and Routine Operations
3. *Unbundling* between Wholesale and Retail
4. Unbundling by Water source
5. Unbundling Retail Operations by Region

3.1.3 Private Sector Participation

(1) Background

Asian countries have been experiencing a steady increase of PSP in the provision of water supply infrastructure and in the service delivery due to growing pressure of population growth, urbanization, higher construction cost, shortage in governments' financial resources and available evolving technology. Governments in Asia seek financial, technical and managerial support from

the private sector to keep up with enormous water supply and sewerage and sanitation demands. Major budget constraints combined with the need for better quality of services and management have led many governments to introduce legislation facilitating private sector participation (PSP) in public undertakings.

IBRD and ADB also widely support "public-private" partnership arrangements and seek to achieve better development outcomes from their lending programs. Especially, the IBRD's position is strongly in favor of more market-friendly, customer-oriented and pro-competitive mechanisms for involving the private sector in developing infrastructure.

In the Philippines, the build-operate-transfer (BOT) scheme and its variations were instituted through the enactment of R.A. 6957 and recently amended by R.A. 7718 which allows the private sector to participate directly in infrastructure development. GOP welcomes more active and responsive private sector and citizen involvement in infrastructure development activities. The GOP also separates the role of government vs. private sector investment and seeks to reduce its direct involvement in public sector activities.

(2) Rationale

Major reasons governments consider when promoting private sector participation (PSP) in infrastructure development and service delivery are as follows:

a) Segregation of Roles

Primary responsibilities of public authorities should be resource management, regulation, monitoring and protection while the private sector has industrial and commercial characteristics. Generally, public authorities should concentrate on regulatory and monitoring activities and transfer program implementation and service delivery to the private sector whenever appropriate.

b) Breaking-up Integrated State-owned Monopoly

Through unbundling and introducing market principles, such as delegated contracts and market-driven pricing mechanisms based on demand and supply equations, governments will be able to lessen the integrated monopoly of public entities or authorities.

c) Financing

Through PSP in the form of BOT and its variants such as concession and lease, public authorities can seek private investors to finance the expansion, rehabilitation, operations and maintenance of infrastructure and thus will be able to lessen their financial burdens.

d) Technologies and Management Skill Transfer

Public authorities will be able to have access to advanced technology and management skills developed by the private sector through PSP. Technology transfer helps public agencies to upgrade management and technical skills of GOCCs and improve their operational efficiencies.

e) Government Regulations and Political Intervention

The private sector is often more efficient than the government sector in service delivery because it is less regulated and is market-driven. Public authorities and corporations are heavily controlled by laws and regulations, and their decisions are sometimes affected by political intervention.

(3) Potential Risks

PSP has many advantages as mentioned above, but there are some risks, too. Those risks need to be fully addressed by public authorities when PSP is considered.

- Lack of experience by public authorities in negotiating long-term contracts and lack of ability to solve unexpected problems
- Possibility that contracts may be given to an inexperienced organization with no or limited knowledge of the business
- Financial speculation for maximizing short-term financial gains that may also lead to sacrifice of long-term service requirements to the general public and social policy objectives. In addition, profit-driven operations may lower priority in serving low-income groups and fringe areas.
- Absence of employee involvement and lack of communication in the privatization process that could result in deteriorating management-employee relations and make the transfer of operations to the private sector very difficult and expensive.
- Possibility of bankruptcy or financial instability of the private company that could cause interruption or instability in service delivery.

(4) Options

There are various ways to introduce the financial and technological capability of the private sector to the public sector. They are detailed in **Section 3.1.2 of Part IV in the Supporting Report** and can be summarized in terms of who takes on ownership, management and operation as follows:

Type	Ownership	Management	Operations
Service Contract	Public	Public	Private
Management Contract	Public	Private	Public/Private
Management Contract with Profit Sharing	Public	Private	Private
Lease	Public	Private	Private
Concession	Public	Private	Private
BOT (Built-Operate-Transfer)	Public	Private	Private
Joint Venture	Public/Private	Private	Private
Management/Employee Buyout	Private	Private	Private
Trade (or Private) Sale	Private	Private	Private
Public (or Stock) Floatation	Private	Private	Private

A service contract is applied to an operation which does not require major business decision-making while a management contract usually deals with a set of operations involving high-level decision-making.

Lease and concession differ in terms of who takes on major rehabilitation.

The difference between joint venture, management/employee buyout, trade (or private) sale and public (or stock) floatation is how the ownership of public entities passes to the private sector. They are basically the same when it comes to the management and operation of privatized entities.

(5) Potential Areas

a) Infrastructure Development

Currently, the following capital projects are already being considered by MWSS for implementation under BOT or similar schemes in order to expedite the expansion program with

financing from the private sector:

- Cavite Water Supply Project: Construction of intaking and water treatment facilities
- Northern Laguna de Bay Water Supply Project: Construction of intaking and water treatment facilities
- Manila Water Supply Project III: Construction of Laiban Dam, Pantay Treatment Plant and Cogeo Reservoir
- Rehabilitation of La Mesa No. 1 Treatment Plant

Another potential area is the monitoring and inspection of construction and civil works. At present, as many as 1,800 casual employees are assigned to monitor and inspect foreign-assisted and locally-funded projects. In the future, MWSS may be able to contract out construction management work to a private company through a management contract, thus eliminating the need for casual employees in this area.

b) Operations and Maintenance

In the operations and maintenance area, PSP could be introduced to handle through lease or concession the operations and maintenance work on existing water treatment facilities. The main advantage of this arrangement is that MWSS will be able to secure private financing for the costs of adequate operations and maintenance.

Another possibility for PSP within the operations and maintenance area is the maintenance and logistics function which may be privatized through a service contract, a management contract or a joint venture. The major reason for this is the possible transfer of technology and management techniques and skills.

c) Customer Service

Before PSP is introduced to the Customer Service Area (CSA), it would be preferable to divide the entire CSA into two or more smaller areas or districts. This promotes competition among the smaller areas especially in the reduction of NRW and the provision of better services, these being the major issues in CSA now. After such a division, for example,a franchise for each district on a concession or other arrangements could be awarded to a joint venture between MWSS and a private company. A management contract is awarded to the private company with a fixed fee to

warrant the transfer of technology and management skills to the joint venture. The joint venture will provide financing of capital expenditures such as construction and rehabilitation, maintenance of distribution network and performing the customer service function including application processing, billing and collection.

Another area for PSP in customer service is the meter reading activity which could be covered by a service contract with employees' cooperatives. Currently, approximately 200 MWSS employees are engaged in meter reading and an additional 500 people are projected to be needed in the next 20 years to keep pace with the increase in customers and service connections.

Service connection and leak repair work may also be awarded to the private sector, preferably an employees' cooperative, with a service contract. Currently, approximately 500 regular and 700 casual employees are engaged in service connection and leak repair work and an additional 400 people are projected to be needed during the next 20 years in order primarily to reduce non-revenue water (NRW).

In order to provide a safety net for employees who will be affected by PSP, MWSS should encourage employees to form cooperatives which may be awarded exclusive service contracts for, say, one to three years. After the contracts expire, MWSS should have the option to select contractors through a public bidding. In this manner, there will be incentives for employees' cooperatives to do a good job during the exclusive period of the initial contract and to have enough technical competence to compete in the market place.

d) Administration

In the Administration area, PSP may be sought in facility maintenance work that could be contracted out through a service agreement to the private sector.

3.1.4 Options

(1) General

The objective of this section is to identify and define options for a future MWSS institutional setup (ownership and management) that will enhance its capability to develop and implement programs in a more efficient and effective manner. Unbundling approaches and PSP options explained in the

previous sections are key components to transform the current institutional setup of MWSS into a more responsive one through an introduction of competition and commercial principles. The Study Team has identified the following four options of ownership and management scheme for MWSS:

Option 1: Full Corporatization
Option 2: Partial Privatization
Option 3: Unbundling and Privatization
Option 4: Full Privatization

(2) Full Corporatization

With this option, MWSS would remain as a GOCC which is operationally independent from the DPWH with maximum autonomy. Degree of private sector participation will be basically limited to contracting out selected operations that are labor intensive routine work based on a service contract. Certain regulations and restrictions imposed by the CSC, the DBM and the COA must be removed to promote operational efficiency in the areas covered by the service contract. The recent enactment of the National Water Crisis Act of 1995 has already exempted MWSS from the attrition law and the salary standardization law and provides incentives for MWSS to improve its operations on its own. However, there are still other areas where regulations restrict freedom of action such as transfer of personnel from one department to another, complex procurement procedures, etc.

(3) Partial Privatization

Under this option, the GOP would retain ownership of all assets of MWSS with MWSS being responsible for key operations. Unbundling will not be involved. The GOP will introduce PSP for the areas where the private sector can manage/perform better or where investments in source development, construction of treatment plant, operations and maintenance of facilities and customer service are significant and easier to raise through PSP. MWSS will maintain the integrity of the whole water supply system and be responsible for resource management, planning and programming, and monitoring. At present, MWSS is already heading towards this direction; capital expansion based on a BOT or similar scheme has been seriously studied and PSP is being sought.

(4) Unbundling and Privatization

MWSS would be broken up into two or more units, a parent company and subsidiaries. The parent company will assume responsibilities of the wholesale function covering source development, treatment and transmission while the subsidiaries will be responsible for the retail function covering distribution and customer service. The parent company will stay as a GOCC and will own all assets of MWSS used for both wholesale and retail functions. The subsidiaries may be either privately-owned or joint venture entities between MWSS and the private sector. The services required in the retail function will be covered by a contract such as a management contract, lease, concession, etc. between the parent company and the subsidiaries. MWSS may also sell a franchise to operate a subsidiary to the private sector through public bidding. In the case of joint venture, MWSS' investment will be the value of the franchise while the private investor will invest in cash.

(5) Full Privatization

With this option, the GOP would transform MWSS into an SEC-registered company and sell its shares on the stock exchange (public floatation). The other method within this option is to directly sell part of or the entire shares to private investors, either a company or a consortium (trade sale or private sale). The GOP may retain a sufficient amount of shares to maintain control over MWSS or sell the entire shares.

If the GOP needs to retain some control over MWSS, majority ownership must be maintained. In case the GOP sells all the shares or becomes a minority investor, the regulatory and monitoring responsibilities exercised by the government agencies must be clearly defined and the sector institutions in this area need be strengthened.

There are several alternative ways whereby the government can retain its authority over all important actions by an enterprise, especially those imbued with public interest, safety and security after the government has become a minority shareholder or even after full privatization. It should be noted, however, that these regulatory actions are not substitutes for government control over the management and operations of the enterprise through shareholding. One technique to compensate for this drawback is the utilization of a special share (also called "golden share"). In preparing or amending the charter of a government enterprise as part of a readying process, a special share is

created that can be held only by the government which entitles the holder to special rights as described in the company charter. The special share would enable the government to ensure that certain major decisions affecting the operation of the enterprise are consistent with government policies.

Another method by which government can control certain decisions of an enterprise is through specific provisions in the charter of the enterprise to provide that the state, while having no voting power, will have the power to veto decisions deemed contrary to the interests of the state.

(6) Recommendations

Private ownership and operations (Option 4: Full Privatization) are most attractive to the private sector because there is a high potential for securing revenues from user charges especially if commercial and political risks are low. This option is likely to apply to most activities that lend themselves to competition in the market such as telecommunications, power and gas. It is, however, less attractive under natural monopolies such as water supply which is a public utility, where competition in the market is limited. In the case of full privatization through trade sale, a constitutional issue will remain because most likely the private investor will be a foreign company or a consortium. Article XII, Section 11 of the Constitution of the Republic of the Philippines stipulates that citizens of the Philippines or domestic entities must retain at least 60 percent ownership of the public utility. Therefore, a form of privatization based on the trade sale mode must be a joint venture between domestic entities possibly including the GOP and a foreign company or consortium.

If assets are to be sold, as in UK water, then except in the case of bankruptcy, future competition or change of ownership is lost--there are few, if any, alternative suppliers. When direct competition is not possible, efficiencies may be increased by means of competition managed through contractual arrangements. Although there is only one single supplier of the service at any point in time, competition occurs before the contract is signed and, in principle, when the contract or concession expires and is due for renewal. Thus, there is competition <u>for the market</u> even though there is no direct competition <u>in the market</u>.

The objective to privatize MWSS needs to be clearly articulated and the reasons prioritized

between what is good financially in the short term and what is good economically in the long term. In addition, the possibility of selling assets that are not reversible is an element of country risk, which in turn will affect the price offered.

Based on analysis and study of the options discussed above, the following scenario is recommended for the ownership and management (i.e., institutional setup) of the future MWSS.

1. Core functions of MWSS, including resource management, planning and programming, infrastructure development, and operations and maintenance of the wholesale area shall remain as a GOCC. MWSS shall own the entire assets of infrastructure from sourcing through treatment and transmission to distribution, in order to maintain the integrity of the water supply system and to achieve economy of scale.
2. The Customer Service Area shall be divided into two or more units to be privatized one by one through a sale of franchise. One mode for privatizing the customer service and distribution area will be establishment of a joint venture between MWSS and the private sector (Option 3: Unbundling and Privatization). MWSS shall invest in the joint venture in the form of an investment in kind and keep at least 60 percent of the ownership to secure control over the joint venture while the balance of shares will be offered to private investors selected through public bidding. The joint venture will enter into a concession or lease agreement with MWSS. In addition, a management contract will also be signed between the joint venture and the private investor in order to provide financial incentives to the private investor.
3. As an initial step, one or two service sector(s) could be privatized on a pilot basis. Thereafter, all or most service sectors shall be privatized using the experience gained in the "pilot" exercise.
4. In the infrastructure development area, BOT or similar schemes shall be promoted for the development of water sources, treatment plants and major transmission facilities in order to expand capital assets without incurring any burden on the governmental budget. However, the schemes must be carefully introduced since MWSS has no experience with this mode of PSP. In the short term, MWSS may be able to implement a few small expansion projects on the schemes on a trial basis to gain experience. Thereafter, for the long run, larger expansion projects may be implemented using MWSS experience with

BOT.

5. In the operations and maintenance function of wholesale operations, MWSS will be able to enter into a management contract with the private sector to improve maintenance and logistics functions on a short term basis. As a long term strategy, MWSS may be able to establish a joint venture with the private sector to provide engineering and maintenance services to MWSS. In order to secure financing for the major rehabilitation projects on the existing treatment plants or other facilities, MWSS may sell franchises to the private sector to operate those facilities based on a lease or a concession arrangement.

3.1.5 Sewerage and Sanitation

(1) Key Issues

The basic issue on sewerage and sanitation operations is lack of public awareness of the importance of public health/safety and prevention of environmental degradation; hence, sewerage and sanitation operations have received less attention and lower priority from the GOP, MWSS and the international lending agencies to date.

MWSS is mandated by its charter (R.A. 6234) to undertake planning, construction, operations and maintenance of both waterworks and sewerage and sanitation systems. This means that MWSS is currently responsible for both provision of potable water as well as collection and treatment of waste water and septage throughout the water life cycle. MWSS is supposed to operate waterworks and sewerage and sanitation systems which have distinct and different characteristics as follows:

Water	Sewerage/Sanitation
– Basic necessity in human life	– Viewed as non-essential item in human life
– Visible commodity	– Invisible service
– No alternatives	– Alternatives such as septic tanks or cesspools
– Easy to identify beneficiaries	– Difficult to identify beneficiaries
– High public awareness	– Low public awareness
– Public willingness to pay	– Public unwillingness to pay

There are two major issues on the operations of sewerage and sanitation system: one is the low priority of program development and implementation, and the other is the difficulty in operating on a full cost recovery basis.

Firstly, a major difference between waterworks and sewerage/sanitation system is that the water supply system is an indispensable essential of human activity while the sewerage system is one of the alternatives for improving living conditions and public water quality. Sewerage and sanitation are not conceived to be immediate needs compared with water and are always given lower priority. Sometimes, development of a sewerage system has to be promoted from the viewpoint of environmental protection, now a national and global concern.

Secondly, waterworks can be operated on a full cost recovery because of its importance for human beings and high public willingness to pay, while the sewerage system faces difficulties in operating on a full cost recovery basis due to its higher construction cost, difficulty in specifying beneficiaries who should share social costs, low consciousness toward environmental degradation, all resulting in low willingness to pay. Wastewater tariffs are sometimes set at a low level due to political considerations. A subsidy from the central and/or local governments therefore may be necessary and essential to support current operations and future capital expansion.

(2) Options

Currently one of the departments in the Operations Area of MWSS is performing sewerage and sanitation operations. However, those programs have not been not fully implemented, and MWSS has been negligent in its mission due to a lack of autonomy and a lower priority compared to the waterworks. In order to implement programs efficiently, the following fundamental problems need to be addressed:

- How the organization of sewerage and sanitation operations should be structured to carry out its mission effectively on a short-term basis.
- Which government agencies are most suitable to effectively implement on a long-term basis.
- How to finance operations, i.e., on a full or a partial cost recovery basis, the latter with government subsidy.

The Study Team examined the following five options from the above viewpoints.

Option 1 - Independent Operations from Waterworks

Option 2 - New Public Enterprise Independent of MWSS

Option 3 - Transfer Sewerage and Sanitation Operations to DPWH or MMDA/LGUs

Option 4 - Transfer Sewerage and Sanitation Treatment to DPWH and Septage Collection to MMDA/LGUs

Option 5 - Transfer Septage Collection to MMDA/LGUs

Pros and cons for the above options are discussed in **Section 3.1.5 of Part IV in the Supporting Report**.

3.2 Organizational Strengthening

3.2.1 General

MWSS's organization is characterized by the following features requiring change to carry out its mandate more effectively and efficiently:

Centralized function-based organization

While this setup is desirable for the execution of long-term and large development and expansion projects, it is not suitable for daily operations and maintenance and customer services, i.e., areas that require immediate attention for day to day operations, which are mostly routine.

Many middle managers

Consequently, each manager supervises only a small staff. The natural consequence of the above is bureaucratic red tape and slow decision making process.

Self-contained concept

MWSS is trying to do everything, from the most important functions such as maintenance of infrastructure to insignificant work involving office desk repair, thus adversely affecting efficiency in its core functions. This increases complexity of operations and the number of employees that contribute to inefficiency.

Assignment of duties

There are some instances where duties are assigned illogically without considering proper coordination of roles such as in the case of distribution of planning and of monitoring and evaluation. The latter are now inappropriately separated from the former. Another example is the maintenance and logistics functions which are divided between the Central Maintenance Department and the Treasury Department.

3.2.2 Strategies

The objective and goal of organizational strengthening is to transform MWSS into a more efficient and effective organization so that it can fulfill its corporate mission and meet its goals. In order to achieve them the following strategies have been formulated by the Study Team:

- Decentralization: Increase of autonomy in areas involving daily routine operations
- Empowerment: Transfer of powers and duties to a lower hierarchy
- Rightsizing: Adjustments in the size of organizations

Details of the above strategies are discussed in **Section 3.2.1 of Part IV in the Supporting Report**.

3.3.3 Proposed Organization

Based on the strategies for organizational strengthening discussed above, the following should be considered in the reorganization:

1. A centralized organization directly headed by the Administrator should concentrate on resource planning and management, engineering and construction, finance and administration.
2. A decentralized organization headed by COO or SDA should be directly involved in operations and customer service. The Operations area will be further divided between the waterworks and the sewerage and sanitation systems.
3. Corplan, MIS and PM&E should be combined to enhance planning and monitoring capacity and to maintain integrity in the planning and monitoring cycle.
4. The Engineering and Construction Management Areas should be combined after major capital expansion projects are completed.
5. A new department in the Construction Management Area should be created, with all excess casual employees to be pooled/assigned. This department will provide common work as a back office for FAP and LFPs.
6. Part of the material management functions (WSD and PMD) should be integrated with the facility and equipment maintenance function (CMD).
7. The MWSS Action Center should be transferred to the Customer Service Area.

Based on the above scenario the following organization structure of the future MWSS is proposed.

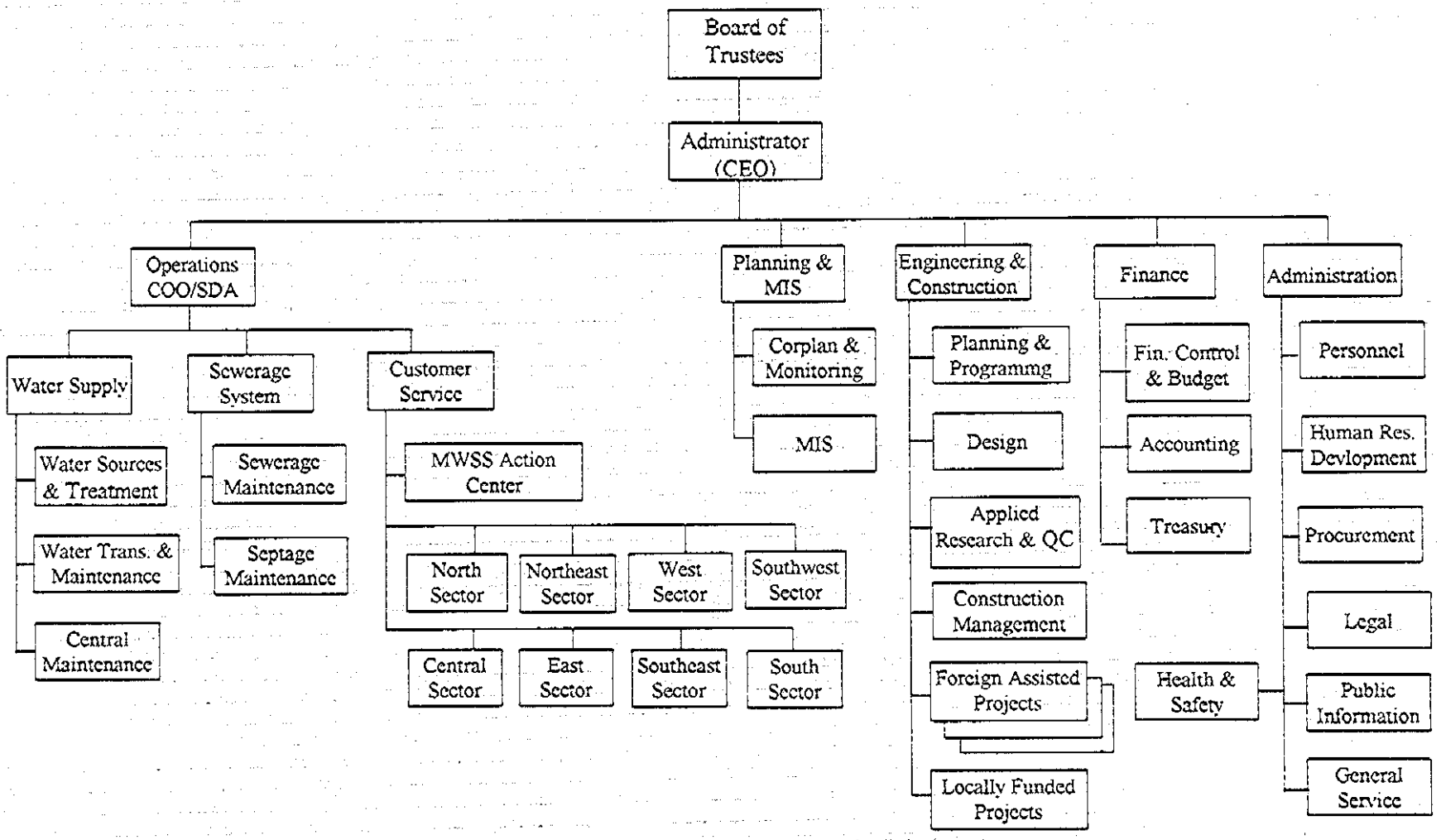

Figure 4.3.1 Proposed MWSS Organization Structure

3.3 Operational Strengthening

3.3.1 General

The most critical issues for MWSS operations are the impending water crisis due mainly to the delays in infrastructure development and overall operations inefficiency as shown by high NRW and slow implementation of infrastructure and non-infrastructure programs. MWSS is presently under great pressure to accomplish the following:

- Reduction of NRW and increase of revenue and ICG for funding new projects
- Improvement of overall corporate performance
- Coping with bureaucratic red tape and ineffective operational setup that has resulted in employees' low morale
- Introduction of new technology such as information and telecommunications-&-telemetry systems that require new skills to replace existing obsolete ones.

This is a crucial time for MWSS to face these issues. At the same time, it provides a great challenge and opportunity to make itself a more efficient enterprise through structural change of operational setups. In order to address these matters, it has already initiated major programs for operational strengthening as follows:

- Sectoralization
- ISP/CMP
- Revised Revenue Improvement Program

3.3.2 Corporate Planning

(1) General

The main purpose of corporate planning is to establish goals for an organization, formulate policies and strategies and develop action plans to achieve corporate aims. In general, the basic objectives of corporate plans are defined as follows:

- To serve as a road map of the organization in acquiring and allocating management resources
- To work as an advanced guide in effectively managing operations across functional areas
- To motivate managers and key employees by establishing common goals, sharing key

- To motivate managers and key employees by establishing common goals, sharing key management information and clarifying strategies to achieve goals
- To provide basic management information, such as corporate and departmental goals and strategies, to managers for effective decision making on daily operations
- To provide a yardstick for upper and middle management in monitoring and evaluating performance of operations

One of the key MWSS issues is that a management planning and control process has not been formalized, and therefore its operations have been managed with only the annual budget and individual project plans as guides. Due to the absence of a formal kind of process, MWSS has not developed consolidated long- and mid-term corporate plans that would identify the long-range corporate directions across functional areas. Consequently, it has been operating with only a short-term goal orientation.

In order to establish a management planning and control cycle, it is strongly recommended that MWSS develop and implement the above-mentioned process to interface with existing annual budgeting.

(2) Type of Plans

As a guide in effectively fulfilling its corporate mission and achieving long-term objectives and goals, MWSS needs to develop a corporate planning process for the following three planning cycles:

- Long-term corporate plan (7 to 10 years)
- Medium-term corporate plan (4 to 6 years)
- Short-term corporate plan (1 to 3 years)

a) Long-term Corporate Plan

Long-term corporate objectives and goals formulate guides for each organizational structure in performing its respective roles effectively on a long-term basis in order to meet sector and corporate goals. The following are three major objectives determining why long-term corporate goals and objectives must be developed:

- To clarify a corporate vision to be aimed at
- To transform the corporate structure
- To quantify the corporate goals

b) Medium-term Corporate Plan

The medium-term corporate plan serves as a bridge or link between the long and short-term ones. It must define long-term plans in more detail and identify medium-term functional and project action plans. It is also aimed reviewing the plans in the middle of their period and adjusting accordingly considering major changes in the external environment and internal capability since the original long-term plan was conceived.

c) Short-term Corporate plan

Also called annual corporate plan, it must focus on the execution and implementation of the annual plan to be backed up by the corporate budget. Therefore, it should be developed according to the same process as and be closely integrated with the corporate budget. The plan consists of the overall corporate, functional and project plans plus the budget.

(3) Organization

The management planning and control system will consist of the two elements of organization and process:

It must be developed and implemented by a task force or committee with members from Corplan, PPD, FCBD, PMED and each functional area. The roles and responsibilities of the task force include:

- Development and implementation of management planning and control process
- Translation of GOP policies into MWSS corporate objectives and goals based on the MWSS corporate mission and clarification of corporate directions
- Formulation of MWSS corporate policies and strategies to attain corporate objectives and goals
- Coordination of corporate, functional and project planning activities
- Integration of functional/departmental plans into corporate plans in order to maintain consistency of all plans and the budget

- Monitoring and evaluation of projects, functional and corporate activities and their performance to recommend actions to be taken by upper management and to consider matters that would affect the next planning cycle

3.3.3 Financial Management

(1) Budget

MWSS has two budget systems, i.e., the DBM and the MWSS Corporate Budgets. The former is prepared to form part of the National Budget since the equity contribution by the government, which has been integral part of MWSS's financing, needs to be programmed in advance for deliberation by Congress.

The MWSS Corporate Budget is the annual budget for operations. As a road map for MWSS's short-term business goals, it is supposed to be prepared based upon activities necessary in order to attain such a goal as established by the MWSS management. In reality, however, because MWSS is bound to abide by the ROR requirement, among various loan covenants imposed by IBRD and ADB, and because the revenue is more or less determined by the tariff level, sometimes beyond MWSS's control, the Corporate Budget tends to be based upon fund availability rather than needed activities. As typical as it may be of government budgets functioning as financial constraints, the current budget system is not really an effective management tool for operations.

In order to make it so certain measures, as listed below, should be taken. But first it should be noted that the responsibility for the effective implementation of the budget primarily rests with the management and the operating units, not solely with the budget control department.

a) Revenue Budget and Expense Budget

Revenue needs to be budgeted based upon activities to be undertaken and the expected effect thereof, such as an increase in the number of service connections and a reduction in NRW. It should not be budgeted otherwise. Then the activities should be translated into monetary requirements. There must be a direct relationship between revenue budgets and expense budgets. For example, a goal to reduce NRW must be supported by necessary measures, which are in turn articulated into various activities for various operating units to be expressed in monetary terms to form an expense budget. On the other hand, a revenue budget will be prepared based upon the

improved NRW ratio as a result of proposed measures and activities.

Because of the ROR requirement and relatively static revenue level, what can be spent is now very limited. This has resulted in insufficient spending in daily operation and maintenance. Such a condition supposedly has necessitated a complete overhaul of the Balara Water Treatment Plant, a costly lesson. The overall expense level should be determined based upon the needed activities for proper routine operations.

b) Budget Proposal

The budget proposal to be prepared by the operating units should be concrete, realistic and minimal to support the activities that are necessary to attain MWSS's corporate goal. Instead, the proposal is now often prepared just to satisfy the need of each operating unit without considering the overall corporate goal. The operating units need to be guided by management in planning the budget year's activities and must take a responsible attitude in the proposal preparation.

c) Prioritization

It is inconceivable that MWSS will have enough funds to satisfy all budget proposals, even if it were not for the ROR requirement. Therefore, there will be a need to prioritize the proposals. Currently, the allocation of funds is done more or less based upon past spending history. Prioritization, rather than uniform trimming of proposals, should be made based upon the relevance of the proposed activities.

d) Monitoring

Currently the budget is implemented mainly from the viewpoint of whether the request for payment is within the set limit. This is not to say that this aspect is unimportant, but what is lost in the picture is the overall assessment of the performed activities against the goal. Actual spending is compared to the budget activity by activity, but the difference is not fully analyzed nor are the activities evaluated for effectiveness. This is probably caused by the nature of the current system being individual transaction oriented. Underspending is not necessarily good news. Activities should be assessed regularly for their effectiveness to fulfill the predetermined goal, and this can be achieved through a proper budget monitoring process by the corporate function in a timely manner in cooperation with the feedback from the operating units.

e) ROR

It may be sensible for MWSS to renegotiate with IBRD and ADB on the ROR requirement, currently 8 percent, which appears to be too high for an asset-intensive utility company like MWSS. Besides, there is another measurement, the debt service ratio requirement, to assure MWSS's capacity to service debt payments. The present ROR requirement appears to be mainly for the sake of the international lending agencies, but is negatively affecting MWSS's operations. If the concept of ROR is necessary to assure the viability of MWSS for sustainable operations, it should not be imposed by creditors; instead MWSS should come up with its own measurement.

(2) Managerial Accounting

Managerial accounting is used to transform financial accounting information to something else based upon specific needs in order to help management make decisions. That kind of information may be regrouped between service lines such as water and sewerage/sanitation, between Areas, between business functions, between locations such as the eight sectors, and so forth. They may also be compared to some other measurement factors to assess operational efficiencies. Revenues may be compared to water billed. Unit cost to deliver water to customers may be broken down into various processes. In addition, safeguarding the assets, particularly accounts receivable and fixed assets, is another basic function of managerial accounting.

The following is what is considered insufficient or inappropriate in the current MWSS practice in order to provide useful information to management.

a) Allocation of Overhead Expenses

A separate set of financial statements is prepared for the sewerage operation. Because certain overhead expenses are necessary for the operation, they need to be allocated between water and sewerage based upon certain factors. The current methodology has been suggested by an IBRD consultant, but the Study Team finds it inappropriate in certain cases. It needs to be reconsidered in order to more accurately assess the profitability of both departments.

b) Profit Center

Currently expenses are categorized by account and then regrouped by function. This is done so mainly for the purpose of getting cost data for MWSS's service processes (from supply to delivery). It does not appear that such data are utilized to evaluate the profitability of functions. There is a need to introduce the concept of profit center whereby each operating function or unit will be financially evaluated. This means the centers will transact with each other as if they were independent operators. Therefore, it will be necessary to design a methodology to allocate revenue and expenses between centers. This measure will work nicely in judging the feasibility in case MWSS is unbundled into a few operating units in the future. It will also work in promoting the theory of competition within MWSS, thus enhancing the productivity.

c) Customer Ledger

Firstly, MWSS currently does not have a customer ledger that shows a payment history and a running balance of accounts receivable for each customer. This makes it very difficult to deal with slow payers and non-payers. Secondly, the current system can only draw a very rough picture on accounts receivable as a whole. No information on the billing month of accounts receivable is available although bills are supposed to be collected every month, hence monthly tracking of accounts receivable is of an absolute necessity. To address these two issues, an automated customer ledger system should be introduced as quickly as possible.

d) Fixed Assets Register

MWSS has a numerous number of fixed assets that are currently accounted for manually. This does not enable prompt information to be furnished for decision making on those assets. An automated register may be introduced following the aforementioned customer ledger because of the latter's importance, but the register is still necessary.

Hopefully, ISP will be introduced without a further delay so that the last two points will be taken care of.

3.3.4 Construction Management

(1) General

Major issues of operations in the Engineering and the Construction Management Areas are

identified as follows:

- Absence of unified engineering and construction management methodology
- Lack of close coordination between the two areas
- Poor control of engineering documentation and information

In order to address the above issues, the following efforts should be made by MWSS:

- Development of engineering and construction management guidelines
- Adoption of the concurrent engineering concept
- Implementation of engineering data and information sharing

(2) Engineering and Construction Management Guidelines

Development and implementation of such guidelines requires the following activities:

- Full implementation of the Project Planning Implementation System (PPIS) per the ISP
- Development of construction management methodology
- Training of project managers, engineers and other key personnel

MWSS is currently implementing the PPIS which covers seven modules, namely, project planning, project design, project monitoring, contractor performance monitoring, standards update, cost estimation and cost projection for the Engineering and Construction Management Areas. The PPIS will provide a basic tool for MWSS to standardize its project planning, engineering and construction management activities including project identification, feasibility study, detailed design, cost estimation, funding, procurement, contract award, construction work, inspection and transfer of facilities to the operations and maintenance functions.

In order to effectively use the PPIS, MWSS should also develop construction management methodology as a unified guideline for project planning, engineering and construction management activities based on the PPIS design concept and re-engineering approach explained in **Section 3.3.1 of Part IV in the Supporting Report**. The methodology shall be documented in the form of the project planning, engineering and construction management guidelines.

Based on the unified management guidelines shall be developed for training programs for project managers, engineers and other key personnel involved in the project planning, engineering and construction management cycle. Training classes should also be held as part of the CMP to formalize the guidelines.

(3) Concurrent Engineering Concept

This is a new approach for product development which has been implemented by large US manufacturing companies in order to improve design engineering and manufacturing process. The concurrent engineering concept has the following advantages compared with the conventional process:

- Cross-functional project membership
- Flexible and dynamic project organization where the structure and size are not fixed and may change from time to time depending on the required skills and time for each activity
- Parallel processing of activities through close coordination by a core group (in the conventional approach, activities are processed in series.)

The key objectives of concurrent engineering are summarized as follows:

- Shortened engineering and production cycle with better coordination
- Reduced number of engineering changes through improved communication
- Removal of organizational red tape and invisible walls dividing functional areas.

The concurrent engineering approach may be applied to the project planning, engineering and construction management process of MWSS. It requires a project team consisting of full-time and part-time members from various functional areas who share common information on the project such as current project status, technical issues, design changes and project cost so that each area can be better prepared for implementation of the project on a timely basis to avoid major delays. The job assignment period of a project member will vary depending on the skill requirements; hence, scarce skills are utilized efficiently through appropriate job assignment and rotation. The following chart represents the conceptual view of the concurrent engineering team:

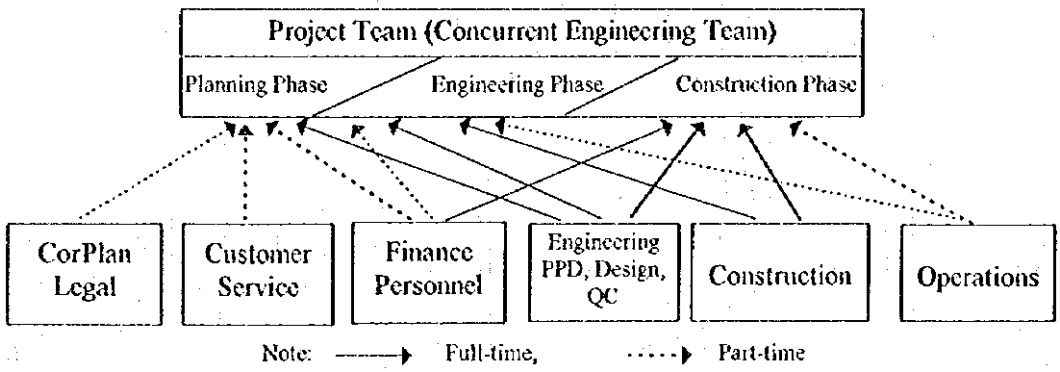

Figure 4.3.2 Concurrent Engineering Team Concept

In the concurrent engineering approach, the various activities are performed in parallel. For example, while the detailed design activity is being done, the preparation of cost estimation or funding activity may be performed simultaneously. By initiating a certain activity at the earliest possible time without waiting for the completion of previous processes, the project team will be able to prepare its work far in advance and would avoid major delays that may be caused by unforeseen problems.

This approach could be very effective for capital expansion projects, but in order to gain the required very sophisticated project management skills and dynamic personnel assignment system experience, it is recommendable that MWSS introduce it first in a pilot project before applying it on a large scale.

(4) Engineering Data and Information Sharing

A major issue in capital expansion projects is the lack of inter-departmental communication due to a poor control of engineering and construction data and information. In order to improve communication among the Engineering, Construction Management and Operations Areas, this data and information must be shared. One of the ways to accomplish this is the implementation of PPIS since it will provide an engineering database and network which managers, engineers and other employees with proper authority could have access to.

Another approach is for MWSS to set up a central engineering data library that provides storage and retrieval services of pertinent data and information for authorized personnel. This library

should be located in the engineering building in the Head Office and should be managed by librarians under the control of the Engineering Area.

3.3.5 Customer Service

(1) General

The customer service function deals with the retail operations of MWSS, namely:

- distribution of water to customers premises
- maintenance of pipes up to 300 mm in diameter
- interface with customers such as application processing, meter reading, billing and collection and customer complaints handling
- water loss control including consumption analysis and leak detection/repair.

The customer service function is now entirely handled by the Customer Service Area (CSA) after the introduction of the Sectoralization Scheme in 1994. It used to be divided between CSA and the Operation Area. The current setup appears to warrant clear assignment of the responsibility for the customer service function to CSA.

CSA is divided into eight sectors, mainly set up geographically, all performing the same functions. This makes it unique as compared to other operating units of MWSS established based upon a specific function. This setup makes it easy to give more autonomy to sectors since they are more or less self-contained. The office of DA and the Census and Investigation Division that are situated above the sectors perform so-called corporate functions.

The Study Team has identified several issues in the organizational setup and the operational procedures of CSA as follows (some of which can be addressed right away while the rest may be solved in the longer term):

- The Sectoralization Scheme, while it is very well considered and structured, may not be fully operating as conceived because it has not been formalized with the DBM, which has affected MWSS's budgeting and staff transfer.
- The sectors have been established based upon hydraulic layouts, but in the future as the

pipelines are rehabilitated and replaced, it may be more desirable to realign the sectors based upon the municipal/city boundaries.

- While there is no doubt that the productivity of CSA will be greatly improved with a successful implementation of ISP and CMP, these will not solve all the operational issues, so there will be additional need to further enhance the efficiency and effectiveness of the delivery of the customer service function.
- In order to take full advantage of the benefit of utilizing independent contractors, it is necessary to enhance the quality of and increase the number of contractors.

(2) Organizational Issues

a) Formalization of Sectoralization

The Sectoralization Scheme has been around since 1986, when five sectors were created primarily to bring the customer service function closer to where it counts. The Scheme was given another dimension when in January 1994 the Board of Trustees decided to use it as a means to address the NRW problem by giving the sectors the responsibility of water delivery to customers and water pipe maintenance.

While the Scheme has been functioning for more than a year with a new focus, its status is still informal because it has not been officially approved by the DBM which approves the MWSS budget in terms of money and people. The Study Team has been informed that the formalization has been put off because the implementation of ISP will further affect the staff deployment and budget allocation. The Scheme is supposed to be approved by the DBM in the due course as ISP is implemented and will be included in the 1996 MWSS budget.

Although the Scheme itself appears to be working well, evidence indicates that there still is some confusion between the responsibilities to be allocated mainly between CSA and the Operation Area. One example is construction equipment, which has not been transferred from the Operation Area to CSA, so the latter has chosen to acquire it on its own.

Because the Sectoralization is not an issue of CSA alone and it is arguably the most vital operation for the entire MWSS, the customer service function should be considered from the viewpoint of how effective and efficient a service can be provided by orchestrating activities of all parties

concerned, such as CSA, the Operation, Engineering and Construction Areas.

b) Sector Setup

Although there was a debate on how sectors should be established, it was done based upon the hydraulic layouts of pipes, which is not compatible with the municipal boundaries. Now that the current setup has been in existence for a number of years, it is impossible to change boundaries. Considering the convenience of the sector distribution by municipality, however, realignment of sectors should be sought in the future as pipes are rehabilitated and replaced.

Speaking of municipalities, since MWSS has exchanged memos of agreement with several city mayors, it is now possible for it to carry out service connection and leak repair work without securing an excavation permit individually from municipalities.

Another issue here is the big difference in the size of the sectors. While the status quo may be improved in the future as the areas not served now by MWSS will be served, the difference is expected to remain. When the future of MWSS, or at least the retail function, is considered in the context of private sector participation (PSP), there will be a need to address the issue of profitability and the critical mass in the size of sectors. These aspects should be carefully considered when the realignment of the sectors becomes a reality.

(3) Operational Issues

a) Job Standards and Manuals

It is understandable that there has been lack a of comprehensive job standards and manuals for CSA because of the changes in responsibility the Sectoralization Scheme has brought about. The Study Team has been informed that CSA is in the course of preparing standard operating procedures, which hopefully will lead to enhancement in productivity.

b) Meter Reading

Meter reading, which is being undertaken by MWSS itself, has been one of the primary reasons for complaints by customers. The reading errors appear to be mainly caused by inappropriate work ethics by the meter readers, which has prompted the idea of introducing contract workers in this operation. Needless to say, monitoring of performance is of utmost importance, if contract workers

are to be utilized.

It is projected that there will be around 2.8 million service accounts in the year 2015. While there are ways to make invoicing and bill collection more efficient as set out next, the room for improvement in meter reading is somewhat limited because someone has to go to customer premises in person to read the meter. In order to lessen the work load, it may be appropriate to explore the possibility of introducing a different meter reading scheme, such as meter reading every other month, which does not necessarily mean customer invoic every other month.

c) Bill Collection

While collection efficiency, around 95 percent lately, has been largely affected by the huge work volume and the manual operating system, which will be mostly solved by the successful implementation of the ISP, there is a need to make it easier for customers to pay. CSA is now considering bill collection through banks with three options, i.e., over the counter payments, bank transfer at the request of customers and automatic deduction from customers' accounts at the instruction of MWSS. Creating a service window at shopping malls may be another possibility. The practices of other utilities such as electricity, gas and telephone should be studied in order to come up with the most economical and effective way of raising the collection efficiency. Strict and uniform application of the disconnection policy, wherein a customer who did not pay his bill for the current month will be disconnected after the delivery of two delinquent notices, will help improve the situation.

d) Authority for Investigation at Customers' Premises

Although it is clearly written in the service contract with customers that MWSS is entitled to a physical investigation at customers' premises of water meters and possible illegal connections, it is not strictly enforced due to likely resistance from customers. MWSS can keep trying, although it is not entirely its own issue but one that may need to be addressed by legislative bodies.

(4) Contract-Out

a) Areas to Be Outsourced

If it is agreed that the private sector participation (PSP) is an effective way to improve the productivity, there is a need to identify the areas in CSA that should be subjected to PSP. Generally

speaking, the most operations currently performed in and out of CSA in the customer service function can be outsourced; namely, customer interface in service application, service connection work, meter reading, bill collection, water meter replacement and leak repair. What should stay with CSA is basically planning, coordination of all the outsourced work and monitoring the performance of outside contractors to maximize the effectiveness of all activities.

b) Outside Contractors

In order for MWSS to contract out some or most of its routine activities, there must be abundant availability of contractors in order to assure the quality of work and to further improve productivity through competition.

MWSS currently hires 14 accredited plumbing contractors (APCs) for the service connection work. They have been selected and accredited by the Engineering Area, but their capability is not really uniform, and some of them can barely meet the basic requirements with very minimum equipment in hand. Therefore, both the quality and the quantity of available APCs must be improved possibly through periodic monitoring of their performance and training to be provided by MWSS.

It may be possible that the accreditation will be extended beyond service, to piping work in the customer's premise which will also be performed by the same contractor. This way, the quality of piping work will be uniform from one premise to another and from meter installation to private premises' piping. The overall improvement in said work will mean less leakage, thus it is very critical from the viewpoint of the national economy.

Currently bill collection is handled by more than 280 independent collectors. Although they are all bonded, there are still cases of under-reporting of collection and absconding with collected money. Situations like these may be addressed by commissioning a cooperative to be created among the bill collectors, and MWSS entering into a service contract with such a cooperative.

3.3.6 Information Systems

(1) General

One of the key corporate strategies of MWSS is to improve its overall operations by upgrading the outmoded data processing and telecommunication systems to state-of-the-art information technology through the implementation of the Information System Plan (ISP).

The Change Management Program (CMP) is another important project for MWSS that supports the effective use of ISP, success of which is highly dependent on a full implementation of CMP. The latter covers redefinition of divisional and departmental responsibilities, human resource redeployment and training of the and user personnel.

In addition, the development of standard operating procedure (SOP) manuals, outside the scope of ISP/CMP, will be an important activity to make implementation of ISP/CMP successful.

(2) Recommendations

a) Application System Development

It is extremely important for MWSS to place high emphasis on the implementation of ISP. The current status of ISP must be reviewed by sub-system and implementation priority must be determined according to:

- Logical priority of each sub-system
- Expected benefits and effects
- Transaction volume
- Degree of difficulty in implementation
- Level of user commitment and preparation
- Current application development status

Priorities of implementation will have to be determined and tasks to be performed and required resources will have to be identified, reassigned and rescheduled. The following table lists all sub-systems and preliminary evaluation by application area.

Table 4.3.1 Implementation Priority of ISP Application Systems

System	Sub-system	System Abbr.	System Priority	Transact. Volume	Expected Effects
Customer Servicing System	Prospective Customer Monitoring	PCMS	Low	Large	Medium
	Sewer Application	SAS	Low	Small	Low
	Water Application	WAS	High	Large	High
	Billing and Meter Reading	BMRS	High	Large	High
	Collection and Payment Posting	CPPS	High	Large	High
	Customer Complaints Monitoring	CCMS	Medium	Medium	Medium
	Illegal Connection Monitoring	ICMS	Low	Medium	Medium
	Meter Management	MMS	Medium	Large	Medium
Project Planning & Implementation System	Project Planning	PPS	Low	Small	Low
	Project Design	PDS	Low	Small	Low
	Cost Estimation	CES	Low	Medium	Low
	Cost Projection	CPS	Low	Small	Low
	Standards Update	SUS	Low	Small	Low
	Project Monitoring	PMS	Medium	Medium	High
	Contractor Performance Monitor	CPMS	Medium	Large	Medium
Water/Sewer Facilities Mgmt. System	Pipe Network Management	PNMS	Medium	High	Medium
	Equipment Management	EMS	Medium	Medium	Low
	Job Order Monitoring	JOMS	Medium	Medium	Medium
	Valves & Hydrants Management	VFHMS	Medium	Medium	Low
	NRW Monitoring	NMS	Low	Medium	Medium
	Operations Planning and Control	OPCS	Low	Low	Low
Material Management System	Procurement Management	PMS	Medium	Medium	Medium
	Warehouse Inventory & Acctg.	WIAS	High	High	High
	Material Planning	MPS	Low	Medium	Low
Personnel Management System	Payroll Management	PMS	High	Medium	High
	Personnel Recruitment/Selection	PRSS	Low	Low	Low
	Personnel Administration	PAS	High	Medium	Medium
	Personnel Training Management	PTMS	Low	Medium	Low
Financial Management System	Accounts Payable Management	APMS	High	High	High
	Cash Management System	CMS	Low	Low	Low
	Loan Management	LMS	Low	Low	Low
	Fixed Assets Accounting	FAAS	Medium	Medium	Medium
	Budget Management	BMS	Medium	Medium	Medium
	Journal/Subsidiary Ledger Mgmt.	JSLMS	High	Medium	Medium
	Journal Entry	JES	High	Medium	Medium
	General Ledger Management	GLMS	High	Medium	High
Support Service System	Vehicle Management	VMS	Medium	Medium	Medium
	Legal Administration	LAS	Low	Low	Low
OA/DSS	Management Summary	MSS	Low	Low	Low
	Electronic Mailing	EMS	Low	Low	Low

The following page depicts the relationship of ISP applications and their priorities.

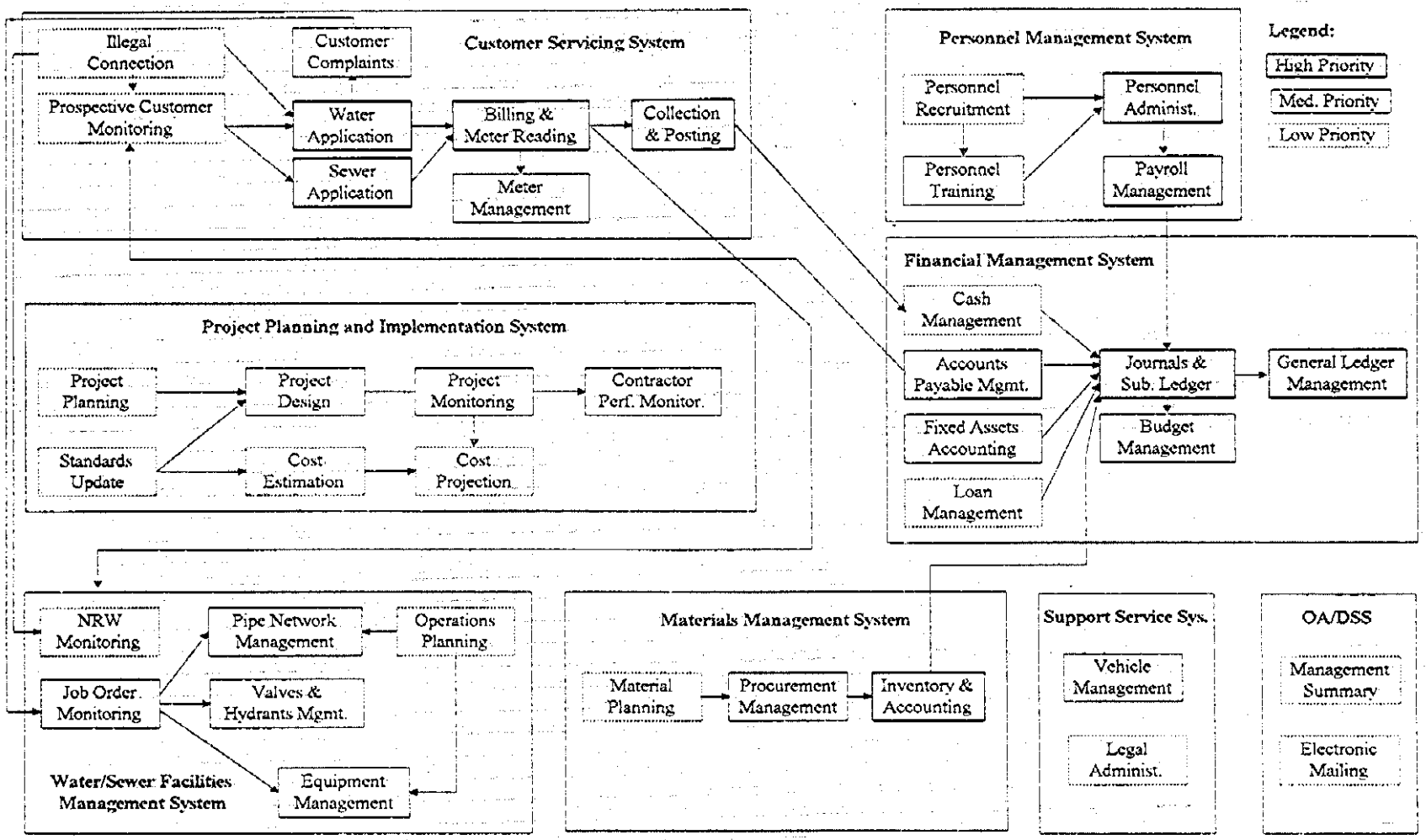

Figure 4.3.3 Overview of ISP Application Systems

Another issue in the system development is the frequent requests for design change in the process resulting in endless computer programming work and causing major delays. In order to avoid further delays, the ISP project team must establish a moratorium period for these changes. Additional requests must be carefully reviewed by the team and only critical ones should be entertained while others are separately filed until implementation is completed and the system is in use.

MWSS should formulate the second phase of ISP (ISP-II) to enhance and improve the systems to be implemented under ISP-I. Additional user requirements made during the moratorium period and after the implementation of ISP-I will be reviewed and reflected in ISP-II. In addition, the OA/DSS system which includes management summary and electronics mailing modules should also be included in ISP-II to promote and support end user computing (EUC). The management summary module will be supported by the technology called executive information system (EIS). The other area that ISP-II should include is the decentralization of the Geographic Information System (GIS) and the network management system.

In the long-term solution, MWSS should formulate and implement the third stage of ISP (ISP-III), which may include implementation of most advanced information technology such as workflow, group ware, voice mail, etc. which may be readily available in the Philippines shortly.

b) Hardware and Network Installation

In the mid-term solution, MWSS should install more sophisticated network management system to optimize the utilization of hardware and software so that MWSS will be able to establish an information network infrastructure based on a client server model. This infrastructure will be a backbone for planning and management of overall and functional operations through information and data sharing beyond the functional boundaries.

(3) Proposed MIS Organization

The roles of the MIS function must change to meet the requirement of the distributed processing system based on the client server model. The new information system requires from users a great deal of responsibility for operating and maintaining information resources including hardware, communication equipment, software and database located at a remote site. The roles of the MIS

function in a distributed processing mode are quite different from the roles in a centralized system. Under a distributed processing mode, MIS has the following three key roles:

- To provide information network infrastructure and maintain integrity of the overall information system
- To establish and enforce corporate standards on hardware and software platforms, communication protocols, coding system, data formats, forms and reports, documentation, system design, development tools and system operating procedures
- To serve end users better through improvement of internal system consulting capability based on a continuous research on advanced information technology.

In order to perform above mentioned roles effectively, the organization of the MIS function should be transformed as proposed below.

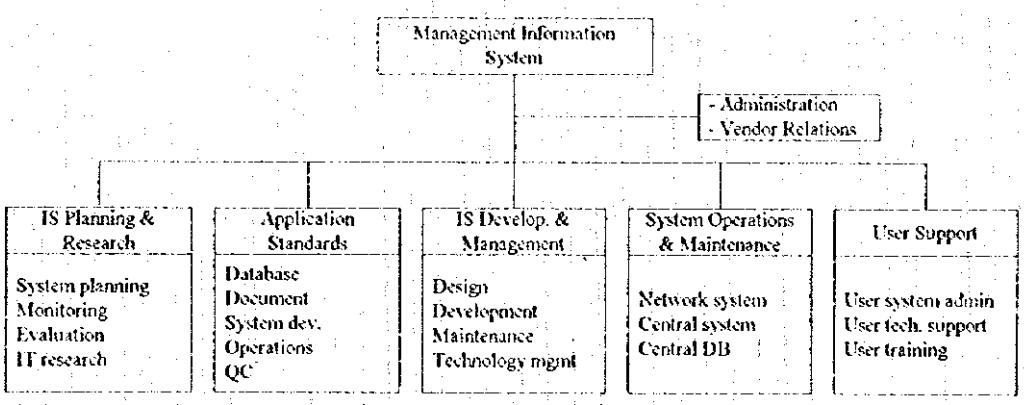

Figure 4.3.4 Proposed MIS Organization

3.4 Study on Human Resources

3.4.1 Headcount Projection

(1) Objective

At present, MWSS employs approximately 7,800 regular and casual employees. The number of MWSS employees and their functional composition will gradually change over the next 20 years due to various factors such as fewer predicted major construction projects after the year 2005, a constant increase of work volume in customer service and contracting out some routine operations to the private sector. In order to forecast the future number of MWSS employees to use as a basis for discussion of relevant matters, a headcount projection has been conducted for the study period from the year 1996 to 2015. Major objectives of the headcount projection are as follows:

- To estimate the overall manpower requirements to support future MWSS operations
- To visualize the size and composition of the future MWSS organization when key projects and programs in the Master Plan are implemented
- To assess the impact of organizational and operational strengthening efforts on the MWSS organization in terms of headcount

(2) Projection

The number of employees by employment status and by functional areas at the end of each phase (years 2000, 2005, 2010, 2015) is calculated based on the assumptions described in **Section 3.4.1 of Part IV in the Supporting Report**. The number of employees (7,796 people) as of 31 December, 1994 was used as a base for the projection.

The following table summarizes the results of the projection for the total number of regular and casual employees and the number of personnel for work to be contracted out:

Table 4.3.2 Projected Number of Employees

Description	Present	2000	2005	2010	2015
Service connections (in 000)	799	1,063	1,549	2,092	2,831
Septage tanks desludged (in 000)	50.0	103.4	103.4	188.6	188.6
(1) Regular employees:					
Corporate staff function & MIS	229	168	173	178	183
Engineering	264	251	238	226	215
Construction management	187	178	169	152	137
Operations (excluding sewerage)	1,283	1,279	1,325	1,259	1,196
Sewerage and sanitation	274	300	335	369	350
Customer services	1,676	1,726	1,930	2,193	2,541
Finance	401	381	362	344	327
Administration	302	287	273	259	246
(1) Subtotal	4,616	4,570	4,805	4,980	5,195
(2) Casual employees:					
Corporate staff function & MIS	13	10	5	0	0
Engineering	280	252	227	204	184
Construction management	1,839	1,070	900	300	300
Operations (excluding sewerage)	186	167	151	136	122
Sewerage and sanitation	52	47	42	38	34
Customer services (leakage)	737	590	472	377	301
Finance	52	30	20	0	0
Administration	21	15	10	0	0
(2) Subtotal	3,180	2,181	1,827	1,055	941
(3) MWSS employees (1)+(2)	7,796	6,751	6,632	6,035	6,136
(4) Staff/1,000 connections	9.3	6.0	4.0	2.7	2.0
(5) Contractors:					
Meter reader	0	184	413	558	755
Bill collector	285	379	552	745	1,008
Leak repairman	373	460	578	542	486
Desludging	197	407	407	742	742
(5) Subtotal	855	1,430	1,950	2,587	2,991
(6) Total (3)+(5)	8,651	8,181	8,582	8,622	9,127

The projection shows that the total number of employees will decrease by 1,660 from 7,796 to 6,136. The number of regular employees will increase by 579 from 4,616 to 5,195 because of a rapid increase in service connections while the number of casual employees will decline drastically from 3,180 to 941 mainly due to the completion of major expansion projects after the year 2005 except MRWDNP.

On the other hand, the number of contractor personnel will increase considerably from 855 to 2,991 due to aggressive implementation of corporate strategy on contracting out service delivery activities that do not require major decision making.

3.4.2 Skill Requirement

(1) HR Composition

Currently, MWSS regular employees are classified into many groups based on the nature of assignments and skill requirements. In order to project the HR composition for the study period from the year 1996 to 2015, the Study Team further classified the future MWSS headcount into the following five categories of managers, engineers, operators, supporting staff and others:

Managers include division managers and above whose salary grade is 24 or higher.

Engineers include technicians in architecture, chemistry, drafting, engineering, environmental management, geology, hydrology, quality control and research.

Operators include employees who mainly work in the Operations and Customer Service Areas. They are engaged in building and facilities construction and maintenance, material and supply management, plant, line and substation operations and maintenance, water and sewer pipe maintenance, water utility management and development, water resource facility operations, customer services and others.

Supporting staff include administrative staff who mainly work in the Administration and Finance Areas. They are engaged in accounting, budgeting, cash transactions, legal section, corporate planning, project planning and development management, public information, record management and other groups.

The following table shows a composition of employees by position within a functional area as of 31 December, 1994:

Table 4.3.3 Employee Composition by Position Category

Areas/Departments	Manager	Engineer	Operator	Sup. staff	Total
Office of Administrator	7.9	0.0	2.2	89.9	100.0
Engineering Area	4.2	76.5	0.4	18.9	100.0
Construction Management Area	13.4	23.0	36.4	27.2	100.0
Operations Area:	1.0	1.6	86.7	10.7	100.0
Water Supply Operations	0.9	0.7	87.1	11.3	100.0
Sewerage & Sanitation Operations	1.1	5.8	85.0	8.1	100.0
Customer Service Area	2.0	0.2	84.6	13.2	100.0
Finance Area	3.0	0.2	26.4	70.4	100.0
Administration Area	6.0	0.3	16.9	76.8	100.0
Total	2.9	6.0	65.0	26.1	100.0

Using the projected number of employees presented in **Table 4.3.2** and applying the composition ratio by position category shown on the above table, based on an assumption that the employee position mix will stay the same as the present composition in the future, the number of employees by position category for the next 20 years is estimated as follows:

Table 4.3.4 Projected Number of Employees by Skill Category

	Present		2000		2005		2010		2015	
Skill Category	Empl.	%	Empl.	%	Empl.	%	Empl.	%	Empl.	%
Regular:										
Managers	133	1.7	126	1.9	128	1.9	130	2.2	133	2.2
Engineers	276	3.5	265	3.9	256	3.9	245	4.1	233	3.8
Operators	2,999	38.5	3,047	45.1	3,279	49.4	3,460	57.3	3,671	59.8
Supporting staff	1,208	15.5	1,132	16.8	1,142	17.3	1,145	18.9	1,158	18.9
Sub Total	4,616	59.2	4,570	67.7	4,805	72.5	4,980	82.5	5,195	84.7
Casual	3,180	40.8	2,181	32.3	1,827	27.5	1,055	17.5	941	15.3
Total	7,796	100.0	6,751	100.0	6,632	100.0	6,035	100.0	6,136	100.0

One significant change in position mix is that the composition in the operator category will significantly increase from 38.5% to 59.8% because of higher work volume in the Customer Service Area for the growing number of service connections while the category of casual employees will drastically decrease from 40.8% to 15.3% mainly due to completion of major construction projects around the year 2005. The composition of managers, engineers and supporting staff will slightly increase, but the number will be the same or less for the coming 20 years.

(2) Necessary Skills

As discussed in Section 3.2, MWSS needs restructuring to become a more responsive organization, so the future organization and its operations should be characterized as follows:

- More mission, goal and customer orientation
- Decentralization through better corporate planning and empowerment
- Taking advantage of private sector participation (PSP)
- Extensive use of information technology
- Introduction of commercial and competitive principles

As the characteristics of the organization and operations change in the future, they will also require changes in skill-set of existing employees. Human resource development (HRD) is a long-term issue because current managers and employees who are familiar with the existing organizational and operational setup have to spend many years to acquire a new set of skills and change their mind-set, while organizational structure, systems and operating procedures may be changed relatively easily in a short period of time. Therefore, MWSS must develop human resource development strategies to assist employees in acquiring new skills on a long-term basis.

In general, emphasis on required skills and capability in the future will shift from implementation to planning, from infrastructure development to operations/maintenance and R&D, and from manual to computer-assisted clerical work. Daily routine operations (meter reading, meter installation, replacement and repair, etc.) may be transferred to the private sector. Skills to be enhanced or newly acquired in the future at each functional area will be as follows:

a) Corporate Planning

The corporate planning function will have to enhance its skills and capability in terms of policy formulation for resource management and tariff structure, corporate strategic planning, data collection and research, financial and economic forecasting, corporate and functional performance monitoring and evaluation, and coordination of cross-functional planning activities.

b) Infrastructure Development

This area will require enhancement in project identification and prioritization, technical and

economic feasibility studies, engineering standardization, laboratory testing on materials and water quality, and research and development on quality control, treatment and environmental impact.

c) Operations and Maintenance

Skills enhanced or newly acquired in the operation and maintenance function will be network management based on telemetry, preventive maintenance of heavy equipment, maintenance logistics and maintenance job order control.

d) Customer Service

In this function the areas will be planning and management for sector and branch operations, effective use of ISP and end user computing, contractor management for delegated contracts. and leak detection and repair.

e) Finance and Administration

Utilization of ISP and end user computing, functional planning and management including finance, human resources, information systems, etc. and continuous improvement of administrative operations.

3.4.3 Human Resource Development

MWSS does not have a long-range human resource development (HRD) plan. The fact that MWSS has been able to operate the waterworks system for so many years with very little change in processes does not justify the situation however. With the increasing number of customers to be served requiring larger volumes of water supply and with various technological advances, it is imperative to have such a long range plan to prepare the personnel capacity to meet future demands for managing the system efficiently. These plans should form part of MWSS's long range planning.

It appears that HRD programs are currently carried out individually and only when needed, without considering employees' career paths. Hence, most have to seek their own professional development for their own personal interest. There is a perceived lack of planning and implemention of HRD programs for the benefit of MWSS that would also follow closely each worker's path. Since such strategy would benefit MWSS as well as its personnel, executing it should be given priority.

3.5 Water Sector Activities

3.5.1 Study on Research and Development

(1) General

The research and development (R&D) activities of MWSS are classified into two categories, applied research and quality improvement. The applied research that is performed on a project basis deals with new technology, materials and methodologies for treatment, O&M and environment management while quality improvement, which handles testing of materials or water quality, is mainly conducted at laboratories as an extension of the existing day-to-day routine laboratory testing activity.

The applied research process normally begins with a study of internal requirements on R&D and data gathering on up-to-date research and technology information, and then subjects are selected to develop projects. The results of the R&D activities should be documented for presentation to related parties both inside and outside MWSS, and pilot tests should be conducted at selected construction projects or sites. Once performance of new materials, workmanship or treatment approach is confirmed as satisfactory, the end products of R&D projects should then be applied to the other areas of the System. The following flowchart shows a schematic overview of the typical R&D process:

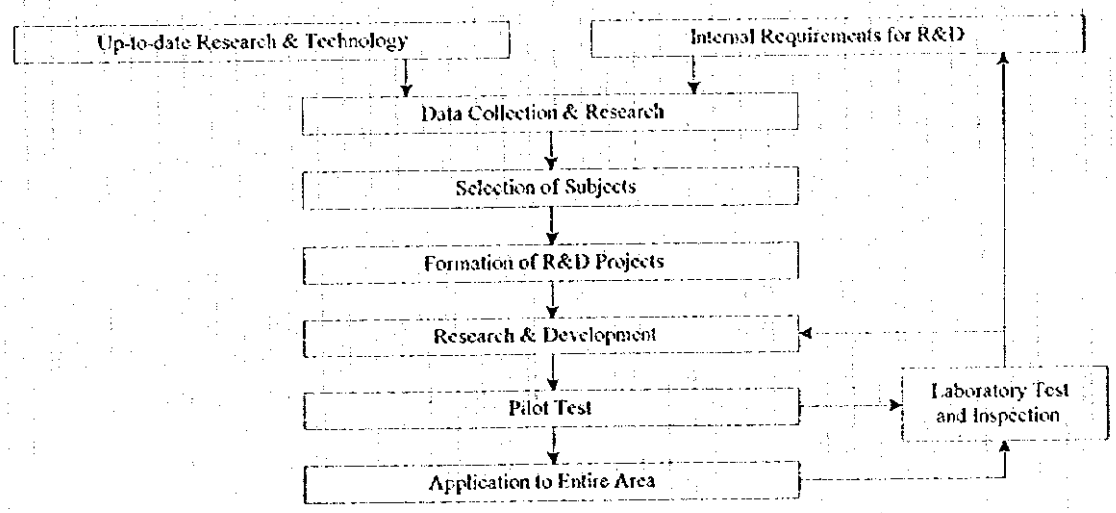

Figure 4.3.5 Schematic Overview of R&D Process

On the other hand, quality improvement activities should be performed on a subject basis upon issues or problems that arise or when requests are made by other operating units.

There are five areas of R&D, namely water quality, material quality, treatment technology, facilities and equipment, and environment management throughout the water life cycle (water source through treatment and distribution to wastewater collection and treatment).

At present MWSS's R&D operations are not very active except for material and water quality improvement activities due to budget constraints, lack of necessary skills and insufficient equipment. It will take time to secure R&D resources to support an adequate level of activities; therefore current ones had better be restricted to those projects that can be performed with existing facilities, equipment and personnel and which can be focused on quality improvement-related laboratory research.

(2) Future R&D Strategies

Research and development is vital for every organization's future success. Therefore, MWSS should support the development of pertinent skills by hiring the best people in terms of technical qualifications and objectivity. In terms of logistics, it should be well-funded and well-equipped ,and properly updated with the latest technical references.

In order to improve the R&D activities of MWSS, the following strategies are recommended:

- Concentrate R&D activities in key areas
- Create Special Interest Groups (SIGs)
- Introduce team-oriented organization to R&D projects
- Promote joint projects through cooperation with other research institutions
- Develop R&D medium-term plan.

Details of the above strategies are discussed in **Section 3.5.1 of Part IV in the Supporting Report.**

3.5.2 Public Relations

The main objectives here are to continuously provide information on its present and future activities to the general public and stakeholders including residents, customers, and parties concerned with MWSS operations, and to hear opinions and complaints on current programs and services from the same groups. In order to achieve these objectives and maintain close relationship with them, the following three major roles have to be enhanced by MWSS:

- Public awareness - Dissemination of information on MWSS activities to the public through printed materials and other media
- Public health education - Public education on water related issues such as health, sanitation, hygiene and water conservation
- Public hearings - Receipt and monitoring of complaints from consumers and other stakeholders.

Approaches to enhance the above roles are discussed in **Section 3.5.2 of Part IV in the Supporting Report**.

At present, the public relation activities of MWSS are handled by the Public Information Department (PID) and the MWSS Action Center (MAC), one of the units for the PID.

3.5.3 Development of Water-related Industries

The inefficient operations and delay in infrastructure development MWSS is facing now are partly attributable to weak water-related domestic industries not sufficiently capable of meeting requirements of MWSS in terms of availability, quality, speed and cost of materials and services. In order to improve overall operations MWSS's own efforts alone are not enough, it must also be supported by development of water-related domestic industries throughout the country.

These include engineering, construction and civil works, manufacturing and distribution of materials, industrial chemicals, and electrical and mechanical equipment. The water supply, sewerage and sanitation operations are closely related with these industries, being their suppliers of services, materials, facilities and equipment.

There are many sub-industry groups in the country although most are not basic core industries but

use semi-finished products as raw materials. Few industries use basic raw materials, which are mostly imported, including the water-related industries. MWSS is thus limited in its choice of local suppliers and contractors so that most of its requirements have to be supplied from importation. MWSS's operation is often affected with the limited number of local suppliers especially if those items requiring faster delivery are not locally produced. Furthermore, it can not secure the optimum price given the limited availability of local suppliers. Increasing the number of local vendors and contractors by encouraging local production would assure MWSS that it could procure all its requirements at the time needed and at the lowest prices. Since on its own it cannot stimulate local production of these water-related items, a total industry-wide (water-related) initiative coupled with private sector and government assistance would be the solution.

The efforts to develop water-related domestic industries would be required at three levels, i.e., national, sector and MWSS, as follows:

- GOP initiative: preparation of industry development plans for sub-sectors (NEDA and DTI) and governmental incentives and assistance to encourage local production (NEDA, DOF, DTI)
- Sector initiative: soliciting similar entities (such as local water districts) to participate in the activities of the Philippine Waterworks Association (PWWA) and establishment of national standards for materials and waterworks construction (DPWH, LUWA, LGU)
- MWSS initiative: transfer part of service delivery responsibilities to the private sector through contracting out or delegated contracts.

Details of approaches for the above initiatives are discussed in **Section 3.5.3 of Part IV in the Supporting Report**.

Chapter 4.

Proposed Projects

Chapter 4. Proposed Projects

4.1 General

This Chapter discusses proposed projects for organizational and operational strengthening which can be implemented based on MWSS initiatives together with assistance from other agencies. Projects for legislative action and introduction of private sector participation (PSP) are not proposed in this report in light of the fact that IBRD, ADB and other donor agencies have already planned them. There are numerous organizational and operational areas MWSS can strengthen as discussed in the previous chapter. Nevertheless the Study Team selected the following five key areas to formulate the proposed projects MWSS should envisage:

- Corporate Planning and Monitoring
- Maintenance and Logistics
- R&D and Laboratory Strengthening
- Human Resources
- Management Information Systems

The main reason why the Study Team proposes the above projects is because they are considered to be critically important for MWSS in strengthening its key management areas in the long term.

It should be noted that the estimated costs for the projects discussed in the following sections were prepared only for planning purposes. The figures were determined largely based on professional judgment. They may vary drastically depending on the scope and duration of work, and qualification of outside consultants. More accurate costs can be derived from proposals by bidders only after public bidding. Personnel costs for MWSS project or task force members are not estimated since they are covered by regular annual budget. The cost for required equipment and facilities is also not included in our study due to difficulty in identifying items to be procured at this time.

4.2 Corporate Planning and Monitoring

4.2.1 Objective

This project aims at strengthening organizational capabilities through the development and implementation of the corporate planning, budgeting and monitoring process, its purposes in MWSS being as follows:

- **Clarification of Directions** - To establish common goals and objectives, strategies and plans to clarify the corporate directions
- **Integration of Plans** - To integrate expansion project and functional plans into an overall corporate plan in order to maintain their integrity and consistency (including also the budget's) for better coordination of business activities
- **Resource Re-deployment** - To optimize allocation of management resources to various projects and operating units through well coordinated corporate planning, budgeting and monitoring processes.
- **Decentralization and Empowerment** - To facilitate decentralization and empowerment through the implementation of the processes in the previous paragraph.

4.2.2 Scope

The scope of the proposed project will cover development of the corporate planning guidelines, formulation of the medium-term corporate plan, preparation of the two-year rolling business plan, and development and implementation of a monitoring and evaluation process in the following phases:

Phase I - Development of Corporate Planning Guidelines: These will clearly describe corporate planning process, roles and responsibilities of the parties concerned, related activities for formulating a medium-term (5 year) corporate plan, and a two-year rolling business plan and annual budget.

Phase II - Formulation of the Medium-term Corporate Plan: The medium-term corporate plan will consist of corporate policies, goals and objectives, strategies, expansion project and functional plans, and financial projections.

Phase III - Preparation of the Two-year Rolling Plan and Annual Budget: The two-year rolling business plan will cover short-term corporate goals and objectives, expansion project and functional plans, and financial projections. The annual budget, based on the above plan, will cover revenues, operating expenses by department/division, project expenditures, debt service, etc. The budgeting process will also cover a preparation of projected financial statements and cash flow.

Phase IV - Development and Implementation of the Monitoring and Evaluation Process: This process will be developed and implemented for the execution of Phase III items.

4.2.3 Project Tasks

Tasks to be performed in the corporate planning and monitoring project are described as follows:

(1) Phase I - Corporate Planning Guidelines

- Establish a cross-functional task force for the project and a working group to formulate corporate planning guidelines
- Prepare a detailed project work plan for Phase I including tasks to be performed, persons responsible for them, and work schedule
- Study existing corporate planning and budgeting processes to identify deficiencies and issues
- Study same processes implemented by other similar agencies and organizations
- Develop guidelines for corporate planning, budgeting, and performance monitoring and evaluation
- Review the guidelines with the Executive Committee and the Board for their approval
- Announce the guidelines to operating units and managers.

(2) Phase II - Medium-term Corporate Plan

- Establish a working group for formulating the mid-term corporate plan
- Prepare a detailed work plan for Phase II including tasks to be performed, persons responsible for them, and work schedule
- Study external business environment such as government policies, laws and regulations, social and economic conditions, technology trends, political conditions, etc.
- Study internal capabilities including management resources, organization, management planning and control systems, etc.
- Perform a gap analysis and confirm the corporate mission, vision and long-term strategies to establish medium-term corporate policies, goals and objectives and strategies
- Formulate functional policies, directions, goals and objectives, strategies and business plans
- Assess the existing and proposed expansion projects for prioritization and adjustment
- Formulate the medium-term corporate plan for the new planning period to include corporate goals and objectives, strategies, expansion project and functional plans, and financial projections
- Review the plan with the Executive Committee and the Board for their approval
- Announce plan to operating units and managers.

(3) Phase III - Two-year Rolling Business Plan and Budget

- Establish a working group for formulating the two-year rolling business plan
- Prepare a detail work plan for Phase III including tasks to be performed, persons responsible for them, and work schedule
- Confirm the medium-term corporate goals and objectives, corporate strategies, expansion project and functional plans
- Establish short-term corporate policies, goals and objectives, and strategies
- Formulate functional short-term plans including goals and objectives, strategies, and operating plans

- Develop a two-year rolling business plan including corporate goals and objectives, corporate strategies, expansion project and functional operating plans, and financial projections
- Compile departmental and divisional preliminary budgets based on the two-year rolling plan and review the preliminary budget with each operating unit
- Adjust the preliminary budget and finalize its proposal
- Review the two-year corporate plan and annual budget with the Executive Committee and the Board for their approval
- Review the budget proposal with DBM for its approval
- Announce the plan and annual budget to operating units.

(4) Phase IV - Monitoring and Evaluation

- Establish a working group for the development and implementation of the performance monitoring and evaluation process
- Study the existing above process and procedures to identify deficiencies and issues
- Design a new process and reporting procedures and formats on a monthly, quarterly and semi-annual basis
- Effect training on new system and procedures to monitor the progress of the two-year rolling plan and annual budget
- Implement new monitoring system and procedures and collect performance data from operating units and projects
- Evaluate the operating and financial performance at corporate, project and functional levels and report the results of the operations and performance evaluation to management and key managers
- Revise the two-year rolling plan and budget on a semi-annual basis
- Review the revised plan and budget with the Executive Committee and the Boards for their approval
- Announce plan and budget to key managers.

4.2.4 Project Organization

In order to effectively carry out this project, a cross functional task force must be formed consisting of key members from Corplan, PPD, FCBD, PMED and other functional areas

including Engineering, Operations, Customer Services, Finance and Administration. Outside consultants will play a vital role to assist the task force in developing guidelines, mid-term corporate and two-year rolling plans and coordinating various activities during the project duration. The following chart depicts the proposed task force organization:

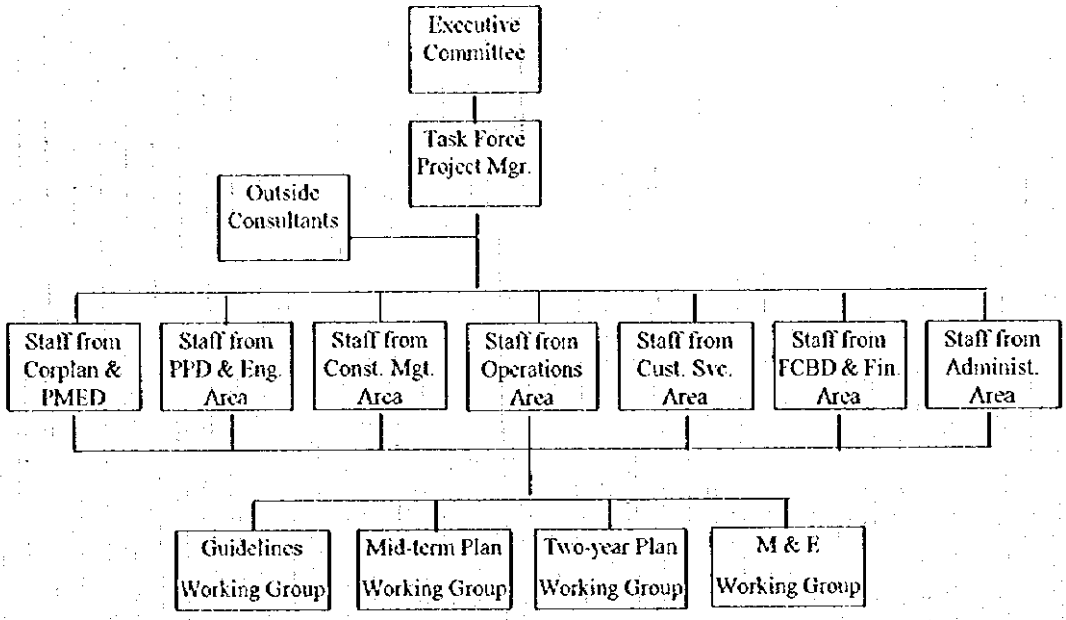

Figure 4.4.1 Corporate Planning and Monitoring Task Force Organization

4.2.5 Project Work Schedule

Elapsed time in months for each phase is estimated as follows:

Phase I - Corporate Planning Guidelines	Approx. 2 months
Phase II -Medium-term Corporate Plan	Approx. 4 months
Phase III - Two-year Rolling Plan and Budget	Approx. 5 months
Phase IV - Monitoring and Evaluation	Approx. 4 months

The following Gantt chart illustrates the project work schedule:

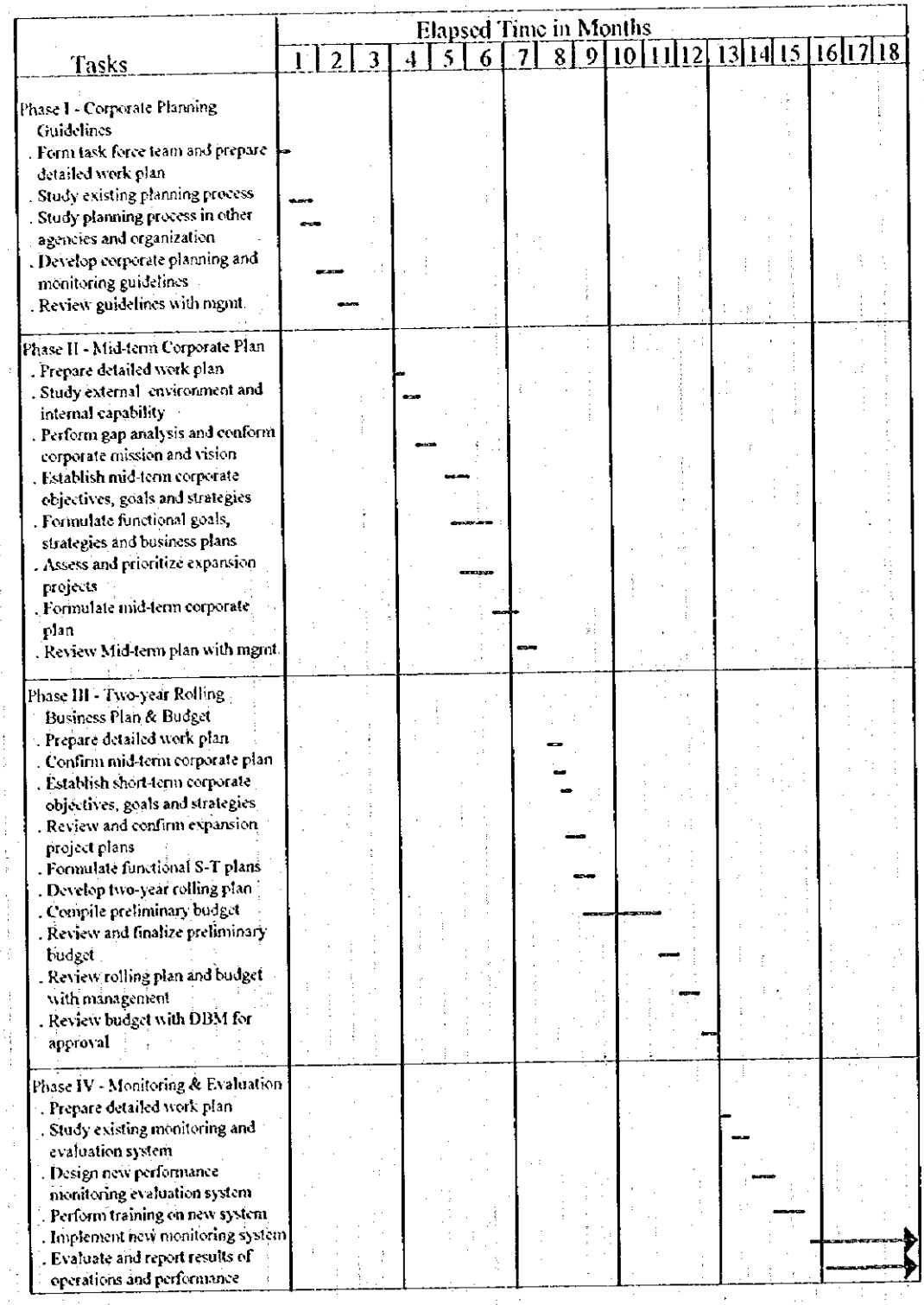

Figure 4.4.2 Work Schedule for the Corporate Planning and Monitoring Project

4.2.6 Estimated Project Cost

The table below represents the estimated project costs:

Table 4.4.1 Estimated Costs for Corporate Planning and Monitoring Project

Category	Description		Amount in Pesos
1. Phase I - Corporate Planning and Monitoring Guidelines	Cost for outside consultants		
	Overseas	Total 3 M/M	P 1,500,000
	Local	Total 3 M/M	450,000
	Travel and transportation expenses		270,000
	Airfare for overseas consultants		100,000
	Printing, support staff, supplies, etc.		100,000
	Sub-total		2,420,000
2. Phase II - Medium-term Corporate Plan	Cost for outside consultants		
	Overseas	Total 6 M/M	3,000,000
	Local	Total 4 M/M	600,000
	Travel and transportation expenses		520,000
	Airfare for overseas consultants		150,000
	Printing, support staff, supplies, etc.		180,000
	Sub-total		4,450,000
3. Phase III - Two-year Rolling Business Plan and Annual Budget	Cost for outside consultants		
	Overseas	Total 6 M/M	3,000,000
	Local	Total 6 M/M	900,000
	Travel and transportation expenses		540,000
	Airfare for overseas consultants		150,000
	Printing, support staff, supplies, etc.		200,000
	Sub-total		4,790,000
4. Phase V-Implementation	Cost for outside consultants		
	Overseas	Total 4 M/M	2,000,000
	Local	Total 4 M/M	600,000
	Travel and transportation expenses		360,000
	Airfare for overseas consultants		100,000
	Printing, support staff, supplies, etc.		130,000
	Sub-total		3,190,000
5. Contingency Fund	Contingency fund		1,150,000
	Grand Total		P 16,000,000

Notes: 1) M/M stands for man/month
2) Consulting fees: Overseas consultant - P500,000/month, local consultant - P150,000/month
3) Travel and transportation expenses: Overseas consultant - P80,000/month, local consultant - P10,000/month
4) Airfare: P50,000 per trip/person
5) Printing, support staff, supplies, etc.: Approx. 5 % of total consulting fees
6) Contingency fund: Approximately 8 % of total consulting fees and expenses

4.3 Maintenance and Logistics

4.3.1 Objective

This project aims at strengthening the operations and maintenance area through the development of maintenance guidelines and programs and the streamlining of maintenance and logistics operations based on the business process re-engineering approach.

4.3.2 Scope

The scope of the proposed project will be divided into two components - the development of maintenance guidelines and programs and the re-engineering of maintenance and logistics operating processes.

The development of maintenance guidelines and programs will cover routine patrol and checks, periodical preventive maintenance and emergency repairs by location and type of facility and equipment, while the re-engineering work will cover both the maintenance and logistics operations. Re-engineering the maintenance operations will include maintenance planning, job order monitoring, resource allocation and scheduling, maintenance and repair work, job costing and performance measurement processes. As far as logistics, it will include procurement planning and management, receiving and issuing, inventory control and monitoring, and inventory valuation processes for materials, parts, tools and maintenance equipment.

The maintenance and logistics project will be performed in two phases as follows:

Phase I - Development of Maintenance Guidelines and Programs

- Identification of facilities and equipment to be covered by this project
- Clarification of deficiencies and issues on the existing maintenance policies, standards, systems and procedures
- Formulation of new maintenance strategies, policies and standards as guidelines
- Development of new maintenance programs for selected key facilities and equipment

- Development of action plans for implementing maintenance guidelines and programs.

Phase II - Re-engineering of Maintenance and Logistics Operations

- Study on the existing operating processes for maintenance and logistics
- Development of solutions to integrate and streamline these operations
- Development of an action plan for implementing changes.

4.3.3 Project Tasks

Tasks to be performed are described as follows:

(1) Phase I - Guidelines and Programs

- Identify facilities and equipment by location and type to be covered by this project
- Study the present maintenance policies, standards, systems and procedures for routine patrols and checks, preventive maintenance and emergency repairs by location and type of facility and equipment to identify existing deficiencies and issues in operations
- Formulate new maintenance strategies, policies and standards and document them in the form of a maintenance guideline manual
- Review the maintenance guideline manual with MWSS management
- Identify key facilities and equipment where new maintenance programs must be formulated based on the new maintenance guidelines
- Develop solutions for existing deficiencies and issues in maintenance operations for selected areas and formulate new maintenance programs including organization, system and procedures
- Develop action plans for implementing the maintenance guidelines and programs for selected areas
- Review action plans with MWSS management for its approval.

(2) Phase II - Re-engineering

- Study the existing operating process for logistics

- Identify deficiencies and issues related to it
- Design new operating processes that integrate and streamline maintenance and logistics considering the new maintenance programs developed in Phase I
- Develop a new organization for, identify required human resources and skills in, and design a performance monitoring and evaluation system for maintenance and logistics operations
- Assess the Water/Sewer Facilities Management and Materials Management Systems being implemented under ISP-I to identify their capabilities for supporting new operating processes, and define systems requirements for any modification to be made
- Develop an action plan for carrying out changes in the areas of organization, operating process, human resources, information systems, and performance monitoring and evaluation system
- Review said plan with MWSS management for its approval.

4.3.4 Project Organization

In order to perform the activities described in the above, the following project organization consisting of outside consultants and four working groups must be formed:

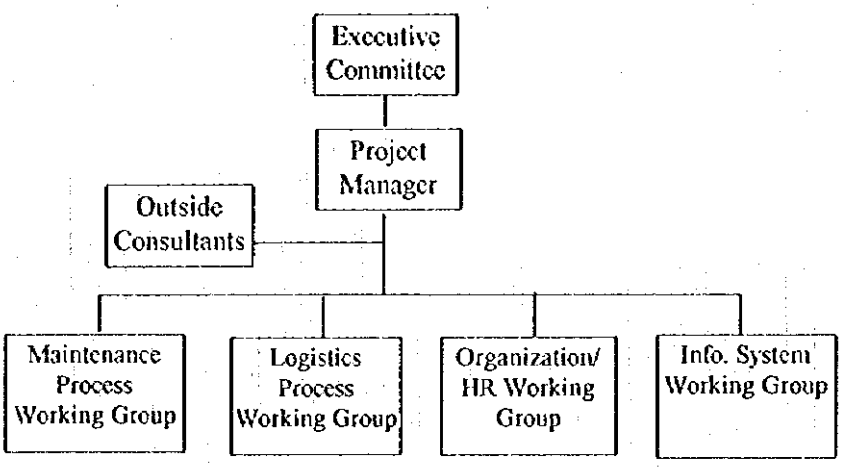

Figure 4.4.3 Maintenance and Logistics Project Organization

4.3.5 Project Work Schedule

Elapsed time in months for each phase is estimated as follows:

Phase I - Maintenance Guidelines	Approx. 3 months
Phase II - Re-engineering	Approx. 3 months

The following Gantt chart illustrates the project work schedule:

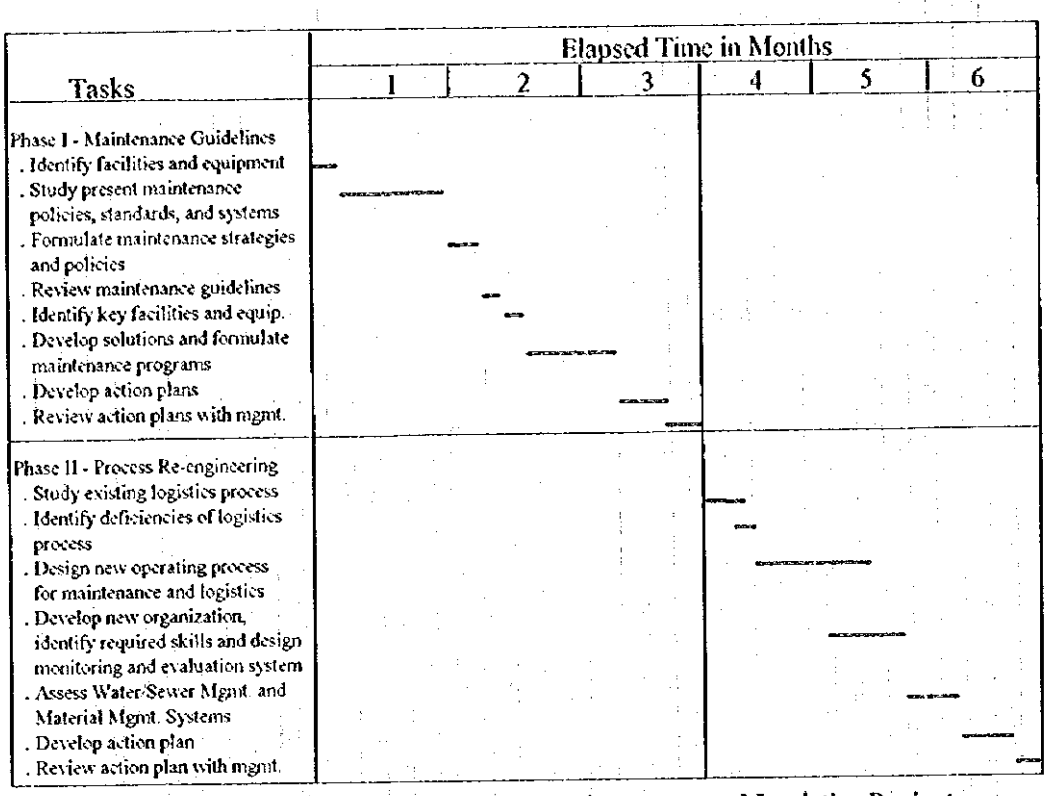

Figure 4.4.4 Work Schedule for the Maintenance and Logistics Project

4.3.6 Estimated Project Cost

The table below represents the estimated costs:

Table 4.4.2 Estimated Cost for the Maintenance and Logistics Project

Category	Description	Amount in Pesos
1. Phase I - Maintenance Guidelines and Programs	Cost for outside consultants	
	Overseas Total 6 M/M	3,000,000
	Local Total 6 M/M	900,000
	Travel and transportation expenses	540,000
	Airfare for overseas consultants	150,000
	Printing, support staff, supplies, etc.	200,000
	Sub-total	4,790,000
2. Phase II - Process Re-engineering	Cost for outside consultants	
	Overseas Total 6 M/M	3,000,000
	Local Total 6 M/M	900,000
	Travel and transportation expenses	540.000
	Airfare for overseas consultants	150,000
	Printing, support staff, supplies, etc.	200,000
	Sub-total	4,790,000
3. Contingency Fund	Contingency fund	420,000
	Grand Total	P10,000,000

Notes: 1) M/M stands for man/month
2) Consulting fees: Overseas consultant - P500,000/month, local consultant - P150,000/month
3) Travel and transportation expenses: Overseas consultant - P80,000/month, local consultant - P10,000/month
4) Airfare: P50,000 per trip/person
5) Printing, support staff, supplies, etc.: Approx. 5 % of total consulting fees
6) Contingency fund: Approximately 4 % of total consulting fees and expenses

4.4 R&D and Laboratory

4.4.1 Objective

This project aims at strengthening MWSS R&D and laboratory testing capabilities through the development of an integrated medium-term R&D and laboratory strengthening plan. The purposes in developing this plan are as follows:

- Clarification of R&D directions and strategies
- Prioritizing R&D and laboratory investments
- Effective allocation of scarce R&D resources
- Strengthening laboratory testing capability

4.4.2 Scope

The scope of the proposed project will cover selecting R&D subjects, setting up R&D project teams and Special Interest Groups (SIGs), laboratory strengthening and development of R&D skills in the following phases:

Phase I - Development of R&D and Laboratory Strengthening Plan: This medium-term plan includes R&D goals and objectives, strategies, R&D areas for focusing, skills to be enhanced, equipment to be acquired, action plans and cost estimation for implementing the plan.

Phase II - Implementation of R&D and Laboratory Strengthening Plan: Based on the above medium-term plan, R&D project teams and SIGs will be formed and required laboratory equipment will be procured.

4.4.3 Project Tasks

Tasks to be performed in the project are described as follows:

(1) Phase I - Development of R&D and Laboratory Strengthening Plan

- Create a project team for the development of the medium-term R&D and laboratory strengthening plan and prepare a project work plan
- Identify present and future R&D and laboratory needs and requirements
- Assess current capability (skill, equipment and budget) to fulfill present and future R&D and laboratory testing needs and requirements
- Establish R&D and laboratory strengthening policies, goals and objectives, and strategies
- Assess R&D needs and requirements to prioritize and define R&D and SIG subjects and formulate scope, required resources and work plan for the selected subjects
- Identify possible R&D alliances with other government institutes and incorporate them into an action plan for selected subjects
- Assess laboratory testing needs and requirements to prioritize procurement of testing equipment and define specifications, estimated costs, and timing for each equipment to be acquired

- Develop integrated medium-term R&D and laboratory strengthening plan
- Review the medium-term plan with the Executive Committee for an approval
- Announce the plan to parties concerned.

(2) Phase II - Implementation of R&D & Laboratory Strengthening Plan

- Prepare a detailed project work plan for Phase II including tasks to be performed, persons responsible for each and work schedule
- Set up the R&D project teams and SIGs for selected subjects
- Develop bidding documents and publicly bid for procurement of laboratory testing equipment
- Evaluate the result of R&D and SIG activities and revise the R&D and laboratory strengthening plan as required
- Review the revised R&D plan with the Executive Committee for an approval
- Announce the revised plan to parties concerned.

4.4.4 Project Organization

In order to effectively carry out this project, a project team for formulating the medium-term strengthening plan must be formed, consisting of key members from the Research and Development Division, the Central Laboratory Division, the Quality Control Division and other operating units concerned. Outside consultants will play a vital role to assist the project team in selecting R&D subjects, identifying testing equipment to be procured and coordinating various activities during the project duration. The following chart depicts the proposed project organization:

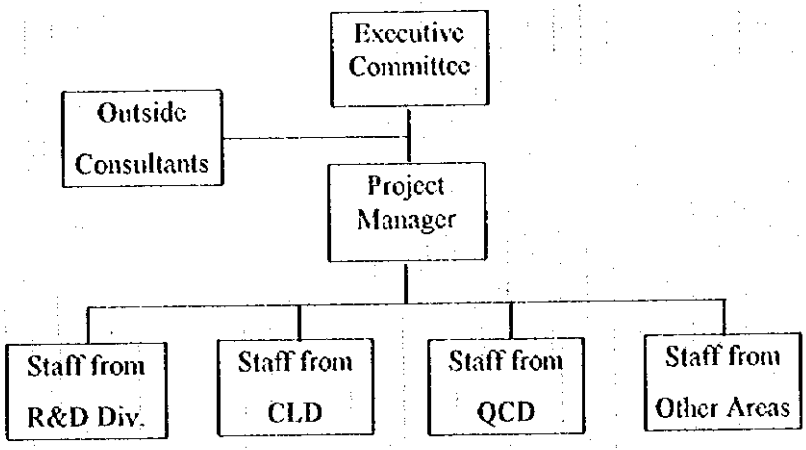

Figure 4.4.5 R&D and Laboratory Strengthening Project Organization

4.4.5 Project Work Schedule

Elapsed time in months for each phase is estimated as follows:

Phase I - Development Plan	Approx. 3 months
Phase II - Implementation Plan	Approx. 2 months

The following Gantt chart illustrates the work schedule of the project:

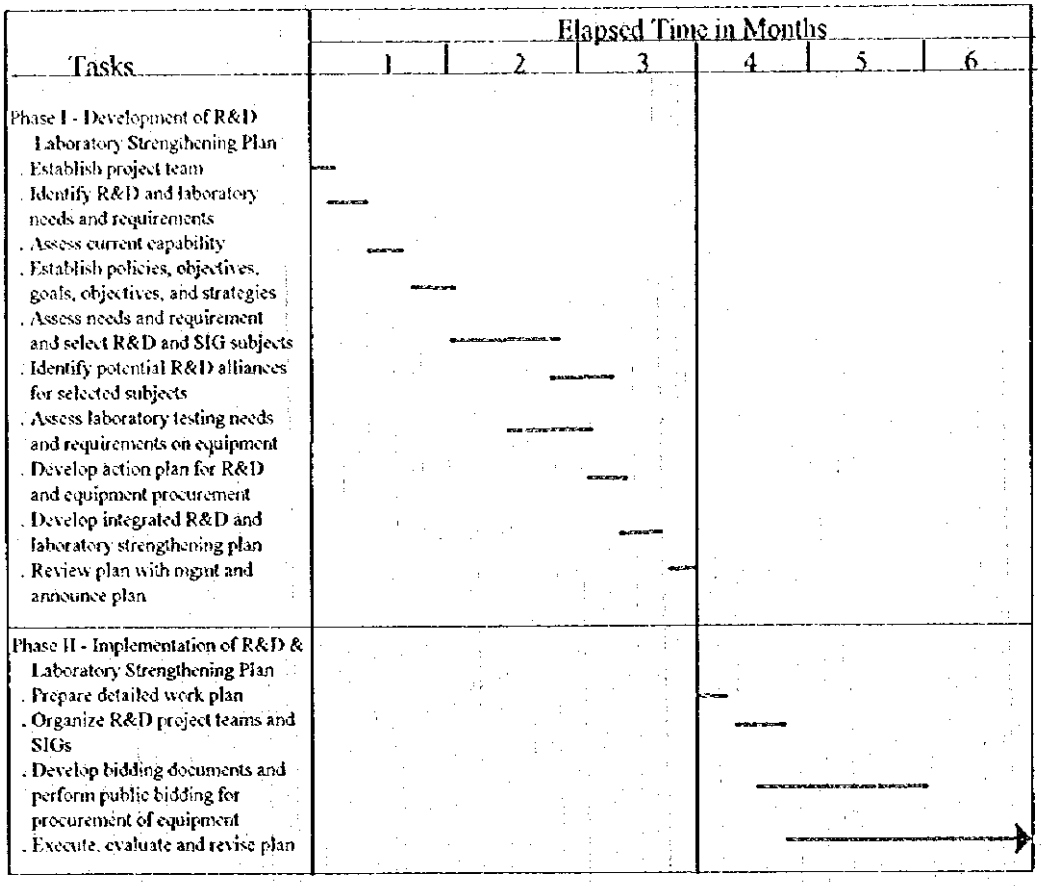

Figure 4.4.6 Work Schedule for R&D and Laboratory Strengthening Project

4.4.6 Estimated Project Cost

The table below represents the estimated costs:

Table 4.4.3 Estimated Cost for R&D and Laboratory Strengthening Project

Category	Description	Amount in Pesos
1. Phase I-Development of R&D and Laboratory Strengthening Plan	Cost for outside consultants	
	Overseas Total 4 M/M	P 2,000,000
	Local Total 3 M/M	450,000
	Travel and transportation expenses	350,000
	Airfare for overseas consultants	100,000
	Printing, support staff, supplies, etc.	123,000
	Sub-total	3,023,000
2. Phase II - Implementation of R&D and Laboratory Strengthening Plan	Cost for outside consultants	
	Overseas Total 3 M/M	1,500,000
	Local Total 3 M/M	450,000
	Travel and transportation expenses	270,000
	Airfare for overseas consultants	100,000
	Printing, support staff, supplies, etc.	100,000
	Sub-total	2,420,000
4. Contingency Fund	Contingency fund	557,000
	Grand Total	6,000,000

Notes: 1) M/M stands for man/month
2) Consulting fees: Overseas consultant - P500,000/month, local consultant - P150,000/month
3) Travel and transportation expenses: Overseas consultant - P80,000/month, local consultant - P10,000/month
4) Airfare: P50,000 per trip/person
5) Printing, support staff, supplies, etc.: Approx. 5 % of total consulting fees
6) Contingency fund: Approximately 10 % of total consulting fees and expenses

4.5 Human Resources

4.5.1 Objective

This project focuses on strengthening organizational capabilities through the planning, development and implementation of integrated human resource management and development plans. Its purposes are as follows:

- **Clarifying Human Resource Requirements** - Defining present and future human resource requirements in terms of skills, competency, and number of employees by function and hierarchy

- **Securing Required Skills and Competency** - Developing and implementing a comprehensive human resource development program based on the career path to secure future skills and competency required by MWSS
- **Motivating Employees** - Motivating managers and other employees by establishing an integrated human resource management program including appraisal system and incentive plan.

4.5.2 Scope

The scope of the proposed project will cover a study on present and future manpower and skill requirements, development of human resource (HR) strategies, design of a career development program (CDP), formulation of a comprehensive human resource development (HRD) program, and review of the present appraisal system and incentive plan for modification. The project will be executed in the following three phases:

Phase I - Study on HR Requirements and CDP: The present manpower and skill requirements will be studied based on a manpower audit, and so will future ones be also defined in this phase. Based on the latter requirements, several career path models will be designed and a career development program developed for each.

Phase II - Study on Human Resource Development Program - A five year human resource development program will be formulated to support the career development program and to develop required skills in MWSS.

Phase III - Study on Appraisal System and Incentive Plan: The present appraisal system and the incentive plan will be evaluated to identify their weaknesses and deficiencies. In addition, the existing CSC rules, regulations and related administration/labor laws will be studied to identify areas where MWSS will be able to modify or change the existing appraisal system and incentive plan. Then a new appraisal system, incentive plan and reward system, which must be closely integrated to each other, will be designed and an action plan for implementation developed.

4.5.3 Project Tasks

Project tasks to be performed are described as follows:

(1) Phase I - Study on HR Requirements and CDP

- Establish a cross-functional task force for the project and a working group for manpower planning
- Prepare a detailed project work plan for Phase I including tasks to be done, persons responsible, and work schedule
- Conduct a manpower audit organization-wide to assess present manpower requirements and skills mix
- Study a similar future mix to support long- and medium-term corporate plans and develop human resource objectives, goals and strategies
- Design career path models for major job categories and develop a career development program for each path
- Review the career development plan with management.

(2) Phase II - Study on Human Resource Development Program

- Establish a working group for studying the human resource development program
- Prepare a detailed work plan for Phase II including tasks to be performed, persons responsible and work schedule
- Study the existing human resource development program to identify weaknesses and deficiencies
- Develop a new program to support the new career development plan and an action plan for implementation
- Review the new program with management
- Announce and execute the career development and the human resource development programs.

(3) Phase III - Study on Appraisal System and Incentive Plan

- Establish working groups for studying the appraisal system and the incentive plan

- Prepare a detailed work plan for Phase III including tasks to be carried out, persons responsible for them and work schedule
- Study the existing appraisal system and related CSC rules and regulations to identify areas where MWSS will be able to modify the appraisal system at its own discretion and/or through exemptions
- Develop a proposal to modify the existing appraisal system based on the human resource strategies and the career development plan
- Study the existing short- and long-term incentive plans and related CSC rules and regulations to identify areas so that MWSS will be able to modify the incentive plans at its own discretion and/or through exemptions
- Develop a proposal to modify the existing incentive plan based on the human resource strategies and the career development plan
- Review the modified appraisal system and incentive plans with management
- Review the system and plans with CSC and DBM for their approval
- Develop action plans for the implementation of the above system and plans and review with management.

4.5.4 Project Organization

The chart below depicts the suggested organization:

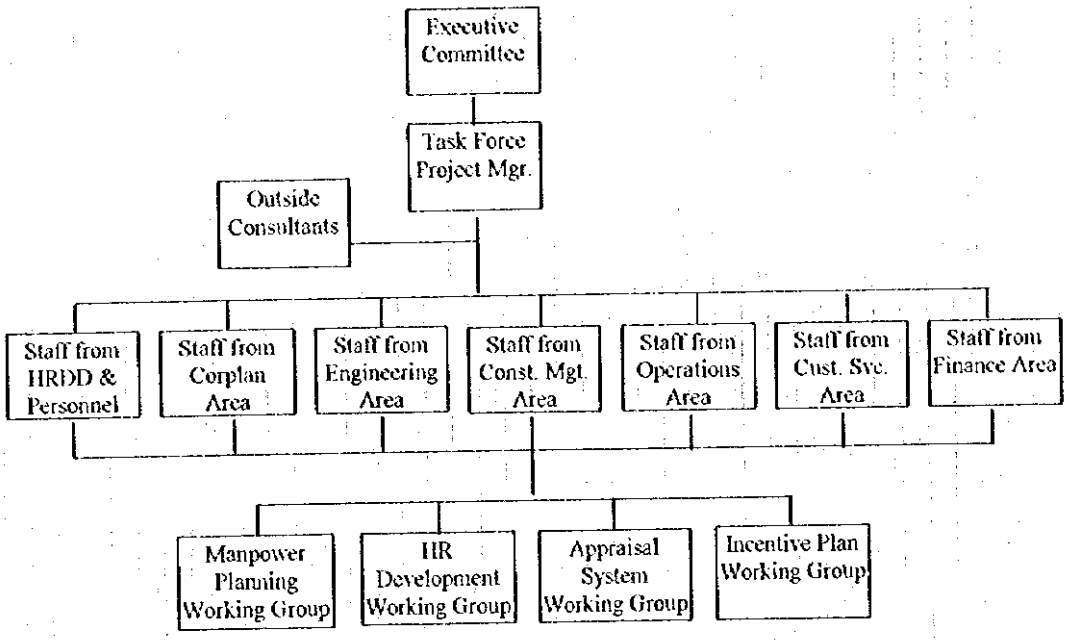

Figure 4.4.7 Human Resources Project Organization

4.5.5 Project Work Schedule

Elapsed time in months for each phase is estimated as follows:

Phase I - Study on HR Requirements and CDP	Approx. 4 months
Phase II - Study on Human Resource Development Plan	Approx. 3 months
Phase III - Study on Appraisal System and Incentive Plan	Approx. 4 months

The following Gantt chart illustrates the work schedule:

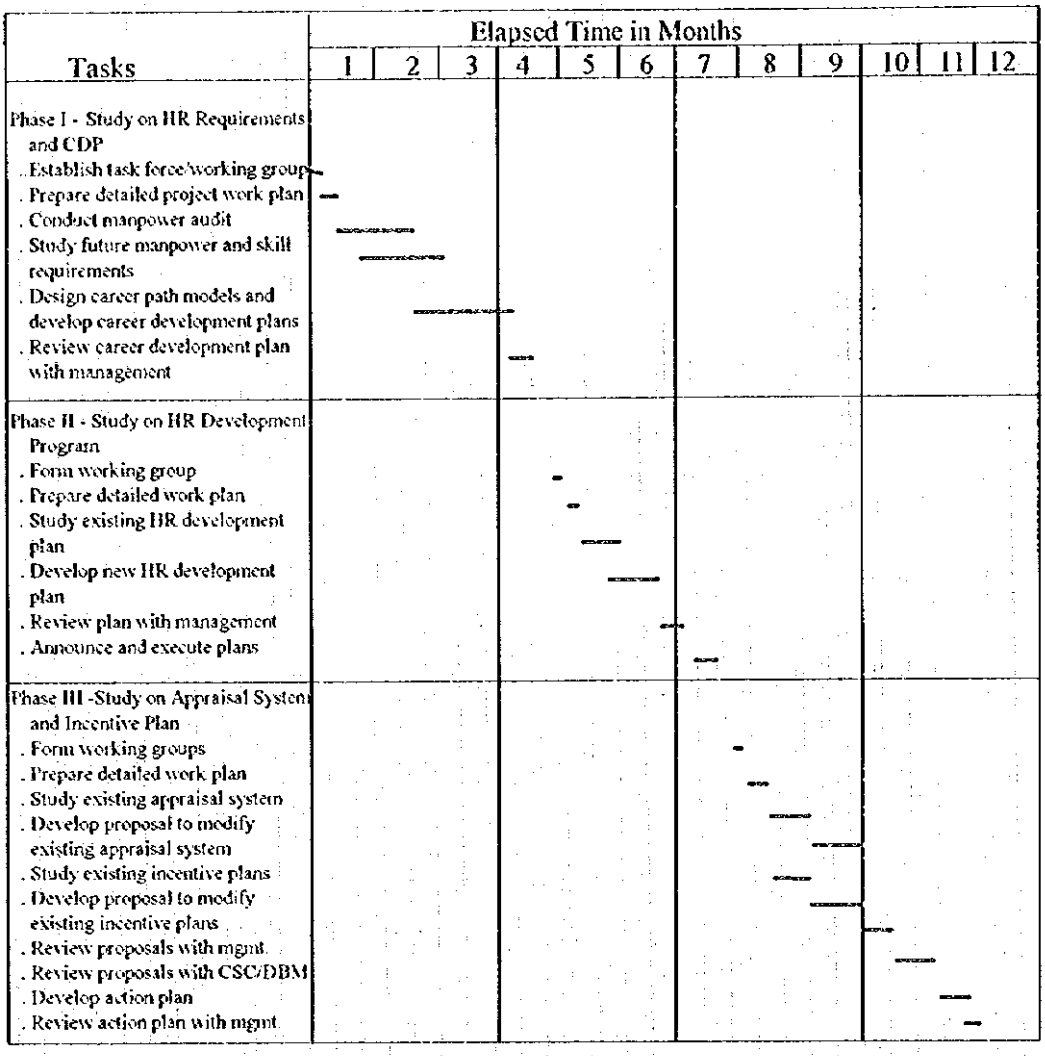

Figure 4.4.8 Work Schedule for the Human Resource Project

4.5.6 Estimated Project Cost

The estimated costs for the project listed below were prepared only for planning purposes. The figures were determined largely on professional judgment. These figures may vary drastically depending on the scope of work and outside consultants required. More accurate costs can be estimated based on the proposals by bidders only after public bidding. Personnel costs for MWSS task force members are not estimated since they are covered by the regular annual budget.

Table 4.4.4 Estimated Costs for the Human Resource Project

Category	Description		Amount in Pesos
1. Phase I - Study on HR Requirements and CDP	Cost for outside consultants		
	Overseas	Total 4 M/M	P 2,000,000
	Local	Total 4 M/M	600,000
	Travel and transportation expenses		360,000
	Airfare for overseas consultants		100,000
	Printing, support staff, supplies, etc.		130,000
	Sub-total		3,320,000
2. Phase II - Study on Appraisal System and Incentive Plan	Cost for outside consultants		
	Overseas	Total 6 M/M	3,000,000
	Local	Total 8 M/M	1,200,000
	Travel and transportation expenses		560,000
	Airfare for overseas consultants		150,000
	Printing, support staff, supplies, etc.		210,000
	Sub-total		5,120,000
3. Phase III - Study on Human Resource Development Program	Cost for outside consultants		
	Overseas	Total 3 M/M	1,500,000
	Local	Total 3 M/M	450,000
	Travel and transportation expenses		270,000
	Airfare for overseas consultants		100,000
	Printing, support staff, supplies, etc.		100,000
	Sub-total		2,420,000
4. Contingency Fund	Contingency fund		1,140,000
	Grand Total		P 12,000,000

Notes: 1) M/M stands for man/month
2) Consulting fees: Overseas consultant - P500,000, local consultant - P150,000
3) Travel and transportation expenses: Overseas consultant - P80,000/month, local consultant - P10,000/month
4) Airfare: P50,000 per trip
5) Printing, support staff, supplies, etc. - approx. 5 % of total consulting fees
6) Contingency fund - approximately 11 % of total consulting fees and expenses

4.6 Management Information System

4.6.1 Objective

This project aims at strengthening MWSS operational capabilities through a full implementation of the present Information Systems Plan (ISP-I) coupled with that of the Change Management Program (CMP) and plans for an enhancement of ISP-I (ISP-II). It is critically important for

MWSS to successfully carry out ISP-I and CMP to lay down the foundation for organizational and operational improvements. To achieve this objective, a project organization consisting of external and internal expertise should be formed. The outside consultants, working on a full time basis on this project, will provide technical assistance for reviewing the existing ISP-I project status, determining priorities of implementation, re-allocating resources, assisting implementation efforts and developing a plan for the second phase of ISP (ISP-II). The internal expertise will be selected from the existing ISP Project Team and user departments cross-functionally on a full time or part-time basis.

4.6.2 Scope

The scope of the proposed project will cover the following areas in three phases:

Phase I - Project Review and Planning for ISP-I

- Review on the present status of the ongoing ISP-I and CMP
- Development of the revised implementation plan for ISP-I/CMP.

Phase II - System Planning for ISP-II

- Assessment of the present ISP-I to identify key additional requirements
- Study on implementation scope of OA/DSS system and other new application systems
- Development of the system plan for ISP-II.

Phase III -. Implementation Support for ISP-I/CMP

- Overall Project Management for the implementation of ISP-I/CMP
- Assisting in user training and data conversion
- Assisting in defining new operating standards and procedures
- Development of Standard Operating Procedure (SOP) manuals.

The scope of the present ISP-I covers the following eight systems and each one, except the Office Automation/Decision Support System is supported by a System Development Group responsible for defining system requirements, testing and implementing the application:

- Customer Service
- Project Planning Implementation

- Water/Sewer Facilities Management
- Materials Management
- Personnel Management
- Financial Management
- Support Service
- Office Automation/Decision Support System

4.6.3 Project Tasks

Tasks under this project are as follows:

(1) Phase I - Project Review and Planning

- Study the present status of the ISP project in terms of the progress against the original or revised plans by system, with respect to system development and hardware/software/network installation. In order to obtain up-to-date project status information, the team in charge will interview key personnel of the Project Support, the System Support and the System Development Groups.
- Study the present status of CMP in terms of the progress on the original or revised plans by system, with respect to the design and development of new standard operating procedures (SOP), adjustment of individual responsibilities in a division or a section, re-alignment of organization, progress of user training and data conversion, and timing of system cut-over/fine tuning
- Identify major issues, impediments and causes for the delay of the implementation of ISP-I and CMP with respect to organizational, procedural, technical, human resource and financial aspects, and develop alternative solutions for further review
- Decide priorities of system implementation according to the logical ranking between systems, degree of expected benefits, transaction volume, degree of difficulty in implementation, level of user commitment and preparation, and present system development status
- Identify additional tasks to be performed to complete the implementation of each system based on the results of the project review
- Study additional resources required to fully complete the implementation of each system, including user and MIS personnel, vendor support, equipment and facilities,

communication network, and budget for training, data conversion, and development of SOP manuals

- Confirm available resources for the implementation of the ISP-I and CMP projects and re-allocate them to each system according to itspriority and timing of implementation
- Develop an overall implementation plan with a detailed work schedule for each system covering implementation team, tasks to be performed, persons responsible for each, their duration, due date, etc.

(2) Phase II - System Planning for ISP-II

- Assess the present ISP-I in terms of its functionality, and review open requests for system design changes made during a moratorium period in order to identify key requirements for modifications and/or enhancements that should be reflected in ISP-II
- Study a scope of implementation of OA/DSS system including management summary and electronics mailing modules to promote and support end user computing (EUC) and other new application systems in ISP-II
- Study the approach for the decentralization of GIS and networking management systems
- Develop an integrated systems plan for the second phase of ISP (ISP-II) to enhance and improve the new systems implemented under ISP-I in terms of the scope of the plan, implementation approaches, time table, resources required, etc.

(3) Phase III - Implementation Support

- Perform overall project management including monitoring progress of system implementation based on the overall execution plan and a detailed work schedule. Also coordinate activities performed by the Project Support, the System Support, and the System Development Groups.
- Assist training coordinators of the Project Support Group in planning and organizing user training

- Assist user departments in establishing and designing new operating policies, standards and procedures based on the ISP and develop SOP manuals for each system
- Assist user departments in performing data conversion activities including identification of data and fields to be converted, conversion method, data preparation and conversion test
- Assist user departments in performing system cut-over and fine tuning of the new system
- Assist the ISP-I/CMP project teams in solving problems which may arise during the implementation period
- Prepare periodical project status reports for the management of MWSS, key personnel of the ISP-I/CMP project teams, and parties concerned, and hold periodical project status meetings to inform on the progress of ISP-I/CMP.

4.6.4 Project Organization

In order to perform the activities described in the above, the following project organization must be formed:

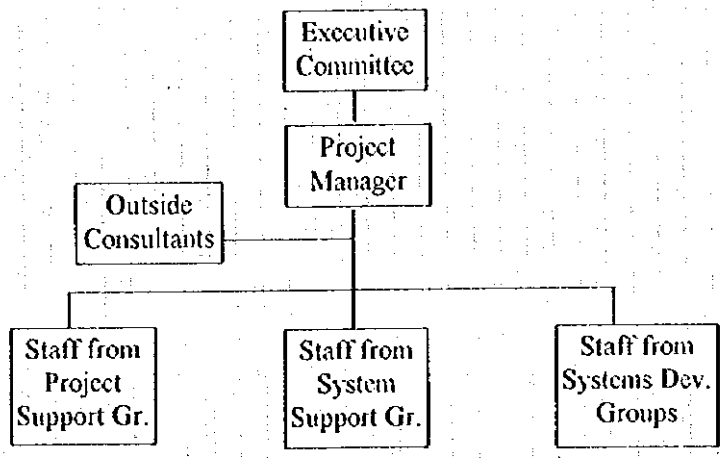

Figure 4.4.9 ISP/CMP Project Organization

4.6.5 Project Work Schedule

Elapsed time in months for each phase is estimated as follows:

Phase I - Project Review and Planning	Approx. 3 months
Phase II - System Planning for ISP-II	Approx. 2 months
Phase III - Implementation Support	Approx. 15 months

The following Gantt chart illustrates the work schedule:

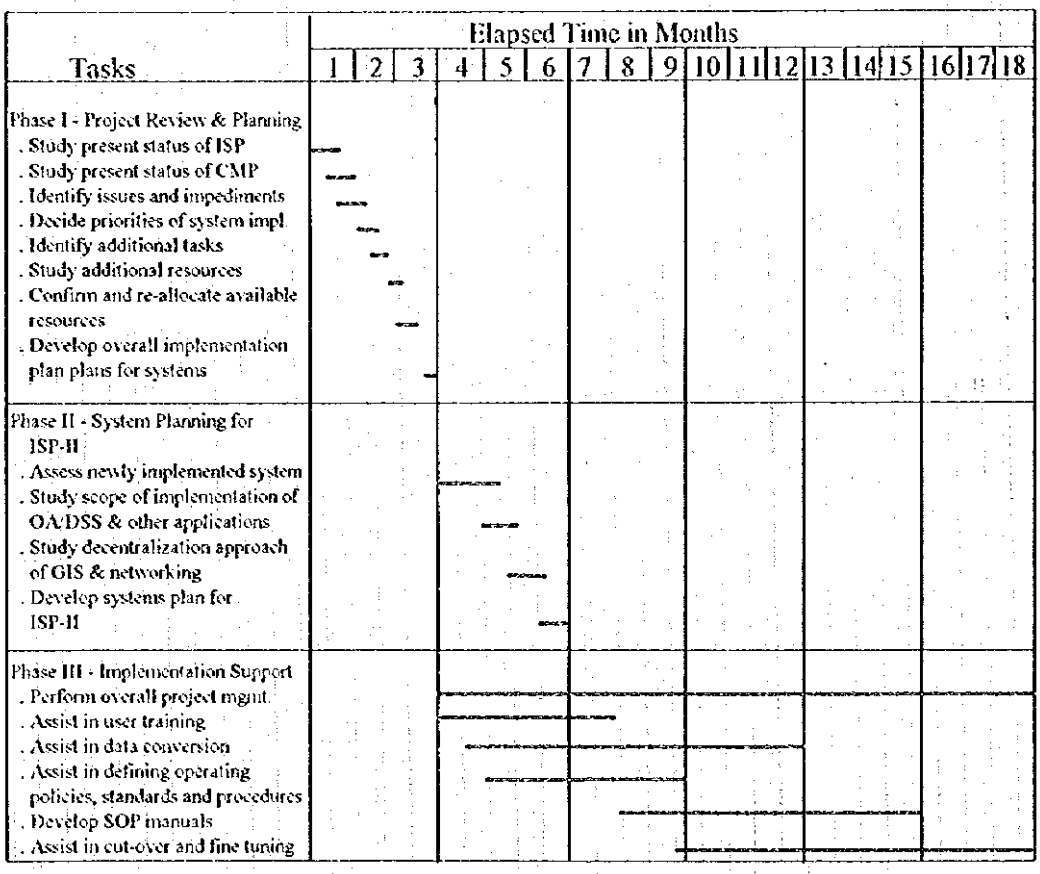

Figure 4.4.10 Work Schedule for the MIS Project

4.6.6 Estimated Project Cost

The table below represents the estimated costs:

Table 4.4.5 Estimated Cost for the MIS Project

Category	Description	Amount in Peso
1. Cost Related ISP	Software/system development cost	Covered by ISP
	Hardware/network equipment cost	Covered by ISP
2. Cost Related CMP	User training and data conversion cost	To be covered by CMP
	Development of SOP manuals	
	Local consultants .....42 M/M	P6,300,000
	(Avg. 6 M/M per system x 7 systems x P150,000 per M/M)	
	Travel and transportation expenses	420,000
	Printing, support staff, supplies, etc.	315,000
	Sub-total	7,035,000
3. Phase I - Project Review and Planning	Cost for outside consultants	
	Overseas Total 4 M/M	2,000,000
	Local Total 9 M/M	1,350,000
	Travel and transportation expenses	410.000
	Airfare for overseas consultants	100,000
	Printing, support staff, supplies, etc.	168,000
	Sub-total	4,028,000
4. Phase II - System Planning for ISP-II	Cost for outside consultants	
	Overseas Total 4 M/M	2,000,000
	Local Total 9 M/M	1,350,000
	Travel and transportation expenses	410.000
	Airfare for overseas consultants	150,000
	Printing, support staff, supplies, etc.	168,000
	Sub-total	4,028,000
5. Phase III - Implementation Support	Cost for outside consultants	
	Overseas Total 24 M/M	12,000,000
	Local Total 30 M/M	4,500,000
	Travel and transportation expenses	2,220,000
	Airfare for overseas consultants	300,000
	Printing, support staff, supplies, etc.	825,000
	Sub-total	19,845,000
6. Contingency Fund	Contingency fund	5,064,000
	Grand Total	P40,000,000

Notes: 1) M/M stands for man/month
2) Consulting fees: Overseas consultant - P500,000/month, local consultant - P150,000/month
3) Travel and transportation expenses: Overseas consultant - P80,000/month, local consultant - P10,000/month

Chapter 5.

Evaluation

Chapter 5. Evaluation

5.1 Overall

This Chapter discusses results of evaluation on the following five projects proposed by the Study Team in the previous chapter for organizational and operational strengthening:

- Corporate Planning and Monitoring Strengthening Project (CPMSP)
- Maintenance and Logistics Strengthening Project (MLSP)
- R&D and Laboratory Strengthening Project (RDLSP)
- Human Resources Strengthening Project (HRSP)
- Management Information System Strengthening Project (MISSP)

The above were evaluated according to the following criteria:

- Consistency with MWSS corporate mission, goals and strategies
- Feasibility on the technical, financial and organizational aspects
- Expected benefits
- Risks involved

Costs for acquiring consulting services and project duration for the above five projects are estimated as follows:

Table 4.5.1 Estimated Project Cost and Duration

Proposed Project	Cost/Peso	Duration
Corporate Planning and Monitoring Strengthening Project (CPMSP)	16,000,000	15 mo.
Maintenance and Logistics Strengthening Project (MLSP)	10,000,000	6 mo.
R&D and Laboratory Strengthening Project (RDLSP)	6,000,000	5 mo.
Human Resources Strengthening Project (HRSP)	12,000,000	11 mo.
Management Information System Strengthening Project (MISSP)	40,000,000	20 mo.

Note: Duration in months

Costs for these projects may be partially funded by internal cash generation (ICG). MWSS may also seek financial and technical assistance from international donors through NEDA since its own internal resources are too limited to execute the projects. Costs will be recovered through improved overall corporate performance, expected higher employee productivity, and more effective use of management resources to avoid waste on a medium term basis.

5.2 Corporate Planning and Monitoring

5.2.1 Consistency

The Corporate Planning and Monitoring Strengthening Project (CPMSP) is designed to dramatically improve corporate-wide management capability through clarification of corporate directions, integration of project and functional plans, better coordination of management activities and efficient allocation of management resources. This project will help MWSS to fulfill the key corporate mission of "Efficient Management of Enterprise" and corporate strategy of "Enhancement of Operational Capability."

5.2.2 Feasibility

Since MWSS lacks experience in corporate planning, this project requires professional assistance by outside consultants with strong background in this field to make it successful. It also requires members with mixed skills in management planning, budgeting and monitoring. Assignment of right personnel from Corplan, PPD, FCBD and other functional areas is essential for success.

5.2.3 Expected Benefits

The following benefits are expected from implementation:

- Improvement of overall corporate performance by prioritizing activities for resource allocation based on corporate objectives, goals and strategies
- Reduction of management resource waste through well planned management activities and more effective use of resources
- Improvement of speed of service delivery to customers through better coordination among the functional areas and projects.

5.2.4 Risks Involved

Potential risks involved in this project are as follows:

- Continuous waste of management resources through allocating resources to non- or low value added programs/projects, if this project is not implemented
- Less fulfillment of the corporate mission due to lack of coordination and fragmented implementation of inconsistent programs/projects
- Low commitment and involvement of management in the corporate planning process and lack of communication between task force and operating units
- Failure to implement a new commercial type budgeting process based on the two-year rolling business plan, consequently returning to the old government type budgeting process based on a budget and results from the previous year.

5.3 Maintenance and Logistics

5.3.1 Consistency

The Maintenance and Logistics Strengthening Project (MLSP) is designed to improve pertinent operations through the business re-engineering methodology. This project will help MWSS to fulfill its missions of "Uninterrupted Water Supply", through continuous operation and maintenance of facilities and equipment, and "Efficient and Effective Operations", through cost reduction of operation, maintenance and rehabilitation. In addition, it will directly support the key corporate strategy: "Enhancement of Operations and Maintenance System."

5.3.2 Feasibility

The re-engineering methodology is a fairly new approach for operational reform in the Philippines, but it has been proven and is widely implemented in the US, Japan and countries in Europe and Asia. Managers and employees involved in maintenance and logistics operations know deficiencies of the existing organizational and operational setup for their area, but can not take action for change requiring an organizational effort at a higher level of hierarchy. This re-engineering project is feasible if appropriate skills and adequate budget are allocated and the departments concerned understand the necessity for structural change of operations.

5.3.3 Expected Benefits

The following benefits are expected from the implementation:

- Reduction of costly repairs and rehabilitation through emphasis on preventive maintenance activities
- Improvement of availability of supply materials, parts, tools and maintenance equipment through a well planned and faster procurement process
- Assurance of stable operation of the water supply system.

5.3.4 Risks Involved

Potential risks involved are as follows:

- Shortening expected useful life of facilities and equipment due to continuous poor maintenance, if not implemented
- Prevention of organizational structural change to consolidate maintenance and logistics operations due to red tape and sectionalism of related departments
- Disapproval of the organizational change by DBM and logistics operating procedures by COA
- Continuous inadequate budget allocation to maintenance and logistics operations.

5.4 R&D and Laboratory Strengthening

5.4.1 Consistency

The R&D and Laboratory Strengthening Project (RDLSP) is designed to improve its research and development capability and to enhance its laboratory testing facilities through the establishment of the integrated medium-term R&D and laboratory strengthening plan. This project will help MWSS to fulfill its missions of "Supply of Safe and Potable Water", "Responsibility for Public Health and Safety", "Securing Environment Conservation" and "Efficient and Effective Operations" through enhancement of R&D capabilities and laboratory strengthening.