MANAGEMENT ANALYSIS AND PRIVATIZATION OPTIONS OF THE NATIONAL WATER COMMISSION, JAMAICA

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July 1992

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Prepared for the Regional Housing and Urban Development Office,
U.S. Agency for International Development,
and the National Water Commission
under WASH Task No. 318

by

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ACRONYMS

ADB	Asian Development Bank
A.I.D.	U.S. Agency for International Development (Washington)
CDM	Camp Dresser & McKee International Inc.
CECL	Carib Engineering Corporation, Ltd.
CIDA	Canadian International Development Agency
DMD	Deputy Managing Director
EEC	European Economic Community
GEF	Global Environmental Facility Trust
GOJ	Government of Jamaica
GOSL	Government of Sri Lanka
IBRD	International Bank for Reconstruction and Development (World Bank)
IMGD	Imperial million gallons per day
JNIC	Jamaica National Investment Company, Ltd.
JPS	Jamaica Public Service Company
KWC	Kingston Water Commission
MD	Managing Director
MIS	Management Information System
MOLG	Ministry of Local Government
MPs	Members of Parliament
MPUT	Ministry of Public Utilities and Transport
NIBJ	National Investment Bank of Jamaica
NRCA	Natural Resources Conservation Authority
NTA	National Training Agency
NWA	National Water Authority
NWC	National Water Commission
NWSDB	National Water Supply and Drainage Board (Sri Lanka)

O&M	Operations and maintenance
OEE	Office of Engineering and Energy (USAID)
OPE	Office of Private Enterprise (USAID)
OPPD	Office of Program and Project Development (USAID)
OPM	Office of the Prime Minister (Jamaica)
PIOJ	Planning Institute of Jamaica
RHUDO	Regional Housing and Urban Development Office (USAID)
RTI	Research Triangle Institute
TOJ	Telecommunications of Jamaica
TVET	Technical Vocational Education and Training Programmes
UFW	Unaccounted for Water
USAID	United States Agency for International Development (Overseas Mission)
WASH	Water and Sanitation for Health
WHO	World Health Organization

ABOUT THE AUTHORS

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EXECUTIVE SUMMARY

Introduction

The Regional Housing and Urban Development Office (RHUDO) requested the Water and Sanitation for Health (WASH) Project to carry out a management analysis of the National Water Commission (NWC). RHUDO has been assisting the NWC for several years in programs emphasizing the delivery of water and sanitation services to the urban poor.

The purpose of the study was to provide guidance to the Government of Jamaica (GOJ) on how to provide water and wastewater services on a financially self-sustaining basis. The scope of work involved, in addition to a management analysis of NWC, that the privatization of NWC functions be included among possible institutional strengthening measures. The NWC also indicated its interest in pursuing decentralization as a possible means of improving accountability.

The assignment was carried out by a four-person team in October-November 1992. Three of the consultants were from WASH, including one Jamaican consultant, and one was an A.I.D. direct-hire employee.

Findings

Circumstances make it almost impossible for NWC to perform effectively. Unable to raise adequate revenues (partly because of government policies), NWC cannot perform basic maintenance, and cannot invest in equipment and systems needed to improve management capabilities. Unable to pay competitive wages, NWC cannot attract, motivate, and maintain adequate numbers of skilled employees.

These circumstances have contributed to NWC's deteriorating facilities and inadequate systems and procedures for finance, commercial operations, management, and planning. There also is an unacceptable level of water loss and an increasing inability to meet the needs of its customers. NWC also has a large and increasing deficit and inadequate revenues to cover minimum needs. Despite its present difficulties, NWC has some positive attributes that make the chances for reform encouraging. The legislative act that established NWC provides for autonomy in key matters relating to policy making, employee compensation, revenue generation, and other areas. However, NWC has not been allowed to fully exercise this autonomy.

NWC has a sizable core of skilled and dedicated officers who are well aware of these problems and are frustrated by their inability to resolve them. Management had prepared a well-planned, comprehensive current annual operations plan which included thoughtful input from all departments. The fact that inadequate revenue prevented NWC from fully implementing this plan does not detract from its value.

Conclusions

The situation at NWC has reached a critical point. Without effective action, service to the public will deteriorate to unacceptable levels, and the cost of subsidies to the government will become insupportable.

Privatization may prove to be a successful solution; it should be thoroughly explored. Private sector experience in operating water and wastewater utilities in developing countries, however, is relatively limited. Full privatization, which means taking over capital assets, seems unlikely to be feasible for wastewater and for most areas outside of Kingston. Accordingly, even with extensive privatization it seems almost certain that there will be a continuing role for the NWC. The GOJ, therefore, should proceed with strengthening NWC's capabilities.

NWC will need help in becoming a stronger organization. The current situation indicates that NWC would have difficulty in reforming itself without outside assistance. In addition, many of NWC's problems have their roots in national policies. If institutional viability is truly the goal, the GOJ must be willing to address these issues and make appropriate reforms. External technical assistance, with the full cooperation of the GOJ and the NWC, is the most feasible road to reform and operational viability.

Recommendations

Chapter 7 of this report presents a wide range of recommendations that relate to national policy actions, steps to privatization, and internal strengthening measures for NWC. A summary of these recommendations follows.

Principal Recommendations at the National Level Include:

- Agree on a policy defining the expected role for privatization, any change in the role for NWC, and a commitment to strengthen NWC.
- Assign responsibility for all the nation's water and wastewater needs to NWC, exclusive of assignment of responsibility to the private sector in specific areas.
- Ensure that NWC is given effective control over making policies, compensating employees, and setting tariffs.
- Establish a public utilities commission to regulate rates charged for water and wastewater services.
- Clarify the relative responsibilities and powers of the GOJ, the Ministry of Public Utilities and Transport, the Board, and the Managing Director in NWC matters.

Principal Recommendations on the Role for Privatization Include:

- The report recommends against full privatization, but suggests that the private sector role be increased in operations.
- GOJ should request the National Investment Bank of Jamaica (NIBJ) to evaluate this report's recommendations, determine the extent of interest by private companies, develop recommendations based on the NIBJ studies, and report this to a Sector Policy Committee appointed by the GOJ.
- After review of the recommendations of its Sector Policy Committee, GOJ should approve a policy for the provision of water and wastewater which sets out the relative roles for the private sector and NWC, and the commitment to strengthen NWC.
- Subject to the policy adopted, the NWC Board should develop and adopt detailed policies and procedures to guide NWC management in procuring private contracts in those areas identified as being among NWC's priorities.

Principal Recommendations for Internal NWC Strengthening Include:

- Implement the organizational changes suggested in this report to more clearly identify responsibilities, assign accountability, and improve management. These changes should reflect policy decisions on privatization and take into account alternatives for decentralization.
- Improve all facets of maintenance and rehabilitation of facilities and, if necessary, divert funds for capital programs to pay for those costs as an emergency program.
- Take the actions proposed in this report to reduce the current unacceptably high levels of water losses.
- Move to the immediate procurement and implementation of an effective Management Information System (MIS).
- Provide systems, procedures and support to allow the commercial operations group to function properly.
- Adopt and implement the tariff rate indexing recommendations proposed in the concurrent tariff study.

Implementation

Factors Affecting Implementation. Implementation of the report recommendations will be dependent upon several factors. The most important is whether the GOJ is prepared to require customers to pay the full costs of the services they receive, as opposed to providing water on a subsidized basis.

Also, NWC should cooperate fully with the external technical assistance that will be required to implement many of these recommendations. Past experience indicates that such assistance is useful and lasting only when the program has the full commitment of the target organization, its Board of Directors, and senior management staff. The report presents an example of success, in Sri Lanka which may be useful for the NWC to consider.

Role for Development Institutions. Most of the major development institutions ("donors") have indicated strong preliminary interest in assisting NWC's institutional strengthening. The NWC should collaborate with these donors to determine how best to provide the recommended technical assistance.

Implementation Program. The implementation program is presented in Chapter 8. The following is a summary of the proposed program:

1. Initiate high level discussions within the GOJ to determine the extent to which the government is prepared to commit itself to sector reform, and what direction that reform should take.
2. NIBJ should evaluate the findings and recommendations on privatization and present the results of that evaluation to a GOJ-appointed Sector Policy Committee (SPC).
3. GOJ should review the SPC recommendations and adopt a policy for the provision of water and wastewater services in Jamaica as a guide to necessary actions for privatization and NWC institutional strengthening.
4. Conduct a workshop in Kingston to develop a detailed implementation plan based on a policy decision on how to strengthen the NWC.

Other Implementation Activities. Given the wide range of options open to the GOJ in deciding on future policy for the water and wastewater sector, a detailed implementation program should be developed only after the policy decisions have been made. Whatever decisions are reached, it seems reasonable to assume that there will be a role for NWC. If so, NWC will need to be strengthened.

Methods for strengthening NWC follow.

- With donor assistance, send a small group of NWC representatives on a tour of well-run water and wastewater institutions in developing countries. The tour should include one organization similar to NWC, which has successfully completed a five-year program of institutional strengthening.
- With donor assistance, engage appropriate technical assistance to work with the NWC. This assistance could be provided by a water/wastewater agency which is in position to provide the services on a contract basis, or by a consultant team which includes the services of experienced utility managers.

- With donor assistance, engage the services of a "Monitor Team" to assist the NWC and its technical advisors in developing a detailed work plan and monitoring progress under that work plan.

Chapter 1

INTRODUCTION

1.1 Purpose of the Study

The Regional Housing and Urban Development Office (RHUDO) of the United States Agency for International Development (USAID) has been assisting the National Water Commission (NWC) of Jamaica for several years in programs emphasizing the delivery of water and sanitation services to the urban poor.

The purpose of this study was to provide guidance to the Government of Jamaica (GOJ) and the NWC on how to provide water and wastewater services to the people of Jamaica effectively, on a financially self-sustaining basis.

This study was commissioned by RHUDO in consultation with the NWC. The scope of work for the study required, in addition to a management analysis of NWC, that privatization of NWC functions be included among possible institutional strengthening measures. The NWC also indicated interest in pursuing decentralization as a possible means of improving accountability. A parallel USAID-financed study on tariffs and revenue enhancement was conducted and the two studies were coordinated. The field work for the study was conducted in October/November 1991. A complete scope of work is attached as Appendix A.

1.2 Interrelationships Among Institutional Strengthening, Decentralization, and Privatization

In early interviews, the NWC Chairman and Managing Director indicated that the NWC Board of Directors was looking toward decentralization in the short run, and ultimately, privatization as the preferred means of improving the delivery of water and wastewater services. They indicated that making the necessary internal institutional improvements required for significant reform would be difficult, and would not be as feasible as privatization.

The WASH terms of reference called for a management analysis of the current NWC, in addition to considering decentralization and privatization. WASH staff had several discussions with the RHUDO office to find a way to link the management analysis with decentralization and privatization. As a result, the overall purpose of the study was defined as improving service provision, and that all options—including complete privatization and a major restructuring—should be considered. The WASH team was to study ways to strengthen NWC in its current status as a public utility (including decentralizing its operations), as well as consider privatization as a way to improve performance. The team believed that it was important to include all options in determining the best way to improve service delivery.

The NWC presently provides water and wastewater services to the people of Jamaica as a centralized, government-owned organization. The extent to which Jamaica decides to

decentralize and/or to privatize its water and wastewater services will have a significant impact on the NWC. This study assesses NWC's present capabilities, explores various alternatives for overcoming problems (including decentralization and privatization), and draws conclusions for achieving the objective stated in Section 1.1.

1.3 Country Description[1]

Jamaica is a Caribbean island nation covering approximately 11,000 square kilometers. The current population of 2.4 million is divided almost equally between urban (48 percent) and rural (52 percent). About one-fourth of the population lives in metropolitan Kingston, the capital. The country has had a democratically elected parliamentary system of government since obtaining its freedom from the United Kingdom-sponsored Federation of the West Indies in 1962.

The country is divided into 3 counties and 13 parishes. Economically, tourism is the source of more than half the foreign exchange earnings for the country. Tourism, bauxite, and agriculture (coffee, sugar, and bananas) account for about 90 percent of all earnings.[2] Most of the tourist activity is centered on the north coast beaches. Jamaica's image relative to water supply, wastewater treatment, public health, and the environment is of major importance to the tourist industry.

1.4 Description of NWC Facilities and Services

1.4.1 Water Systems

The NWC serves about 75 percent of the total population of Jamaica with water through piped connections (65 percent) and public faucets (10 percent).[3] Most of the remaining population has access to water through springs or streams, although there are also a number of privately owned community systems for hotels and developments. In 1989/1990, total water production from all NWC water production sources was estimated at 160 IMGD (Imperial Million Gallons Per Day). This is only an estimate since very few source installations have operating meters.

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[1] Statistical data on Jamaica from USAID/Jamaica librarian and NWC Five-Year Plan for 1989-1994.

[2] Personal conversation with Ms. Faye Pickersgill.

[3] "NWC Domestic Water Supply and Sewerage Programme, 1989-1994."

At the direction of the GOJ, the NWC recently returned some of the "minor water schemes" to the control of the Parish Councils. Prior to that transfer, the NWC was said[4] to have responsibility for the following water supply facilities: 339 rainfall catchment tanks, 140 wells, 437 spring systems, and 66 water treatment plants. In its current five-year plan,[5] NWC reports there are now about 4,700 public faucets or standpipes, down from an estimated 6,400 several years ago. The NWC is presently trying to obtain a more accurate inventory of its facilities.

Water from rainfall catchment tanks is said to be of poor quality and unreliable in supply during dry periods. Some rural schemes are subject to interruptions and require fairly extensive use of trucking to supply water.

A study of water service in 667 households in 42 low-income neighborhoods in Kingston[6] revealed that while 90 percent received water from NWC through direct piped connections, 40 percent of those connected were served by a single faucet, in their yard. Of those not connected, 5 percent took water from public faucets, and the remainder received water indirectly from neighbors or commercial buildings.

1.4.2 Wastewater Systems

Countrywide, only an estimated 16 percent of the total population has access to a piped sewerage system, and only 21 percent of the urban population has access to any sanitation facilities.[7] About half the population uses pit latrines, 6 percent were reported to have no sanitary facilities, and most urban areas are served by septic tanks.

There are an estimated 100 wastewater treatment plants in Jamaica. The majority of these are small "package" systems, many of them privately owned. A 1988 study[8] found that only 38 percent of these plants were working satisfactorily. A study the next year of the 25 plants

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[4] Lofthouse, Peter, Gibb-Anglian Consulting Engineers, "Institutional Report, National Water Commission," prepared for the Commission of the European Communities (EEC), September 1990.

[5] "NWC Domestic Water Supply and Sewerage Programme, 1989-1994."

[6] McLeod, Ruth, "Low Income Strategies in Kingston, Jamaica: Solutions of the Informal Sector," Construction Resource and Development Center, prepared for RHUDO, USAID/Jamaica, December 1987.

[7] Silva, Homero, "Sectorial Sanitation Report," Pan American Health Organization (PAHO), prepared for the Inter-American Development Bank (IDB), May 1990.

[8] Conducted by PAHO, noted in previous reference.

located in Kingston found only seven (28 percent) were meeting established effluent criteria. The two large treatment plants in Kingston provide only primary treatment and discharge their effluents into Kingston Harbor.

Chapter 2

HISTORY AND PRIOR ASSESSMENTS OF THE NWC

2.1 History of the National Water Commission

The NWC was formed by an Act of Parliament in September 1980.[9] The Ministry of Local Government (MOLG) first considered the merger of the National Water Authority (NWA) and the Kingston Water Commission (KWC) in 1968, but no action was taken until an "Amalgamation Team" was established in late 1979, by the joint boards of the NWA and KWC. The NWC's original organizational structure and allocation of responsibilities was proposed by this team, and its recommendations were implemented by the newly appointed senior management team of the NWC, which was created in September 1980.

Very early in NWC's history it became apparent that the original organizational structure "contained a number of flaws."[10] These flaws and the perceived difficulties in NWC's functional ability led to a series of institutional assessments and a major effort at strengthening NWC. When the NWC assumed responsibility for the small parish water systems in 1985, its institutional burdens and problems increased.

Since its creation, the NWC has alternatively been assigned to either the Ministry of Local Government or the Ministry of Public Utilities and Transport (MPUT), from which it is currently managed.

2.2 Prior Assessments and Interventions

The prior assessments and interventions of NWC are summarized below.

1981-1982

In late 1981, the GOJ requested the quasi-governmental Jamaica National Investment Corporation (JNIC) to conduct assessments of the engineering, management, and transportation functions of the NWC. JNIC selected a U.S. consulting engineering firm, Camp Dresser & McKee (CDM), to conduct this assessment which was financed by USAID. A

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[9] The basic source for this history was from the following reference: Sterling, Stephen, Jamaica National Investment Company Limited (Technical and Management Services Division), "A Management Audit of the National Water Commission," March 1983.

[10] Ibid.

report[11] on this assessment was presented in July 1982, which identified significant institutional weaknesses. These included:

1. Inadequate planning for capital projects;
2. Little progress in melding the NWA and KWC personnel and functions;
3. Imbalances in organizationally equating the massive needs of serving the metropolitan area with the relatively small systems of the outer regions;
4. The absence of even a rudimentary MIS;
5. Low levels of maintenance and process control;
6. Inadequate attention to water quality control;
7. Assignment of a relatively low priority to the wastewater program; and
8. Perception of the NWC Board as the major driving force of the NWC, with the Managing Director serving in a relatively passive role.

1983

In March 1983, a Jamaican management consultant working for a division of the JNIC conducted an assessment of the management capabilities of the NWC. The study[12] presented a series of findings related to management, finance, personnel, administration, and commercial operations.

1. Outstanding loans to the former KWC and NWA entities by international agencies prevented the establishment of a unified accounting system.
2. The enabling legislation establishing the NWC was based on the 1963 NWA Act, and the failure to create new legislation based on the needs of NWC is part of the confusion.
3. The NWC Board lacked expertise in hydrogeology, sanitary engineering, accounting and law.
4. Contingency planning for periodic crises is inadequate.
5. Because of the absence of an MIS, NWC performance cannot be monitored.

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[11] Camp Dresser & McKee, "Engineering and Operational Assessment of the National Water Commission," July 1982.

[12] Sterling, Stephen, Jamaica National Investment Company Limited (Technical and Management Services Division), "A Management Audit of the National Water Commission," March 1983.

6. Organizational flaws exist including too little attention given to the needs of the metropolitan area, and the separation of the "operations" and "engineering" functions.
7. "There are still two (KWC and NWA) organizations operating side-by-side under the name of the NWC."
8. Line managers are frequently by-passed and communications are poor, both horizontally and vertically.

The study also presented a series of findings related to finance, personnel, administration, and commercial operations.

1983-1986

The GOJ engaged CDM in 1983, to work with NWC staff to make institutional improvements to remedy the weaknesses identified in these previous assessments. After one year of GOJ funding, the International Bank for Reconstruction and Development (IBRD or World Bank) agreed to finance the remaining two years of this technical assistance program. The level of effort involved in-depth support to the functions of management, operations and maintenance, financial and commercial, and engineering.

1989

In 1989 USAID, as a part of its program to support the urban poor, provided funds to the NWC for a group of projects aimed at improving urban water and sanitation services. USAID requested the services of a consultant team from the Water and Sanitation for Health Project (WASH) to assess NWC's capability to implement these projects. The WASH study[13] identified various institutional weaknesses requiring improvement.

1. The root of NWC's problems lies in institutional weaknesses that limit NWC's ability to perform.
2. NWC has insufficient numbers of qualified management and technical staff.
3. Personnel regulations make it difficult to motivate and retain staff.
4. Revenue is poorly managed, accounts receivable are unacceptably high, and most accounts are in arrears.
5. Unaccounted for water is far too high.
6. Project performance monitoring and reporting is inadequate.

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[13] Cullivan, Donald, and John Austin, Water and Sanitation for Health Project, "Recommendations for Implementation of Community Water Supply and Sewerage Improvements, Jamaica Shelter and Urban Services Program," April 1989.

7. The creation of Carib Engineering Corporation Ltd. (CECL) in 1983 represents an undesirable dilution of NWC's responsibilities.

8. There is a widespread awareness within NWC of the need for institutional strengthening and a strong desire to see it take place.

9. The NWC Board involves itself in operational matters instead of setting policy and monitoring performance.

1990

In September 1990, the Commission of the European Economic Community (EEC) agreed to provide technical assistance to the NWC to study wastewater problems at Negril and Ocho Rios. As part of that project, the EEC offered the services of a specialist to look at NWC's institutional needs. This study[14] identified key institutional issues and presented findings on these issues.

1. The NWC should assume responsibility for all wastewater treatment plants in Jamaica.

2. The NWC should regionalize its operations along the lines of the three counties, and each region should be responsible for operations, maintenance and commercial functions.

3. Responsibility for these regions should be assigned to qualified managers with the title of "Director."

4. NWC should establish a small "Corporate Planning Unit" to assist the Managing Director in monitoring performance of its units.

5. NWC should develop an effective MIS.

6. Stores and Transport require major strengthening.

7. Maintenance is inadequate.

8. There is an imbalance in the duties of the three Deputy Managing Directors.

9. Illegal connections and unrecorded water are major problems.

1991/1992

In July 1991, the NWC contracted with the Caribbean Applied Technology Centre Ltd. (CATC), and this study is generally referred to as the "Morgan Study."[15] The contract terms

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[14] Lofthouse, Peter, Gibb-Anglian Consulting Engineers, "Institutional Report, National Water Commission," prepared for the EEC, September 1990.

[15] Morgan, Henley, "Options for Decentralization of the National Water Commission," Caribbean Applied Technology Centre Ltd., 1991.

of reference require CATC to review NWC's existing organizational structure, collect and analyze data to determine the districts or regions into which NWC can be decentralized, and determine an organizational structure to satisfy these requirements.

The terms of reference make it clear that the study is not to investigate the feasibility of decentralization, nor does it seem to require identification of potential impediments to successful decentralization or how best to remove these impediments.

This report was not made available for review up through the end of 1991, but the report's preliminary findings were released in November 1991. The study concluded:

> "Our review of the present structure confirms what was earlier believed; that the NWC is an overly centralized bureaucratic organization with 21 out of 27 major functions and decision making points located in three Kingston offices. The result is a low level of accountability, slow response time in resolving problems and meeting customer needs and a general feeling of helplessness among personnel at the service delivery and income generating end of the business."

The preliminary findings set forth ten issues, described the implications of each, and set forth required actions to improve the issues by transferring authority from the central organization to the regions. However, there is no explanation of how the required actions are to be implemented. For example, many of the required actions call for decentralization of a particular activity but do not discuss how the skills needed to effectively conduct these activities in the regions are to be developed.

2.3 Summary of Assessments

Below is a summary of the institutional weakness of the NWC that were identified in more than one of the assessment studies:

1. Inadequate maintenance being performed;
2. Failure to meld the organizational cultures of the NWA and KWC;
3. Absence of a management information system;
4. Unacceptably high levels of unaccounted for water;
5. Inadequate planning; and
6. Involvement of the NWC Board in operational matters.

Chapter 3

INSTITUTIONAL ASSESSMENT

3.1 Performance of the National Water Commission

Despite NWC's view that prior assessments had adequately defined their institutional weaknesses, the scope of work for this project required the consultants to "identify the critical policy, management and operational issues relating to the overall functioning of the National Water Commission."[16]

To assist assessment teams in evaluating the performance of water and wastewater utilities, A.I.D. commissioned WASH to prepare guidelines[17] for conducting institutional assessments. Those guidelines identified nine "performance categories" to be used to assist in evaluation. These nine categories were used as a basis for the current assessment of NWC's performance.

The findings described in this chapter are based on extensive interviews with many people (both within NWC and with others knowledgeable about NWC), from reviews of records, reports, systems and other data (to the extent such material was made available for review), and through personal observations of NWC activities. A list of the persons contacted and/or interviewed during this assessment is presented in Appendix B.

3.1.1 Assessment of Organizational Autonomy

■ *Summary Definition*[18]

Organizational autonomy is the institution's degree of independence from the national government. An adequate level of autonomy, particularly control over personnel and revenues, is a prerequisite to the success of institutions in the water sector.

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[16] "Statement of Work" provided to WASH by USAID/RHUDO, September 1991.

[17] Cullivan, Donald, et al., *Guidelines for Institutional Assessment of Water and Wastewater Institutions*, WASH Technical Report No. 37, February 1988.

[18] Definitions in Section 3.1 were adapted from WASH Technical Report No. 37.

■ *Assessment of NWC Autonomy: An Overview*

The enabling Act of 1980[19] provides the NWC with broad powers, but all significant powers are subject to review and approval by the Minister (see Appendix C, Summary of Key Powers under the NWC Act). NWC appears to have significant autonomy from the GOJ, but such autonomy is sometimes limited by decisions of the Minister or the Cabinet.

■ *Assessment on Control of Personnel*

While the Act provides NWC with the power to hire, fire, and compensate its employees, these powers are not being exercised; most NWC salary scales are in line with public service rates. Exceptions are made for senior NWC officers, with Board approval. In order to attract qualified people to critical positions, several senior NWC officers serve under personal services contracts. These contracts provide pay and benefits considerably more rewarding than those available under civil service rules. This procedure is detrimental to the morale of the majority of workers who perceive this as a double standard.

In the past year, NWC management has successfully made considerable reductions in staff. While these reductions required negotiation with the several unions representing NWC employees, the trade unions do not appear to be a significant factor in affecting NWC's control of its employees.

■ *Assessment on Control of Revenues*

The NWC Act empowers NWC to charge for its services at levels needed to achieve financial sustainability. Actual practice has been another matter. NWC faces significant pressure from the GOJ to become financially self-sufficient. On the other hand, many in government believe that government provision of water is a social obligation. That attitude hinders the NWC from collecting money from those who benefit from the services NWC provides, and charging an amount required to sustain these services at satisfactory levels.

Recently the GOJ approved a 25 percent rate increase and then instructed the NWC not to implement the increase, in accordance with a Cabinet decision to freeze rates for all national utilities during a period of rapid depreciation of the Jamaican dollar.

3.1.2 Assessment of Leadership

■ *Summary Definition*

Leadership is the ability to inspire others to understand the institution's mission, to commit themselves to that mission, and to work toward its fulfillment. The performance of an organization is directly related to the quality of its leadership.

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[19] The National Water Commission Act of September 1980.

■ *Assessment Overview*

Since the election of a new government in 1989, a new Board of Directors, a new Managing Director, and several new senior managers have been appointed at NWC. The changes have resulted in some definite improvements, but several pre-existing problems continue to cloud the issue of leadership.

■ *Leadership Improvements*

1. The new Chairman of the Board has the technical training and experience required to understand the needs of the NWC and its workings. He is committed to making the NWC a more successful organization.
2. The new Managing Director (MD) served the NWC in the role of Deputy Managing Director (DMD) for Engineering before his appointment; he has an understanding of NWC and its problems. The MD is perceived as a positive role model with technical understanding and thus inspires respect in the staff.

■ *Pre-existing Problems which Undermine Leadership*

1. The lack of clear delineation between the roles of the Chairman and the MD affects staff perceptions of leadership.
2. The fact that so many of the senior management team are new to NWC means it will take time to develop credibility and trust with staff.
3. The existence of a two-tiered compensation system (contract employees and regular salaried staff) causes resentment.
4. Rivalries dating back to the merger of the two separate organizations (NWA and KWC) still exist and continue to be barriers to leadership.

3.1.3 Assessment of Management and Administration

■ *Summary Definition*

Management is organizing people and resources to accomplish the stated goals and priorities of the institution. The counterpart to management skills is the existence and use of key administrative and financial systems. Effective management combined with well established administrative procedures are essential if an organization is to meet its performance goals.

■ *Assessment of Management*

The assessment identified three current aspects of management capability within NWC. While there is evidence of existing good management practices, there are factors which inhibit management from being as effective as it needs to be. Also, there are areas of potential management improvement even under present conditions.

Existing good management practices include:

1. The publication and reinforcement of a Mission Statement which sets forth NWC's basic purpose;
2. The process by which the NWC 1991/1992 Operations Plan was prepared, which involved contributions from managers at all levels of NWC; and
3. The publication of clear statements of NWC's goals and objectives for the period.

Current impediments to good management include:

1. Inadequate revenues, forcing managers to postpone needed activities or resort to practices not consonant with good management;
2. Restraints on compensation, preventing NWC from recruiting and retaining adequate numbers of personnel trained and experienced in management;
3. The absence of a management information system; and
4. The strain between certain groups of employees, based on old rivalries, impeding inter-divisional cooperation which is essential to good management.

Areas of possible improvement under present conditions include:

1. The elimination or at least minimization of duplication of efforts in existing areas (such as all aspects of metering);
2. The reallocation of tasks more rationally than the present organization structure provides; and
3. The effective use of recommendations made by earlier consultants. Few key people in NWC appear to be aware of such items as a tariff model and a management plan for commercial operations.
4. The strengthening of the Corporate Planning unit, making it a division, and assigning it the immediate task of assisting the MD in implementing possible improvements.

■ *Assessment of Administrative and Financial Systems*

NWC's administrative and financial systems generally are in poor condition. Systems are inadequately documented and in many cases have almost broken down. As a consequence, the staff of the Commercial Operations Division largely operates on the basis of administrative memoranda and guidance from "experienced" persons within their areas of operations rather than an established, written procedure.

1. *Budgeting*—Recent developments in budgeting are an improvement in NWC's management and administration. Although the documentation of the process was not reviewed, it was clear that the organization had recently improved its approach to budgeting.

Senior management, consisting of the director level and above (including members of the board), participated in a retreat in early 1991 to develop a 1991/92 Operations Plan. The plan was based on zero-based budgeting and required that participants justify their budget requests with detailed work programs.

This was a new task, since previous budgets had been imposed by top management. Participants acknowledged that the process helped them to a new awareness of their responsibilities and functions in achieving NWC's overall objectives. The product of the retreat was a very good Operations Plan which was widely circulated among middle and senior management. Unfortunately, inadequate funding has frustrated efforts to work in accordance with the Plan.

2. *Capital Expenditure Reports and Depreciation*—Appropriate capital expenditure reports are not prepared, so project costs cannot be monitored. Fixed assets values are reported incorrectly; consequently, the fixed assets register cannot be reconciled to the general ledger to substantiate balances shown in financial reports. Because of these inadequacies, depreciation calculations cannot be considered reliable.

   A project to identify and assign values to NWC's fixed assets is currently underway. While a listing of assets is available, no values have yet been assigned to the items listed.

3. *Payroll System*—NWC's payroll services are performed by a contractor, and internal control over the process is inadequate. Reports do not provide sufficient data to adequately monitor payroll costs for an organization of NWC's size and complexity. Bank reconciliation of payroll accounts is more than one year in arrears.

4. *General Ledger System*—A complete general ledger is not produced monthly; it is extracted annually for external audit purposes. The Board of Directors' monthly financial report contains only profit and loss figures. Accounts payable and receivable, fixed assets register, construction work-in-progress lists, inventory records and bank balances are not reconciled to the general ledger on a monthly basis. In short, the overall reliability of NWC's financial reports is doubtful.

5. *Metering as a Basis for Billing*—About 89 percent of NWC's 265,000 accounts are metered. Fully 40 percent of these meters are inaccessible[20] and many others are inoperative. The meter department reports it has not had adequate funds for several years to make repairs or verify accuracy of existing meters. These conditions raise serious questions about the reliability of meters as a source of data for billings.

6. *Audits and Report Validity*—The NWC's annual financial statements are prepared as of 31 March each year. NWC's accounts are audited by KPMG Peat Marwick, a recognized international firm of chartered accountants. The NWC also has an internal audit department reporting to the Board of Directors through the Managing Director.

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[20] Caribbean Business Management Co. Ltd., "Accounts Receivable Audit," April 27, 1989.

The accounting system problems are not new. The NWC has been receiving unfavorable external audit reports since fiscal year 1987. For the past three fiscal years auditors have been unable to express an opinion on statements due to inadequate internal control affecting major line items, including revenues, accounts receivable, fixed assets, bank balances, inventories, and loans.

NWC has not been able to remedy accounting weaknesses cited in the past several audit reports, and problems persist. The Internal Audit department is mainly involved in investigations resulting from system weaknesses, and has not been available to assist in monitoring internal accounting controls or to assist the external auditors.

The present accounting problems experienced by the NWC result in inadequate auditing and reporting of financial matters. Reportedly steps are being taken to have the above weaknesses remedied during fiscal year 1992. These steps include more extensive computerization and provision of additional office space and staffing.

7. *Management Information Systems*—NWC management information systems are very poor. The current financial system reports only aggregate information. As a result, cost center details are not available. Managers have no data on how their centers are performing against budget.

   The Managing Director obtains far too many detailed monthly, and in some cases weekly, reports covering commercial operations, finance, engineering operations (production, systems status), water quality, capital projects, audit activities, purchasing status, administrative activities, transport operations, and other activities which he is required to summarize for presentation to the Board.

   NWC cannot improve management information systems until the computerization program advances. The existing computerized billing system provides almost no management information; this is one of the main reasons for acquiring a new system. The Board has approved selection of a new system and computer hardware, and anticipates implementation of the new billing system by mid-1992.

   NWC is working with International Computers Limited (ICL) to improve the meter reading function and implement a billing system. The decision to begin reform with the meter reading and billing systems is appropriate, since these systems lie at the core of NWC's ability to bill and collect its revenues.

3.1.4 Assessment of Commercial Orientation

■ *Summary Definition*

Commercial orientation is the degree to which actions in an institution are driven by cost effectiveness and operating efficiency. Operation of an organization as a commercially successful business is necessary in order to earn sufficient revenue to serve customers effectively, and to meet the capital requirements of expanding and improving services.

■ *Assessment Overview*

There is a pervasive view in Jamaica that the provision of water is a social obligation which takes precedence over commercial factors. A strong commercial orientation was evident among top management, but this attitude is not part of the organizational culture. Table 1 shows the projected and actual financial performance of NWC 1986-1992.

■ *Gap Between Revenues and Expenditures*

Currently NWC does not earn sufficient revenues to pay the costs of operation and maintenance. When the grace periods expire for NWC's several outstanding loans, NWC will need even greater revenue to repay its existing debts. NWC last reported an operating profit during the fiscal year ending March 31, 1989. Since that time the NWC has accumulated losses of about J$140 million to March 31, 1991. In the absence of a rate increase, it is estimated that the year ending March 1992 will show a further loss of J$100 million. Debt service liabilities were an estimated J$386 million as of March 1991.[21]

In summary, NWC cannot support itself. It is dependent upon the government to close its financing gap through grants and delays in payment of statutory contributions. However, given the government's fiscal realities, these accommodations will not be available indefinitely.

■ *Commercial Feasibility of New Projects*

The NWC's management recommends new projects to its Board and the government on the basis of economic and financial feasibility requirements. However, the Board is often directed to implement projects based on the government's priorities.

To the extent that government funds capital projects, there is no adverse effect on NWC. However, NWC often starts a project based on government's budget approval, only to have the project terminated because of lack of funds. The NWC is then forced to decide whether it would be better to complete or abandon the project, sometimes after a significant expenditure has been committed. Following completion of such a project, NWC sometimes is faced with revenue flows which cannot cover the associated costs.

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[21] Noth, Richard, et al., "Review of Revenues and Tariffs—National Water Commission," Research Triangle Institute, draft report prepared for USAID/RHUDO and NWC, December 1991.

Table 1

National Water Commission

Summary of Projected & Actual Financial Performance
Fiscal 1986 to 1992

	Draft			In-House		Projected	
	1986	1987	1988	1989	1990	1991	1992
Revenue	212.2	334.4	307.2	313.6	357.7	426.9	496.7
Expenses	187.8	209.2	260.7	273.1	396.0	439.0	557.8
	24.4	125.2	46.5	40.5	(38.3)	(12.1)	(61.1)
Miscellaneous Income							
Interest Income	0.1	0.1	0.4	0.2	0.6		
Non Operating Income	1.2	2.3	3.0	1.3	2.4		
	1.3	2.4	3.4	1.5	3.0		
	25.7	127.6	49.9	42.0			
Other Expenditure							
Bank Interest	14.4	5.8	6.8	7.8	.3	13.3	3.4
Loan Interest	16.3	24.1	28.9	35.2	22.6	29.3	
Depreciation	3.3	4.6	4.7	4.6	9.6	6.2	6.2
	17.7	26.7	35.6	41.3	45.1	42.1	38.9
Operating Profit/(Loss)	8.0	100.9	14.3	.7	(80.5)	(54.2)	(100.0)
Exchange Gain/(Loss)	3.0	(.4)	(.6)	(6.3)	(60.1)		
Government Grants	20.6	29.2	7.9	30.3	46.3		
Surplus/(Deficit) For Year	31.6	129.8	21.7	24.6	(94.4)	(54.2)	(100.0)

3.1.5 Assessment of Consumer Orientation

- *Summary Definition*

Consumer orientation is organizing and directing the services of the institution towards consumers. An organization which doesn't treat its customers with priority tends to serve them poorly.

- *Assessment on Employee Attitudes*

1. NWC has a very low consumer orientation. Customer services personnel are among NWC's youngest, least experienced, and lowest paid staff. The process of investigating and attending to customer problems has produced a large backlog of unresolved files.
2. Senior NWC management is aware that major improvements are needed. The current NWC annual operations plan[22] lists nine objectives under the heading of "Improvements in Customer Service and Customer Relations."

- *Basis of Most Complaints*

1. Complaints on the accuracy of billings is one of the major reasons for poor NWC/customer relations. Customer Services personnel complained about the quality, type, and extent of data available from the billing system. In the absence of reliable billing data, the Research Unit staff has to undertake extensive manual investigations prior to resolving customer problems.
2. Customer Services staff estimate that 80 percent of Kingston Metropolitan Area consumer complaints arise from the following situations:
   - Meters not read;
   - Billing based on estimated readings, (an extensive practice);
   - Payment(s) made not shown on current bills;
   - Disputes on consumption, (frequent consumer belief that readings are incorrect); and
   - Not getting water, (this is the main complaint in rural areas).
3. There are no statistics on the actual number of customer complaints over the years; NWC has never conducted a customer satisfaction survey. However, public relations staff state that they perceive a significant reduction in customer complaints over the last three years.

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[22] "NWC 1991/1992 Annual Operations Plan."

- *Assessment on Mechanisms for Responding to Complaints*

1. NWC's mechanisms for consumers to register complaints and emergencies are overworked and understaffed. The NWC maintains emergency telephone lines, staffed by the Operations Department. The emergency operators are described as "courteous and efficient," and they are very experienced persons who know the system very well. However, it is difficult to reach the emergency numbers because of a fault in the telephone system. Despite several requests to the telephone company, the problem has not been resolved.

2. NWC admits that present systems for addressing customer complaints are inadequate and slow. Consumers sometimes may have to wait for several months, or in some cases years, for complaints to be resolved.

3. The process of investigating and resolving customer problems has produced a large backlog of unresolved complaints. At the time of this review the Kingston Metropolitan Customer Services Supervisor was dealing with about 300 active cases, some dating back to 1989. There were another 500 files in the Research section awaiting specific data, and an unspecified number in the Administration Division awaiting legal action.

4. NWC has a policy of inspecting a customer's premises when consumption is 50 percent greater than previous average use. The NWC will often deduct 10 or 20 percent of these accounts when leaks are discovered. This sum can become sizable because of the delay in reconciling accounts. The Customer Services Department now is researching disputed accounts with balances of over J$10,000, to determine what action is required.

- *Assessment on Programs for Consumer Education and Information*

1. NWC has recently strengthened its public relations department. An excellent public relations program is directed by an experienced professional who reports directly to the MD. However, progress is being hampered by a lack of funds. The consumer education program focuses on projecting a positive image of the organization, and provides information regarding emergencies and system problems, encourages conservation, and provides advice on checking for leaks and wastage. The program includes the following:

   - A media campaign entitled, "NWC Update," providing positive information about NWC, carried by two newspapers on a weekly basis and two radio stations daily;
   - Public service announcements on three radio stations, usually focused on water system emergencies and other problems;
   - A schools' poster competition focusing on water conservation and environmental concerns;

- "Guest for a Day," offering media representatives opportunities to learn about the NWC, becoming more aware of the NWC's strong and weak points, and the constraints faced in daily operations;
- "NWC Pipeline," a general information video and corporate brochure for use in public engagements and in informing guests about the NWC;
- "Runnings," a magazine featuring issues of interest to NWC employees (the Public Relations Department has received an award from the Public Relations Society of Jamaica for "Runnings"); and
- Employee activities, such as a staff fun day, sporting events, and a best plant competition.

There are no structured opportunities for consumers to influence development of NWC policies or programs.

3.1.6 Assessment of Technical Capability

- *Summary Definition*

Technical capability is the measure of an institution's competence in conducting the technical work required to meet responsibilities of the institution. An effective organization must have technical competence, either in-house or under contract, to ensure that its facilities are technologically appropriate, and effectively operated and maintained.

- *Assessment Overview of Technical Competence*

1. Two past assessments made fairly extensive surveys of the physical facilities of the NWC. The 1982 CDM assessment was very extensive. While the report reflects conditions that existed nine years ago, the confirmation of many of those conditions by the 1990 Lofthouse assessment, together with other evidence, leads to the conclusion that similar conditions probably still exist today.
2. NWC maintenance specialists admit that their operations have been underfunded for much of this period, and that there has been a short supply of vehicles, spare parts, and adequately trained staff.

- *Assessment of O&M in 1982 (CDM)*

1. "At this time there is a demonstrable inability on the part of the NWC to adequately maintain its physical facilities. This deficiency is not for lack of knowledge of what should be done, nor for lack of well-motivated leadership, but because of lack of

sufficient mechanical, electrical, vehicular and instrument repair personnel, adequate standby equipment, and an adequate inventory of spare parts and supplies."[23]

2. That report presented 23 pages of details about all aspects of the NWC facilities in every region, as well as the Kingston metropolitan area, together with many photographs of the findings. In addition to the quotation above, their findings included:

   (a) Maintenance of facilities was worse in the rural regions than in Kingston;

   (b) Chlorination was not being performed effectively at many installations, and no procedures were available to verify chlorine residuals;

   (c) Maintenance was being conducted in a random fashion rather than in accordance with a scheduled preventive maintenance plan;

   (d) Vandalism was a serious problem affecting operations, particularly in Kingston;

   (e) NWC did not have the skills or equipment to maintain much of the instrumentation and electrical gear being used in the systems;

   (f) The three large water treatment plants inspected produced good quality water, but little of the instrumentation was in service and chemical dosages were being made by "guesstimate"; and

   (g) Only 60 percent of collected wastewater in Kingston received any treatment. Of five wastewater treatment plants inspected, two were bypassing all wastes and the others were performing poorly.

- *Assessment of O&M in 1990 (Lofthouse)*

1. The Lofthouse study looked at the operation and maintenance of a variety of NWC facilities. While this study focused on wastewater, some of the general comments about maintenance are pertinent and support the CDM findings made eight years earlier.

2. Some of the findings of the Lofthouse study include:

   (a) The four major wastewater treatment plants in Kingston are overloaded and the quality of the effluent produced is generally very poor;

   (b) Other NWC-owned plants produced "effluents of reasonably acceptable quality," but suffer from poor electrical maintenance. Plants owned by the Urban Development Corporation (UDC) and the Ministry of Housing have "obvious problems," and suffer from "gross neglect;"

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[23] Camp Dresser & McKee Inc., "Engineering and Operational Assessment of the National Water Commission," July 1982.

(c) Problems associated with "stores," or materials and spare parts included: grossly inadequate stock levels, inadequate facilities to house stores, poor record and identification systems, and poor methods of distribution to users;

(d) Problems associated with transport included: inadequate numbers of vehicles and poor reliability, both adversely affecting O&M capabilities;

(e) Inadequate storage capacity in the various water systems; and

(f) "Quality of water supplied to the customers is generally very good," but reliability "is very variable and in some cases poor."

- *Self Assessment by NWC in the 1991/92 Operations Plan*

1. The current NWC Operations Plan selected the following as one of its three critical strategies to pursue this year:

   "Embarking on a program of preventive maintenance and improvements to physical plant to improve the delivery of service."

2. The NWC states in the Operations Plan that "efforts to improve customer service and enhance revenues will be futile if the quality of service and the delivery of water is not of an acceptable standard," and even goes so far as to state that "steps must be taken to divert in-house resources from extension of systems to plant rehabilitation."

3. These statements tend to confirm that the problems described in previous assessments still exist for the most part, and NWC not only recognizes the severity of these problems but also has assigned a very high priority to resolving them.

3.1.7 Assessment of Developing and Maintaining Staff

- *Summary Definition*

Developing and maintaining staff includes those activities directed toward recruiting staff, providing skills to do the jobs and grow professionally, and providing adequate job satisfaction, wages and benefits to retain and motivate competent personnel.

- *Conditions in Early 1989 (WASH)*

The assessment conducted in 1989[24] listed a series of deficiencies in personnel matters.

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[24] Cullivan, Donald, and John Austin, Water and Sanitation for Health Project, "Recommendations for Implementation of Community Water Supply and Sewerage Improvements, Jamaica Shelter and Urban Services Program," April 1989.

1. There are insufficient numbers of qualified management and technical personnel, and it is difficult to retain qualified staff.
2. NWC is unlikely to make significant progress in overcoming its problems until it has control over its personnel.
3. Compensation levels are generally unattractive, roughly half that of equivalent positions in the private sector.
4. There is increasing attrition because the better employees are moving to private firms, with a corresponding increase in numbers of the less qualified.
5. In general, NWC is overstaffed at the low levels and understaffed at the management and skill positions. Some senior staff complained of a general lack of discipline among the employees.
6. Employee morale is undermined by such factors as:
   - NWC's generally unfavorable public image;
   - The "class" conflicts between regular and contract employees;
   - Inter-divisional disagreements and rivalries; and
   - The generally low levels of compensation for regular employees.

- *Assessment of Current Conditions*

1. The Managing Director confirmed that NWC was still having difficulty in attracting and retaining good staff under the GOJ pay scales. About half of an estimated 15 to 20 engineers recruited in the recent past had left NWC, citing low pay in comparison to other opportunities.
2. The 1991/1992 annual Operations Plan proposed organizing a skill transfer training program to meet organizational goals. That training program has been developed and is being implemented. A process also has been developed and is now underway to evaluate the performance of each person in each position.
3. NWC has no way of financially rewarding staff who have successfully completed training programs or ranked high in performance.
4. NWC has instituted procedures for determining overstaffing. About 1,400 employees at the lower levels have been released over the last two years.
5. Staff morale continues to be a problem. Low pay, disgruntlement at the two-tier pay scale system, residual feuding among old NWA and KWC factions, and the impact of inadequate funding were frequently cited by employees as reasons for low morale.

3.1.8 Assessment of Organizational Culture

■ *Summary Definition*

Organizational culture is the set of values and norms which exist and which inform and guide employees' actions. It is best defined by how the employees feel about their organization (pride, indifference, or embarrassment), and how the organization is regarded by the community it serves.

■ *History of NWC's Organizational Culture*

NWC has inherited two organizational cultures, one from each of its predecessor organizations (NWA and KWC). These cultures have never been completed merged[25] nor has NWC been able to fully establish its own culture.

The 1989 WASH study listed several factors as evidence of a lack of a positive, healthy organizational culture within NWC, including lack of a positive image, lack of financial viability, and low staff morale.

■ *Assessment of Current Conditions*

Some progress has been made in establishing a positive organizational culture, but most of these interviewed felt that not enough has been done. Evidence includes:

1. The rivalries and divisions based on employment with NWC's predecessor organizations continues to be a barrier to commitment and pride in the NWC.
2. The lack of care to the appearance of the facilities indicates some lack of pride.

On the positive side, NWC has made serious efforts at team building through programs of sporting events, social gatherings, and publication of an employee newsletter.

3.1.9 Assessment of Interactions with External Institutions

■ *Summary Definition*

Many external institutions have the ability to affect the performance of a water and wastewater organization. Typical institutions include the parent ministry, members of parliament, local governments, the finance ministry, international funding agencies, ministries of health and environment, and various non-governmental organizations such as the media and universities.

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[25] One employee noted that KWA and NWA had different working hours and now, many years later, some of the former staff of those two organizations follow their old working hours.

■ *Assessment*

NWC's general tendency seems to be reactive. Contacts tend to arise when complaints are levied against NWC or when crisis conditions force NWC to call upon one of these institutions for help.

Recently NWC has been taking a proactive stand in routinely presenting its message to the public in the newspapers, on radio and television. NWC also holds talks with the unions prior to planned programs of staff reductions or other matters of mutual importance.

The Chairman, Managing Director, and other senior officers are assigned regularly to speaking engagements to community and service organizations. These engagements offer opportunities to explain NWC's policies and programs and to obtain feedback regarding consumers' complaints and concerns.

However, there are no structured opportunities for consumers to influence development of NWC policies or programs. Neither does there appear to be any plan which identifies those organizations and interests which are in a position to influence NWC's ability to carry out its goals and objectives.

A recent editorial in a local newspaper is an indicator of NWC's reputation for dealing with the press.[26] The editor expressed frustration over the NWC's (and another GOJ organization's) reluctance to speak with the press on matters relating to operations.

3.2 Performance Indicators

3.2.1 Background

Performance indicators, sometimes called output measures, are specific, measurable elements related to actual current performance of the organization in delivering its product. These measures or indicators relate to the quantitative and qualitative results of delivering that product.

Performance indicators can be used in two ways. First, by periodically analyzing and comparing a series of such indicators, an organization can evaluate its own progress over time. This is probably the most valuable use of indicators, and one which is entirely within the power of the organization. Calculation and analysis of performance indicators should be an integral part of the proposed management information system.

The other use of performance indicators is to compare the organization's data against "generally recognized" measures of acceptable performance. However, local conditions can vary, making such comparisons suspect, at least in some areas of measurement.

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[26] "The Daily Gleaner," *Mum's the Word,* November 6, 1991.

3.2.2 Suggested Performance Indicators

A list of performance indicators that are considered to be applicable for any water utility is presented in Appendix D. The list also includes identification of the basic data needed in order to calculate these indicators. The lack of a management information system at NWC means that reliable data is unavailable. Data must not only be collected, but also must meet criteria for reliability. Performance indicators cannot be used without this data.

3.2.3 Selected NWC Performance Indicators

Some of the indicators for which some information was available are presented in this section. Comments on data reliability are noted, and comparisons, to the extent available, also are presented.

1. *Indicator:* Employees per 1,000 Accounts = 11

   Data: 265,500 accounts
   2,910 employees

   Note: Data are reliable, so indicator is reliable

   Comments: About three years ago this figure was reported to be 18, so this indicates positive progress. By comparison, a reasonably well-run utility in Sri Lanka[27] finds a ratio of 38 reasonably acceptable because of a large, low-cost labor pool. A private water company in the United States,[28] on the other hand, has a ratio of 5. A World Bank study[29] reported an average ratio of 5.4 for 5 large Latin American utilities. This ratio was said to be about half that for other companies in the region.

2. *Indicator:* Unaccounted-for-Water (UFW) = 70 percent

   Data: Total water produced
   Total water delivered to customers

   Note: The estimate of 70 percent UFW is an NWC estimate. Data on water produced are unreliable since few production sources are measured.

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[27] Engineering Science Inc., "Final Report on Institutional Development of the National Water Supply and Drainage Board, Sri Lanka," August 1991.

[28] Southwest Water Company, 1990 Annual Report.

[29] Yepes, Guillermo, "Management and Operational Practices of Municipal and Regional Water and Sewerage Companies in Latin America and the Caribbean," The World Bank, Report INU 61, January, 1990.

Data on water delivered to customers are unreliable because of poor metering. As a result, this indicator is unreliable but useful nevertheless as evidence of problems in this area.

Comments: For well-run water systems there is general agreement that the goal for UFW is 10 to 15 percent. Levels of 20 to 25 percent are marginally acceptable, and 30 percent or more, a cause for concern. Even for developing countries, a 40 percent level of unaccounted-for-water is considered unacceptable. NWC's reported level of 70 percent should be a matter of the gravest concern. The previously cited World Bank report said UFW averaged 34 percent for its five large Latin American utilities and 40-60 percent elsewhere in the region.

3. *Indicator:* Percent of Population Served: 70-75 percent

Data: Total population of Jamaica
Total number of connections to pipelines
Average number of persons per connection
Number of public faucets or standpipes
Average number of persons per standpipe

Note: Data on total population, number of piped connections, and number of standpipes can be reliably ascertained. Persons per connection will be more difficult to determine, and persons served per standpipe is very difficult to estimate.

Note: The percentage served figures shown above are NWC estimates from two recent planning documents. Estimates are not shown separately for urban and rural areas, nor is it clear what is meant by being "served." They are only indicators and are of questionable reliability.

Comments: As of 1988, WHO reported[30] that 84 percent of the urban population and 58 percent of the rural population in Jamaica had "access to safe and adequate water supplies." WHO made no distinction between piped connections or other forms of access to water, probably because such data were not reported to WHO by countries participating in the study.

4. *Indicator:* Percentage of Accounts Metered = 89 percent

Data: Total number of accounts
Total number of accounts with meters

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[30] "The International Drinking Water Supply and Sanitation Decade, Review of Decade Progress (As at December 1988)," WHO, December 1990.

Notes: Data for both are available and reasonably reliable. The number shown is as reported by NWC.[31] A parallel, and more important, indicator is the percentage of accounts with effective, reliable, readable meters. NWC indicates[32] that 43 percent of its accounts either have no meters or the meters are defective or inaccessible.

Comments: The percentage of metered accounts is not necessarily a valid measure of performance. Many very well-run water systems in the United Kingdom have no meters. In developing countries the cost of meters is often economically infeasible for simple dwellings with only a single tap and no piped wastewater disposal system. NWC's estimate that 43 percent of its meters are not serviceable is a major reason for the unreliability of the amounts billed.

3.3 Environmental and Social Impact Issues

3.3.1 Environmental Issues

Although time was limited for a complete assessment of environmental and social issues, the team did address these issues. Until recently, environmental issues have been of little importance in Jamaica. Within the past few years, however, there has been an increasing awareness and concern over activities that might adversely affect the environment. In 1989, the NWC hired consultants to assess the expansion of the Montego Bay wastewater treatment facilities. Their study included an environmental impact assessment. Subsequently, the NWC and USAID funded a detailed environmental analysis[33] which addressed an even broader range of issues.

USAID funded a second environmental assessment for the Lucea-Negril water supply project.[34] This study included an environmental analysis and impact evaluation.

USAID's concern for the Jamaican environment is manifested in the work commissioned to the Tropical Research and Development Company, which culminated in the "Jamaican Environmental Strategy" in September 1991. The report describes the major environmental issues in Jamaica as:

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[31] Caribbean Business Management Co. Ltd., "Accounts Receivable Audit," April 27, 1989.

[32] NWC Annual Operations Plan, 1991-1992

[33] James M. Montgomery et al. "Montego Bay Sewerage System Improvement Project, Environmental Analysis," August 1990.

[34] Camp Dresser & McKee and Harza Engineering. "Lucea-Negril Water Supply Feasibility Report," September 1990.

1. Degradation of coastal zones;
2. Elimination or degradation of habitat;
3. Watershed degradation: changes in hydrologic regimes and soil loss;
4. Water pollution; and
5. Air pollution.

The document describes a collaborative strategy for USAID and the GOJ to strengthen existing organizations (e.g., NGOs, Jamaican Environmental Fund, and private sector organizations) as well as the Natural Resources Conservation Authority (NRCA). A USAID-funded effort titled "Development of Environmental Management Organizations" (DEMO) is proposed to carry out this work.

One aspect of the DEMO Project is described as follows:

> Development of NRCA Regulatory Functions: DEMO will provide training, technical assistance, and commodities to the Natural Resource Conservation Authority (NRCA) for the purpose of building its capacity to develop policies and regulations that respond to environmental problems, and to ensure GOJ capacity to carry out these policies and regulations.

It is evident that the GOJ, with the assistance of this USAID project, proposes to strengthen its environmental regulatory capacity and set up a mechanism to enforce environmental regulations. Increased environmental regulation will mean that the NWC will be monitored in the design, construction, and operation of their schemes, as will any organization, public or private.

The World Bank has expressed interest in assisting with the improvement of the environment of the Kingston harbor. The proposed study, entitled "Environmental Waste Pollution Control Study for Kingston Harbor and its Tributary Areas," is to be jointly funded by the Canadian International Development Agency (CIDA). The terms of reference state:

> The key purpose of this proposed study is to first prepare an environmental pollution control plan to the year 2015 for Kingston Harbor and its tributary watershed following the Government-formulated Action Plan. The study will serve as a basis for setting priorities for pollution control projects to be undertaken to clean up Kingston Harbor and its tributary areas, with the assistance of external financing agencies and possibly privatization firms. Second, as an extension of the proposed study, specific investments for the medium-term (1993-2005) related to wastewater collection and pollution control will be detailed for project financing appraisal by World Bank and potential cofinancing agencies.

The NRCA will be the lead agency for the GOJ, and will establish the framework under which such GOJ agencies as NWC, PIOJ, and the Global Environmental Facility will collaborate.

3.3.2 NWC and Environmental Issues

To date, the NWC has not addressed environmental impacts in planning capital works projects. The NWC is increasingly aware, however, of the degradation of water quality caused by deforestation in its watersheds. The NWC should create a new department to concentrate on all environmental issues affecting NWC and to ensure that environmental impact analyses are prepared on all future projects.

3.3.3 Social Impact Issues

The Mission Statement of the NWC sets the policy for social and health benefits:

1. To efficiently provide and distribute potable water.
2. To safely collect, treat and dispose of wastewater at affordable costs, consistent with long term viability.
3. To provide a reliable supply of water, at affordable cost, to all consumers and maintain good conditions of employment.

In the spring of 1991, the Minister directed the NWC to divest itself of the systems that had previously been the property of the Parish Councils, and return these systems to the control of the Councils. The NWC returned these unprofitable systems, along with vehicles and some equipment.

Once again, the Councils will have the responsibility for providing water to persons who have not been accustomed to paying for water service. It is not clear just how the Councils will obtain resources and funds to operate and maintain these systems. While this divestiture will benefit NWC, it appears that many lower income families may be at risk for obtaining adequate quantities of and quality water.

Over the past several years there have been a number of events adversely affecting the quality of the service provided by the NWC. These include:

1. Decreased attention to the maintenance of standposts, or public faucets, with an overall reduction in the total number of serviceable standposts.[35]
2. Transfer of responsibility for the majority of the standposts to the Parish Councils, with questions about their ability to operate and maintain them.
3. Lack of attention to the maintenance of small rain catchment areas, with associated reductions in quality and quantity of water to low-income users.[36]

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[35] NWC reported a reduction in public standposts from 6,400 to 4,700 in the past few years.

[36] 1990 PAHO Study.

4. A typhoid outbreak resulting from improper chlorine application procedures.

5. Use of lockoffs to reduce consumption, resulting in low pressures and the possibility of back-siphonage of polluted water entering the distribution system. In addition, these lockouts have encouraged low-income persons to seek less desirable or unsafe sources of water.

3.4 Evaluation of Alternative Strategies for Making Institutional Improvements

3.4.1 Situation Overview

The NWC must make major changes to avoid a continued drain on government funds and further deterioration of water and wastewater services. The possibility of transferring full responsibility for these services to the private sector is addressed later in this report. If the GOJ decides to take that approach, it may be either unnecessary or inefficient to undertake reforms to improve NWC's long term institutional capability.

However, should complete privatization not be considered in the government's interest, or should privatization require phasing over a period of years, NWC must be strengthened as an institution. Decentralization, short of full delegation of responsibility to the private sector, is only a variation of internal reform, not a substitute for such reform.

3.4.2 Alternatives for Internal Reform

Whatever approach is taken, certain steps should be taken by the GOJ if reform is to be successful. These steps include the following:

- The government should determine if services will be provided on a commercial, self-sustaining basis or if they will be subsidized out of general tax revenues.
- If the commercial alternative is selected, the government should give the NWC full control over raising and spending revenues and personnel matters.
- If the subsidized alternative is selected, the government should ensure that the subsidy funds are adequate, and should give NWC full control over its personnel. Without such control, meaningful reform is unlikely.

As for the reform process itself, there are several alternatives to consider:

- Utilization of external private sector advisors (expatriate and/or local) to develop programs to overcome existing institutional weaknesses and then assist the NWC in implementing these programs;
- Utilization of experienced public sector utilities personnel as advisors; and

- Initiation and implementation of the reforms from within, largely with the NWC's own personnel, supplemented by private or public sector advisors for selected areas in which the NWC lacks skills or experience.

Chapter 4

DECENTRALIZATION

4.1 Background

4.1.1 NWC Policy on Decentralization

The NWC Board of Directors, in an attempt to improve performance accountability, decided that decentralization of authority to the regions was the best means of achieving such accountability. Accordingly, decentralization was listed as an objective in the 1990/1991 NWC Annual Operations Plan. In 1991, NWC engaged two separate consultants to study decentralization.

4.1.2 The Case for Decentralization

Decentralization is frequently a desirable means of obtaining better accountability, placing responsibility for performance closer to service delivery areas. WASH is currently preparing a report for A.I.D., "Decentralizing Water and Sanitation Services," to be used as a guide to interested parties. The draft report states there are three objectives of decentralization:

- Efficiency: Decentralization may lead to lower relative costs and more cost effectiveness.
- Equity: By bringing the responsibility for providing services to a lower level, it may increase the potential for the least favored members of the community to receive adequate services. Local control, however, does not necessarily favor the poorer or disadvantaged as much as national level control does.
- Political Representation: Decentralization affords the opportunity for greater local involvement in decision-making.

4.1.3 Types of Decentralization

Decentralization is the process of allocating authority over specific matters to smaller and geographically dispersed entities. This could include authority to levy and collect funds for services provided, to control employees, or to procure and allocate resources as required.

The extent to which services are decentralized is sometimes divided into three categories, described as follows:[37]

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[37] "Decentralization Policies and Human Settlements," A. Rondinelli, a paper prepared for the UN Center for Human Settlements, 1989.

- *Devolution*: The transfer of all authority for decision making and resource allocation from the central agency to the local unit of government. Higher levels of government have no role in service delivery or resource mobilization once power is transferred.
- *Deconcentration*: The placement of staff and resources by the central agency at the local level, with varying degrees of transfer of authority to the local level. Deconcentration describes a reorganization scheme from central to regional units of the same organization.
- *Delegation*: Delegation of authority from the central agency to a third party, which could be a public corporation or a private company, to manage and provide the service.

There are multiple options in decentralization. The choice of option is fundamentally based on two issues:

- The willingness of the central authority to surrender control, and
- The capability of the regional for local units to assume increased responsibility.

The WASH draft report identifies several key issues in considering decentralization.

- The role of technology: Systems utilizing a higher level of technology will require higher skills at the local level, where they often are lacking. In addition, sophisticated technology often costs more to operate and maintain than the local entities
- Financing and resource control: Local entities must have a high level of authority over the management of their financial and human resources. In addition, when local financing is required for system improvements, the jurisdictions must have the ability to tax and set tariffs.
- Commitment to building local capacity: Effective decentralization requires a commitment on the part of the national agency to provide training, redefine roles and responsibilities, create incentives for highly skilled people to work at the local level, and provide resources to develop the local institution. This requires long-term commitment or decentralization will not work.

4.2 Prior Studies

4.2.1 1990 Lofthouse Study

The 1990/1991 Operations Plan of the NWC proposed the delegation of considerable authority to the regional units of NWC. The scope of work of the EEC consultant (Lofthouse, 1990) requested an in-depth review of this proposal. Section 4.1 of the EEC report includes the following comments on the subject of regional management considerations:

> "Consequently, in contemplating the many options available for reorganizing the Regional Management Structure and in looking at the relationships between the

Regions and Headquarters, it was not considered that it would be realistic to contemplate changing the entire management structure from top to bottom.

"Stability within an organization is essential for staff morale to be built up to a satisfactory level where staff reflect pride in the organization and develop conscientious attitudes to work.

"The endeavor, therefore, was to make the minimum of changes initially, accepting that some minor refinements or fine tuning could be undertaken from time to time as suitable opportunities might arise."

Lofthouse went on to define the areas to be served by the new units and the responsibilities required. The study concluded with the following recommendations:

1. Reduce the number of divisions from the present four to three.
2. The three new divisions should be based on established county boundaries and termed County Divisions.
3. The levels of responsibility of the managers of the County Divisions should be comparable to those of the Directors in the central organization.
4. The Regional Directors would be responsible for the Technical, and Commercial functions of the County Divisions.
5. The Parish Managers would be responsible for both Technical and Commercial services, where this can be achieved without increasing the number of tiers of management.
6. The Regional Directors would be directly responsible to the DMD (Engineering), to be redesignated the DMD (Water Services). Appropriate functional responsibilities would remain with central Divisions.
7. The responsibilities of the Operations and Maintenance Divisions would transfer to the County Divisions.
8. The Engineering and Planning Divisions would merge and, together with the Water Quality Division, would be responsible to the DMD (Water Service).

4.2.2 1991 Incompleted Study

Subsequent to the EEC/Lofthouse study, and in accordance with an objective of the 1991/1992 operations plan, the MD commissioned a follow-up, phased study to carry the plans for decentralization forward. About the time of the completion of the first phase of this report, the NWC Board terminated the phased study and initiated another decentralization study. The phase 1 results of the terminated study were not available for review.

4.3 Evaluation of Alternative Strategies for Decentralization

4.3.1 Situation Overview

As mentioned in Section 3.4.1, it makes little sense to move towards decentralization if the GOJ decides to transfer all of NWC's responsibilities to the private sector. However, if a phased-in full privatization is proposed, or if limited privatization is proposed, decentralization should be considered in conjunction with internal institutional strengthening.

4.3.2 Alternatives for Decentralization

Decentralization alone will be no more successful than the present system unless fundamental improvements are made to overcome serious existing problems. NWC's headquarters suffers not only from a lack of systems and procedures, but also from the unavailability of reliable, timely data and the means for making that data available to management. There are also serious problems with stores, transport, control of operations, and maintenance. Finally, there is the very serious problem of lack of adequate revenues. Until there is some reasonable improvement in these areas at headquarters, it is unlikely that there will be efficient regional performance.

The following alternatives should be considered for decentralization:

- The Morgan Study should be completed and evaluated to determine its usefulness as a guide to decentralization.
- Consideration should be given to alternatives for the extensive decentralization believed to be proposed by the Morgan Study. These alternatives should include (1) a "no change" position (continue as a centralized system), (2) deconcentration, allocating varying degrees of authority and responsibility to the regions, and (3) consideration of different political or geographic regions for decentralization.
- Consideration of a phased approach to extensive decentralization, ensuring that the needed skills and resources are in place in the various regions before responsibility and authority are transferred to them. This approach would permit regions to gain experience and capability more gradually than the system which the Lofthouse and Morgan studies appear to be recommending.

Chapter 5

PRIVATIZATION

5.1 Background

5.1.1 Purpose of the Analysis

This chapter presents an analysis of privatization, with a review of options for privatization of water and wastewater services in Jamaica. Additional details are given on the current status and experiences of water and wastewater privatization in other countries with considerable experience with privatization.

The basic purpose of the analysis is to discuss and compare the potential options and major strategic issues related to privatization of NWC. Significant policy decisions must be made and additional information and analyses developed before a decision can be made on what role privatization should play in the delivery of water and wastewater services.

The privatization options considered for NWC include various approaches. These range from complete divestment (sale of assets) and abandonment of NWC as the provider of water and wastewater services, to service contracting, where NWC would maintain its current role as the national provider of water and wastewater services with assistance from the private sector in selected activities. Options are contingent upon the extent of geographical coverage and whether both water and wastewater services are to be provided.

5.1.2 Potential Privatization Methods

The privatization methods potentially available for the delivery of water and wastewater services in Jamaica are summarized as follows:

1. *Divestment of Assets.* This method represents full privatization. The government, either by contract or statutory authority, transfers ownership of existing water or wastewater system assets to a private company. The government grants to the private company the exclusive right to provide agreed-upon services in a defined area.

   All responsibilities for the delivery of services, including construction of new facilities, are assumed by the private company. This is the option utilized in 1989 on a national scale in England and Wales, and was achieved through a public share offering on the U.K. stock market.

2. *Concessions.* This method also represents "full privatization." An example would be provision of *new* wastewater collection, treatment, and disposal services in areas not presently served. In instances where no services currently exist, government could negotiate with a private consortium to develop and operate the project. Under this option, the private company would be responsible for designing, financing,

constructing, operating, and owning the facilities. The reimbursement of costs, usually bulk sales, and the period of operations (usually about 20 years) would be defined by contract. Ownership of the facility would be transferred to government at the end of the agreed term under contract conditions.

3. *Leasing.* This method involves the leasing for a defined period of time of government-owned assets to a private company, which is then responsible for operation, maintenance, and repair, and billing and collecting tariffs if distribution system assets are included. The government retains ownership and is responsible for large capital investments needed to replace, upgrade, or expand facilities. This option is common in France.

4. *Management Contracting.* Under this type of privatization, the government contracts with a private company to manage and undertake the operation, and to maintain and repair a facility or system, usually for a relatively short period (2 to 5 years). Management contracts normally include financial incentive clauses to encourage efficient use of labor and resources.

5. *Support Service Contracting.* This type of contract between government and a private company involves support services such as billing or meter reading, which assist the government in delivering services. NWC currently uses this method in some areas of its operations, such as engineering services and payroll. Many different kinds of services can be obtained in this fashion and usually are provided by specialized companies.

5.1.3 Advantages and Disadvantages of Privatization

From a government perspective, there are several advantages and disadvantages to be considered in the analysis of privatization of water and wastewater services. This study reviewed seven major factors to determine their relative advantages and disadvantages: cost efficiency, risk allocation, commercial orientation, capital formation, customer charges, personnel resources, and government control.

Not surprisingly, the private sector has the potential for significant advantages over government operations in matters relating to financial and personnel management. However, there is the issue of whether the government chooses to give up its control over this important public service and allow the private sector to cover operational costs.

5.2 Privatization Experience Outside Jamaica

5.2.1 Experience in Developed Countries

The extent of privatization in the water and wastewater sector varies considerably in other countries. With the exception of England, and Wales, privatization of public wastewater services is limited. However, public water supply services are extensively privatized in France, England, and Wales, to a lesser extent in the United States, and much less so in developing countries. Only England and Wales have national-scale privatization.

The following table presents some basic differences among the full privatization of water supply services as currently practiced in England and Wales, France, and the United States. Other privatization methods, such as management contracts, support service contracts, and project development contracts, are not addressed in this comparison.

COMPARISON OF WATER SUPPLY PRIVATIZATION ARRANGEMENTS

	England and Wales	**France**	**United States**
Portion of population with public water supply served privately:	100%	65%	25%
Government mechanism to regulate tariffs:	Water Administrator	Contract	Utilities Commission
Financial basis for tariff regulation:	Comparison & Ability to Raise Funds	Terms of Contract	Return on Capital
Ownership of assets:	Private	Government	Private
Responsibility for financing projects:	Private	Government	Private

As indicated in this summary the French approach to the private retail provision of water supply services differs significantly from the approach utilized in England and Wales and the United States. Also, England and Wales represent the only instance where there is nationwide full privatization of water supply services.

- *England and Wales*

Prior to 1974, water and wastewater services in England and Wales were dispersed among some 1,600 local government authorities, with private companies providing a relatively minor portion of such services. In 1974, however, the local governmental service providers were reorganized into 10 regional authorities, based on the watersheds of major rivers. Precipitated by the national government's policy in favor of privatization during the 1980s, a proposal was initiated around 1984 to privatize the regional authorities. After five years of debate, the 10 authorities were each reorganized as water companies in 1989, and their stock sold to a combination of public (47 percent), United Kingdom institutional (39 percent), and overseas (14 percent) investors.

- *France*

Comprised of some 36,000 communes, or water boards, with approximately 12,000 independent private water companies, the provision of public water supply in France has a long history of extensive participation by the private sector. The independent water companies are wholly-owned subsidiaries of a limited number of large French holding companies, some of which were started in the 1800s.

Two basic approaches are followed in France:

- Concession Contract. Utilized in areas where service does not exist, a local water board awards a contract to a private company, granting exclusive rights and complete responsibility to serve the area for a set period of time (usually 25 years). The private company will build and own the water supply system, and at the end of the contract term, it becomes the property of the water board. During the contract period, the private company operates the system and collects tariffs from its customers. The tariffs, including detailed provisions for periodic adjustments, and service obligations are stipulated in the contract.

- Leasing Contract. Oftentimes used where a Concession Contract has expired, the local water board retains ownership of the water supply system and contracts with a private company to operate and maintain the system, and to collect tariffs. Capital improvements are the responsibility of the water board. As with the Concession Contract, detailed provisions spell out the method for setting tariffs and the performance obligations of the private company during the contract period (usually 12 years). Obligations include satisfactory maintenance of the system. Tariffs include a share for the private company, and a share for the water board to generate revenue for the financing of capital improvements.

Some 65 percent of public water supply customers in France are served by private water companies. The balance of the population is served by local water boards which have chosen to manage the water supply system directly. Even where responsibilities for providing service are delegated to the private sector, the local water board retains substantial control over the provision of service.

- *United States*

In general, public water supply systems serving large urban centers in the United States (cities of New York, Chicago, and Los Angeles) are owned and operated by governmental bodies. Private sector participation is largely in the form of contracting for discrete elements, such as design and construction of new capital projects and operation and maintenance of existing facilities. In medium to small cities and towns, there are many instances of full (retail) privatization of water supply services. Overall, approximately 25 percent of the public water supply in the United States is provided by the private sector.

Private participation in the provision of public wastewater services in the United States is generally limited to contracting for the execution of discrete elements (design, construction, and operation and maintenance). Instances of full privatization are sometimes found in connection with new housing developments, but not on a significant scale.

During the 1980s, privatization of water and wastewater services in the United States focused principally on increased private sector participation in the operation and maintenance of water and wastewater treatment facilities. Governmental bodies increasingly entered into such private contracts, utilizing either competitive bidding or negotiation to arrive at satisfactory terms. The specific compensation mechanisms cover a variety of approaches, but usually contain some form of financial incentives to encourage efficient operation. For a brief period (1984-1986), federal income tax law favored private financing and ownership of new water and wastewater capital projects. This led to the private development and operation of some major capital projects; current tax laws make it difficult to compete with governmental financing.

5.2.2 Experience in Developing Countries

Although the extent of privatization of water and wastewater services is limited in developing countries, many are exploring arrangements with the private sector. Recently SODECI, the government-owned water supply system of the Cote d'Ivoire (Ivory Coast, Africa), was bought out by company management. The World Bank has assisted the Governments of Guinea and Malaysia in preparation and implementation of privatization arrangements, and is assisting the Governments of Argentina, Brazil, Chile, Mexico, and Venezuela in moving toward privatization. In many of these cases, however, the emphasis is on large metropolitan areas rather than entire countries.

5.3 Privatization Experience in Jamaica

5.3.1 Government Policy on Privatization

In the early 1980s, the GOJ aggressively pursued a policy to privatize a wide variety of assets owned by the GOJ. The GOJ privatization policy objectives include:

1. To improve the general efficiency of the economy;
2. To democratize ownership of productive assets;
3. To optimize use of government human resources; and
4. To realize financial resources to better achieve the social agenda.

During the 1980s, the GOJ transferred the ownership and/or control of productive assets in several sectors, including 15 hotels, a major commercial bank (National Commercial Bank), a large cement company (Caribbean Cement Company), approximately 80,000 acres of prime agricultural land, and many companies of varying size.

The privatization methods utilized by the GOJ are diverse. They include the sale or leasing of fixed assets, the sale of stock, management contracts, support service contracts, and service area concessions. In the case of hotels and agricultural lands, many of the privatization transactions have involved leasing. However, with the National Commercial Bank, Caribbean Cement Company, and Telecommunications of Jamaica, privatization was accomplished through the sale of stock. Prior to privatization, each of these enterprises was organized in the form of a limited liability company under The Companies Act, with 100 percent of the stock held by the GOJ.

In the service sector of the economy, privatization has occurred in telecommunications, ground transportation, garbage collection, rural agricultural markets, and hospital support services. Privatization efforts also have been initiated with Jamaica Public Service, the islandwide provider of electrical power.

Currently, 65 GOJ-owned entities are targeted for divestment. In addition, consideration is being given to private contracting for services such as maintenance of roads and police vehicles, and efforts are being made to expand privatization of electrical power, water, and wastewater services.

Three examples of privatization with particular relevance to NWC follow:

- *Telecommunications*

Telephone and related communication services now are provided throughout Jamaica by Telecommunications of Jamaica (TOJ), a limited liability company whose majority of shares now are held privately. The former GOJ-owned entities for providing telecommunication services were handicapped by conditions imposed by the International Monetary Fund that precluded use of cash surpluses for system expansion using high import-content items. With the transfer of management control to a major overseas company specializing in telecommunications (Cable & Wireless), and the increased capital available to TOJ, system expansion activities now are underway. It is expected that the number of telephones in Jamaica will be doubled and that the range and quality of service will be improved.

- *Electrical Power*

The sole provider of electrical power service throughout the Island, Jamaica Public Service Company (JPS) became a 100 percent government-owned entity in 1974, when the GOJ purchased the outstanding privately held shares. Currently facing substantial capital needs, particularly for expanding generation capacity, the GOJ now is actively reviewing privatization proposals for JPS. The GOJ is analyzing potential regulatory mechanisms to control pricing and to provide service standards for a privately-owned electric utility.

- *Refuse Collection*

Refuse collection services have been contracted out to private firms in six parishes, including Kingston and St. Andrew. Special government agencies were created to contract with and monitor the performance of the private firms. A recent survey indicated that corporate users report a considerable increase in the level of refuse service under private management.

5.3.2 Role of National Investment Bank of Jamaica

Incorporated in 1984 as a successor to the Jamaica National Investment Company (JNIC), the National Investment Bank of Jamaica (NIBJ) is the GOJ's investment bank. Among other duties, NIBJ is responsible for coordinating and supporting divestment transactions undertaken by GOJ.

The Divestment Division of NIBJ administers the divestment process, including identifying entities for divestment, preparing valuations, conducting technical analyses, reviewing offers, assisting in negotiations, and preparing reports and submissions to the NIBJ Divestment Committee and GOJ Cabinet. Final decisions on divestment are made by the GOJ Cabinet. The GOJ and the NIBJ privatization efforts have resulted in substantial private sector participation in the provision of certain public services.

5.3.3 NWC Privatization Policy and Experience

The current privatization policy of the NWC is presented in Appendix E, Report of the NWC Privatization Committee. This report was approved by the NWC Board in April 1991, as NWC's official policy. Generally, it provides that NWC "shall retain responsibility for potable water" while affording the private sector the opportunity to participate in areas compatible with this policy.

It also mandates that NWC "will retain responsibility for the following: (a) development of new water supplies and wastewater treatment systems, (b) Approval of all new water and wastewater systems...., and (c) NWC will be the supplier of last resort for systems which have been privatized." The policy defines "supplier of last resort" as meaning that the NWC will provide water in areas where privatization has failed "until a new supplier is found."

Historically, NWC has contracted with the private sector in several areas, including engineering services, security services, operation and maintenance of small wastewater treatment plants, and payroll services.

Over the past two years, some ten private contracts have been awarded by NWC for the operation and maintenance of small wastewater treatment plants. Two competitive proposals from overseas firms to operate and maintain the Harbor View wastewater treatment plant are currently under review by NWC. In addition, NWC is encouraging offers from overseas firms to operate and maintain several other water treatment facilities.

Current policy of the NWC Board, adopted upon the recommendation of its Privatization Committee, provides that NWC shall retain ultimate responsibility for potable water, while affording private sector participation. It also mandates that NWC shall retain responsibility for:

1. Developing new water supplies and wastewater treatment systems;
2. Approving all new water and wastewater systems; and
3. Being the supplier of last resort for privatized systems.

NWC management currently is considering privatization of NWC functions in the following areas:

1. Reading, installing, uncovering, testing, and repairing of meters;
2. Collecting revenues;
3. Supplying water in rural areas (haulage and standpipes);
4. Disconnecting and reconnecting of service connections;
5. Licensing of private service providers for new developments;
6. Printing;
7. Installing new service connections;
8. Managing water treatment plants; and
9. Maintaining fixed assets and vehicles.

However, implementation of privatization arrangements is hampered by lack of detailed policy and procedures to guide management.

5.4 Strategic Issues Related to Privatization

5.4.1 Major Strategic Issues

Whatever form of privatization the GOJ may pursue, two fundamental questions must be answered. Will the decision to privatize the sector eliminate the need for institutional

strengthening of NWC? What is the extent to which the services should be privatized? The extent of privatization relates to geographical coverage (national vs. regional or selected areas), whether wastewater services are to be included, and whether all services are to be privatized.

5.4.2 Privatization vs. Institutional Strengthening

The foremost issue confronting GOJ and NWC is whether efforts to privatize the sector will eliminate (or reduce) the need to improve NWC as an effective institution. If all services are fully privatized throughout the country, there will be no future role for NWC. If there is less than full privatization of both services on a national scale, there must be some governmental agency to assume responsibility for those services or geographical areas not covered by the private sector.

If the GOJ decides to proceed with full privatization, a realistic time frame for complete divestment would range from three to five years. If acceptable water and wastewater services are to be provided in Jamaica, the immediate problems, facing NWC cannot go unaddressed for such a lengthy time period.

5.4.3 National vs. Regional Privatization

There are several issues relating to national vs. regional or selected area coverage. For example, there are advantages and disadvantages of having a single company provide nationwide services as opposed to having several companies operating in several regions. There also is concern that the private sector will not be willing to accept sector responsibilities either for the entire country, or for every part of selected regions. Finally, a decision must be made whether sector responsibilities can or should be assigned to the private sector in some regions, and to NWC in others.

Privatization on a national basis offers several advantages, including economies of scale in operations and administration, greater potential to attract wide international interest, simplicity of government regulation, and less customer confusion in the transition.

The principal disadvantage of a single private provider would be the reliance on a single company. There would be no basis for performance comparison in the provision of water and wastewater services. The existence of three private companies (one for each county) could create a sense of competition. Another disadvantage of a national approach is the vulnerability of services to the financial condition of a single company.

Recently, the GOJ transferred the Parish water schemes from the NWC back to the Parish Councils. These schemes were developed because of social needs and were not commercially viable. The GOJ must permit private companies to cross-subsidize or otherwise soften the negative financial impact of such schemes if private companies are to accept responsibility for providing services in all areas of the regions or nationwide.

The GOJ could allow companies to bid only on those regions (metropolitan Kingston, for example) with clear financial advantages. The NWC could then be assigned responsibility for providing services in the remaining areas. However, if such a procedure is adopted, NWC will have little opportunity to become financially self-sufficient.

5.4.4 Water vs. Wastewater

Another major strategic issue concerning privatization of Jamaica's water and wastewater services is the decision regarding separation of water services from wastewater services. There are advantages to keeping water and wastewater services together. They include economies of scale for operations and administration, efficiencies in planning and expanding these systems in a coordinated manner, potential long-term benefits associated with more effective programs of water conservation and possible reclamation and reuse, and the efficiencies of combined billing and collection of revenue.

The principal disadvantage is that existing coverage of wastewater collection and disposal is very limited compared to water services. In addition, wastewater services tend to be more difficult and expensive to provide and maintain. A forced requirement to provide wastewater services would be a significant problem in attracting private sector interest. As noted earlier, there is far less experience with privatization of wastewater services than water supply, even in developed countries.

This problem has no easy solution. Private sector firms assuming wastewater responsibilities will demand government assurances. Conversely, requiring the NWC to retain only wastewater responsibilities will greatly impede the strengthening of NWC.

5.4.5 Bulk Water Sales vs. Distribution to Customers

NWC currently is both a "retail" provider of water and wastewater services directly to customers, and a "wholesale" provider of treated water, and the disposal of collected wastewater. This suggests the possibility of limiting privatization to "wholesale" components, such as water source development and treatment, and/or wastewater treatment and disposal. NWC could then maintain its role as the "retail" provider, by retaining responsibility for local water distribution and wastewater collection systems, raising and collecting tariffs, and maintaining customer relations.

Limiting privatization to wholesale functions would allow the GOJ to move more rapidly toward privatization of these functions within NWC's existing legislative framework. There would be no need to institute a regulatory mechanism for establishing tariffs and service standards, since charges for services could be determined by bidding procedures and contract agreements.

A major disadvantage of this approach would be the absence of private sector investment capital and human resources in retail services. Also, NWC would not be able to transfer substantial risks to the private sector. The economies of scale for operations and administration

would be lost if wholesale and retail functions were separated. Finally, there is a general lack of experience with such a model.

5.5 Evaluation of Privatization Alternatives

5.5.1 Basis For Evaluation

Section 5.1.2 described several different types of privatization currently being practiced in other countries. In order to assist the GOJ and NWC in considering which of these types of privatization might be best suited for providing water and wastewater services in Jamaica, the team evaluated the perceived advantages, disadvantages, problems and concerns associated with each type of privatization.

5.5.2 Divestment of Assets

At the present time, both the policy of the NWC and the expressed views of its senior officers are opposed to any form of privatization which requires the transfer of assets. These policies would have to be changed to consider this "full privatization" option.

The precarious financial position of NWC was described in Chapter 3. The willingness of the private sector to acquire and commit substantial levels of capital to improve water and wastewater systems in Jamaica will depend on an assessment of the potential to recover capital, meet operating costs, and earn a return proportionate to the investment risk. Private companies undoubtedly would insist on very strong assurances from the GOJ.

Another concern is the relatively high cost of private capital compared to that which the government has obtained from international development institutions. Overall economic conditions in Jamaica will have a significant impact on the cost of capital.

Private sector experience and motivation in controlling costs should provide the potential for greater cost efficiencies. However, an effective governmental regulatory mechanism will be needed to enforce minimum service standards and regulate tariffs.

The implementation of wide-scale divestment of water and wastewater assets faces many obstacles. Some of the major obstacles include the following:

- Need for new legislation authorizing the transfer of NWC assets and creating an appropriate regulatory mechanism for the private provision of water and wastewater services to control quality and cost of those services;
- Problems associated with determining the extent of geographic and sector (water or wastewater) assignments to the private sector, and the magnitude of the problems which NWC will face if the privatization process leaves NWC with the less viable service areas;
- Need to address labor concerns and union contracts with NWC;

- Constraints imposed by the covenants of outstanding loans between GOJ\NWC and the World Bank and other lenders;
- Legal issues relative to private ownership of water rights; and
- Anticipated public resistance to the level of tariff increases probably needed to attain financial viability.

Resolution of these obstacles will present difficult choices for the GOJ and NWC. Further study of these issues is necessary before proceeding with full scale divestment.

5.5.3 Concessions

Project development through concessions offers NWC the potential to expand sources of capital for the design and construction of new projects (see Section 5.1.2). Under the build/own/transfer (BOT) approach, NWC would purchase water and/or wastewater services from the private owner of a project constructed specifically for NWC (e.g., wastewater treatment plant) during a set period of private ownership, say 20 years. At the end of the period, these assets would be transferred to NWC. Capital construction funds provided by the private party would be recovered during the period of private ownership. As with divestment, however, the cost of such private capital is likely to exceed NWC's ability to pay.

The potential cost efficiencies associated with project development contracting include areas of design, construction, operations, maintenance, and repairs for the particular project. The construction and performance risks of project design, construction, operation, and maintenance are assumed by the private sector during the private ownership period. BOT projects usually are for bulk water or wastewater facilities, leaving distribution the responsibility of the authority. However, BOT mechanisms can be used for retail or distribution enterprises. NWC appears to face fewer obstacles to implement project development contracting than with full divestment of assets. Most BOT-type concessions involve large capital investments, frequently over $25 million. NWC must demonstrate a sizable capital works program to attract investors.

5.5.4 Leasing of Assets

Under the leasing of assets method, the responsibility for making major capital improvements remains with the owner (NWC). The ability to increase capital formation by leasing NWC assets would be limited, given the overall condition of NWC facilities. NWC would be required to provide capital funds for major water and wastewater system expansion and improvements.

The potential for private sector cost efficiencies in leasing assets is substantial, but does not include project capital costs (design, construction, interest during construction). The lease arrangement between NWC and a private company could be designed to set the level of tariffs to cover the leasee's operations, maintenance, and repair costs, and the NWC's costs of capital investments. The capital cost recovery component of the tariffs would go to NWC to service

its debt. The lease arrangement could be structured to avoid the need for a new regulatory mechanism to control tariffs.

Leasing of NWC assets could provide an indirect contribution to NWC's institutional strengthening but the nature and scope of NWC operations would change considerably. If the assets of NWC were leased to a private company, NWC would no longer be directly involved in the day-to-day operations and maintenance of facilities or customer services. NWC would be responsible for monitoring the performance of the private company in these areas and would be directly responsible for the planning, design, financing, and construction of capital projects. Once completed, these projects would be leased to the private company with NWC retaining ownership and the private company providing operation, maintenance, repair, and customer services.

The level of risk assumed by the private sector under a lease arrangement is substantial, but is considerably less than with divestment. Risks in the areas of operations, maintenance, and customer relations generally would be assumed by the private sector, while risks related to project development and asset performance generally would remain with NWC.

Major obstacles confronting any wide-scale program to lease NWC's water and wastewater assets to the private sector would include:

- Need for new legislation to authorize the leasing of NWC assets to private companies;
- Need to address NWC labor concerns and union contracts;
- Constraints of outstanding loans; and
- Anticipated public resistance to tariff increases.

These obstacles are similar to those identified for wide-scale divestment.

5.5.5 Management Contracting

Management contracting by NWC would not involve the investment of private capital and therefore would not expand the sources of capital financing for water and wastewater system improvements in Jamaica. However, to the extent that significant improvements are made in NWC's delivery of water and wastewater services, the availability of loans to NWC, and perhaps the terms and conditions for such loans, capital financing potential might improve. This may be an important consideration given the current financial condition of NWC and the difficulties anticipated in arranging new loans from existing sources to implement necessary capital improvements.

Although not as great as with the divestment of assets method, there is potential for management contracts to realize cost efficiencies in the operation and maintenance of water or wastewater facilities or systems. The extent of such efficiencies would depend on the cost elements involved (i.e., the more that controllable items such as labor are involved, the greater

the potential), and upon the presence of cost saving incentive clauses in such contracts with private companies.

Whether or not management contracts will contribute to NWC's institutional strengthening would depend on implementation. If, for example, a single long-term contract for the overall management of NWC were executed, with no requirement for training of NWC personnel, the approach could be counter-productive to NWC institutional strengthening. Such an approach would essentially replace existing NWC management with a private company that would report to the NWC Board or directly to the GOJ.

However, if the management contract incorporated appropriately-designed programs for training NWC personnel, at all levels, this approach could contribute significantly to the long-term strengthening of NWC and would implement some short-term improvements in the performance of NWC. There would be an added cost associated with a comprehensive training component in the management contract and this cost would need to be evaluated in terms of the long-term benefits to NWC and the short-term concerns facing NWC.

A selective approach to management contracting, where specific facilities or systems (such as a major water treatment plant) are placed under contract to a private company, also could contribute significantly to institutional strengthening. This would require monitoring and control by NWC management and would not encourage training at upper levels of management. If appropriate training for NWC operations personnel is incorporated, however, selective management contracting can become a fundamental element of long-term institutional strengthening of NWC.

The level of risks transferred to the private sector under the management contracting method can be significant, but is limited in comparison to divestment, concessions, or leasing. Unlike divestment, where essentially all risks are assumed by the private sector, the risks transferred under a management contract generally relate only to performance factors within defined ranges on specific items. NWC could expect to retain most of the financial and related risks associated with the delivery of water and wastewater services in Jamaica.

Implementation difficulties associated with NWC management contracts are relatively minor. It appears that such contracts can be implemented under existing NWC legislation (subject to approval by the Ministry of Public Utilities and Transport); the covenants of outstanding loan agreements probably would not pose a serious obstacle. Existing labor union agreements would need to be modified to reflect the new role of the private company.

5.5.6 Service Contracting

Like management contracts, NWC service contracts with private companies would not provide new sources of capital for improvements to water and wastewater systems. If, however, NWC was able to use private service contracts to improve its financial performance, then capital financing from existing sources probably would be less difficult to obtain.

The potential for cost efficiencies would be limited to specific contracts and would depend on NWC's ability to closely monitor and control the provision of services. This approach could contribute to the strengthening of NWC as an institution by placing specific problematic functions (e.g., inaccuracies in meter reading) under contract allowing NWC to focus on broader issues.

Compared to the other privatization methods, service contracting involves the most limited transfer of risks by NWC to the private sector, and implementation of service contracts is relatively free of serious obstacles. Labor union agreements must be negotiated.

Chapter 6

CONCLUSIONS

6.1 Interrelationships Among Conclusions

Conclusions are presented for institutional assessment, decentralization, and privatization. As mentioned before, there is a strong interrelationship among these elements. Accordingly, summary conclusions are drawn at the end of this chapter which coordinate the conclusions for each independent element.

6.2 Conclusions from the Institutional Assessment

6.2.1 Organizational Autonomy

1. While the powers granted in the 1980 Act provide NWC, with significant autonomy to carry out its responsibilities effectively, in practice key powers such as compensation of employees and setting of tariffs are circumscribed by the central government.
2. The lack of clear definition about how powers are to be exercised by the Minister, the Board, and the Managing Director leads to unnecessary conflicts and limits the authority of the Managing Director to carry out assigned responsibilities.
3. The inability of the NWC to set pay scales at levels sufficient to attract and retain competent staff and to charge and collect adequate revenues for the services are major barriers to the ability of the NWC to perform effectively.

6.2.2 Conclusions on Leadership

1. NWC has strong leaders in the top positions of Chairman of the Board and Managing Director, but the lack of a clear delineation of their respective roles confuses NWC staff.
2. A combination of the following conditions dilutes the ability of NWC to exert leadership:
   - Resentments against contract employees who have better pay and benefit packages than regular employees;
   - Rivalries dating back to the merger of NWA and KWC into NWC; and
   - Short tenure of many recently appointed senior managers.

6.2.3 Conclusions on Management and Administration

Management and administrative systems supporting management are closely linked. The following principal conclusions were drawn from the assessments in these areas.

- *Conclusions on Management*

  1. NWC has established good management practices setting forth goals and objectives, and in preparing detailed annual operating plans.
  2. NWC faces external impediments to achieving broad success in effective management. These impediments include:
     - Inadequate revenues, which prevent pursuit of management objectives;
     - Restraints on staff compensation, which limits the ability of NWC to hire and retain good managers;
     - Absence of inter-divisional cooperation, partly based on old rivalries; and
     - Finally, and perhaps most importantly, the absence of an effective management information system.
  3. NWC could improve its present management capabilities, even in the face of the these impediments, through more effective allocation of tasks.

- *Conclusions on Administrative Systems*

  1. Overall, management administrative systems are generally poor and inadequately documented.
  2. Budgeting systems have improved, and the recent "zero-based" budgeting system employed in the development of the 1991/92 annual operation plan was a very significant improvement over past practices.
  3. Commercial systems generally are in need of improvement. An example is the need for better control over the entire range of metering, including procurement, installation, reading, billing, calibration, and repairs.
  4. Accounting and financial recordkeeping, cash management, procurement, and stores systems are all poor and in need of extensive improvement.
  5. Management information systems are so poor that managers have no data on how their areas of responsibility are performing against budget. NWC is well aware of this deficiency and is moving to install a system as soon as funds become available.

6.2.4 Conclusions on Commercial Orientation

1. In general, NWC does not have a very strong commercial orientation. Many employees believe that the government, through the NWC, should spend whatever is required to provide water, without regard to customers' willingness to pay for it.
2. NWC currently does not earn sufficient revenue to pay for O&M costs. Repayment of existing loans will greatly increase the financial demands on the NWC in the near Future. Current losses do not even reflect adequate allowance for the costs of maintenance currently being deferred.
3. The absence of reliable, current financial information does not allow managers to monitor cost center expenditures against allocated budgets. Managers cannot control what they are unable to monitor.

6.2.5 Conclusions on Consumer Orientation

1. Improvement in consumer orientation is a high priority in the current annual plan. NWC has a long way to go in implementing the changes in attitude and actions that will be needed to achieve this goal.
2. The existing mechanisms to address customer complaints are overworked, understaffed, and not very effective. Customer service personnel are among the youngest, least experienced and lowest paid NWC staff. They are overworked, have low morale, and do not give NWC's customers the type of treatment that reflects the customers' importance to NWC.
3. NWC has improved its public relations program, but it will take more than that to improve NWC's public image.

6.2.6 Conclusions on Technical Capability

1. Long term planning for capital development projects has improved. However, there is inadequate linkage of construction costs with capacity for generating revenues.
2. Maintenance is the major technical deficiency. The NWC has not identified lack of maintenance funds as a crisis. Funding shortfalls have been cited as the reason why adequate maintenance has not performed for such a long period. However, NWC staff may not have the skills to do the job properly once funds become available.
3. Inspection results appear to indicate that NWC has limited capacity to properly operate wastewater treatment plants.
4. Watershed management, which NWC does not entirely control, is poor and negatively affects water quality.

6.2.7 Conclusions on Developing and Maintaining Staff

1. NWC's Human Resources Division is moving toward the establishment and implementation of programs for the identification of needs, an evaluation of skills and performance levels of existing staff, and the development of training programs to meet those needs. This effort was a major goal of the current annual plan.
2. The best possible training programs will have no lasting benefit, however, unless NWC can pay competitive wages and benefits, improve the climate for cooperation, and raise morale by enhancing NWC's overall image as a good organization.
3. Given the range of institutional changes necessary to be required to achieve greater effectiveness, it is probable that significant external technical assistance will be needed to assist NWC toward that goal.

6.2.8 Conclusions on Organizational Culture

1. Despite positive steps such as the team effort at preparing this year's annual operating plan and the recent team-building workshops, the overall organizational culture is not strong.
2. The poor financial condition of NWC, the poor public image, internal jealousies related to old associations, and disparate pay schedules all need to be addressed before a positive organizational culture can be developed.

6.2.9 Conclusions on Interactions with External Organizations

1. Many institutions have policies, attitudes, powers, and opinions that can and often do have a significant effect on NWC's ability to perform its responsibilities. These range from the political (the Ministry, politicians at all levels) down through regulatory bodies and financial institutions, and include consumer groups and the media.
2. NWC has no program for routinely communicating with these external institutions that have the ability to influence or affect what NWC does or may want to do.
3. The newly revamped public relations group has made a start on periodic media contacts. To be truly effective, however, most of these contacts must be made by the MD and the Chairman.

6.3 Conclusions on Decentralization

1. Decentralization is a proven means of placing accountability and responsibility close to where the services are being provided.
2. Decentralization will be unsuccessful without fundamental improvements to overcome current, serious institutional problems. Until there is some reasonable improvement in

NWC's basic institutional capacity, it is unlikely that deficiencies can be resolved in the regions. Delegating responsibility to lower levels without a corresponding strengthening program will not improve service delivery.

3. The decision on whether decentralization and its scope must be made in conjunction with decisions relating to the possible privatization of water and wastewater services in Jamaica.

4. On balance, the NWC probably should move cautiously toward decentralization. The risks may exceed the potential benefits if decentralization is implemented without first making basic institutional improvements.

6.4 Conclusions on Privatization

Based upon a review of current privatization efforts in Jamaica, experiences in countries outside Jamaica, and examination of privatization options for the delivery of water and wastewater services, the principal conclusions of the privatization analysis are:

1. Current policy of the GOJ encourages privatization of water and wastewater services in Jamaica. The government's experience with privatization of its government-owned enterprises provides a generally favorable environment for privatization. Experience with the privatization of essential public services such as electric power and water supply is very limited, however.

2. Privatization offers a significant potential for benefits in many areas, including:

   - Improved efficiencies in management, operations, maintenance, and finance;
   - New sources of capital; and
   - Increased commercial orientation.

3. The conclusions reached relative to the various types of privatization which could be utilized include:

   - *Divestment of assets* appears to offer GOJ and NWC the greatest potential for benefits, including new capital financing sources, cost efficiencies, and risk transfer, for all aspects of water and wastewater services, but this method presents the greatest obstacles to implementation.
   - *Concessions* offer a means to utilize private sources of capital for water and wastewater system improvements and to transfer project construction and performance risks to the private sector. Basic responsibilities for the distribution of water would remain with NWC.
   - *Leasing of assets* provides possibilities in increased efficiencies, but does not expand capital financing sources for large improvements to water and wastewater systems, nor does it transfer the same level of risks to the private sector.

- *Management contracting* offers a potential to assist in NWC institutional strengthening, but does not add new sources of capital financing. Management contracting involves relatively limited transfer of risk to the private sector.
- *Service contracting* offers limited privatization benefits to NWC.

4. The extent to which privatization of the water and wastewater services sector will benefit Jamaica depends on several factors, including:
   - The extent (degree of asset transfer, geographical coverage, water only or both water and wastewater) to which the services are privatized;
   - The quality of the planning and implementation of the overall privatization program;
   - The management and monitoring of specific privatization arrangements; and
   - The response of the private sector, both in Jamaica and overseas, to the privatization opportunities.

6.5 Summary of Conclusions

The overall conclusions, taking into account the interrelationships described above, are as follows:

1. The low population densities and relatively poor economies of many parts of rural Jamaica make it doubtful that the provision of water services to these areas (or wastewater services) would be attractive to private sector interests.
2. Wastewater services are invariably more difficult and expensive to provide, operate, and maintain. This is why there is so little experience with the privatization of wastewater services. It is logical assume that the private sector will have little interest in this part of NWC's responsibilities.
3. Provision of water services in urban areas of Jamaica probably would be of interest to the private sector. However, revenue loss from these areas, coupled with NWC's continued responsibilities for wastewater in all areas, and provision of water service in marginal areas, make it highly unlikely that NWC could improve its capabilities under such conditions.
4. Should the private sector be willing to accept full responsibility for providing water and wastewater services throughout the whole country, it will take from three to five years to implement such a program.
5. NWC should be strengthened institutionally, regardless of any decisions or actions taken relative to privatization, and such strengthening should proceed immediately.

6. Various alternatives for decentralization should be considered as part of any program to strengthen NWC as an institution.

7. Other than divestment of assets, the remaining methods of contract privatization described in this report should be given full consideration. The extent to which these methods are approved by the GOJ and implemented will determine where and how NWC should be strengthened.

8. There must be an expression of a national will to undertake the improvements required to strengthen NWC.

Chapter 7

RECOMMENDATIONS

7.1 Objectives

The principal objectives of these recommendations are:

1. To facilitate the national will of Jamaica in supporting fundamental changes in how water and wastewater services are provided.
2. To assist the government in making a timely decision on the extent to which privatization is to be pursued, including whether to seek full privatization in the form of transfer of capital assets, to require privatization of wastewater as well as water, and to require that such services be provided throughout the entire country.

Any decision short of pursuing full privatization should lead to the following objectives:

3. To provide the NWC with effective control over its operating functions, including control over its personnel and revenue, by enacting appropriate legislation and allocation powers to NWC by the Ministry and the Board.
4. To make institutional improvements within the NWC to improve service delivery and to develop financial self-sufficiency. Such improvements should recognize decentralization as a means of strengthening NWC's performance and accountability.

7.2 Recommended Initiatives at the National Level

7.2.1 Needs

1. A decision is needed on the role for privatization of sector services.
2. Based on that decision, another decision must be made on the future role for NWC in the provision of sector services.
3. A national policy must be adopted on the provision of sector services.
4. Actions to strengthen NWC's institutional capability must be implemented, including utilization of contract privatization and decentralization.

7.2.2 Recommendations

1. Appoint a committee of interested parties (NWC, PIOJ, MPUT) to evaluate privatization alternatives and the findings and recommendations of this report. The committee should present its recommendations to the GOJ on the extent to which sector services should be privatized.

2. This report recommends against the full privatization of all water and wastewater services in Jamaica. The remaining recommendations are based on the assumption that the GOJ will agree with this recommendation. If the GOJ decides to pursue full privatization, the government should engage specialists to assist in the evaluation of NWC's capital assets and the preparation of documents to solicit tenders from interested parties.

3. Bring to the attention of the Office of the Prime Minister the critical importance of the involvement of that Office in ensuring the implementation of the recommendations of this report.

4. Issue a national policy for water and wastewater in Jamaica which establishes the GOJ's commitment to the success of this sector. See Appendix F, Draft National Policy for Water and Wastewater.

5. Assign to NWC responsibility for the provision of water and wastewater services to the entire population of Jamaica, and provide NWC with the resources needed. This responsibility will be exclusive of the assignment to private sector enterprises, by NWC or the GOJ, of specific water and/or wastewater services.

6. Review existing legislation and regulations controlling the operations of the NWC, consider amendments or substitution legislation as appropriate, and take steps required to ensure that NWC has effective control over its employees, including their compensation, and over the revenues NWC needs to become financially viable on a sustainable basis.

7. Establish a regulatory agency such as a national "public utilities commission" to regulate the tariffs to be charged by NWC, or any other public or private enterprise, for the provision of water and wastewater services. The regulations to be enforced by this commission should permit the full recovery of actual costs, capital as well as operating, from customers receiving these services.

8. Prepare written descriptions of the relative powers, duties, and responsibilities of each of the following in the provision of water and wastewater services:

   (a) The GOJ and its relevant ministries;

   (b) The Minister of the MPUT;

   (c) The Chairman and The Board of Directors of NWC; and

   (d) The Managing Director of the NWC.

   See Appendix G for a typical allocation of such responsibilities.

9. Enhance the power and authority of the Managing Director by making the incumbent a member of the NWC Board of Directors.

7.3 Recommendations on the Role for Privatization

7.3.1 Needs

1. To evaluate all privatization options and determine which will best serve the interests of the GOJ.

2. To ensure that the potential benefits of privatization are realized to the maximum extent compatible with other interests.

7.3.2 Recommendations

1. Designate a lead agency, such as the National Investment Bank of Jamaica (NIBJ), to evaluate the findings and recommendations of this report on privatization alternatives. That agency should then evaluate the potential interest, locally and internationally, of private sector companies in privatization alternatives for the provision of water and/or wastewater services in Jamaica. The lead agency can develop recommendations for an islandwide strategy for privatization of water and wastewater services and present a report on its findings and recommendations to the Privatization Committee.

2. Appoint a Privatization Committee of interested parties such as NWC, NIBJ, MOPU and others, as appropriate, to evaluate the report of the lead agency and present its recommendation to the GOJ on the extent to which sector services should be privatized. This committee should utilize specialist services to assist in deliberations.

3. The GOJ should host a privatization conference to investigate and foster private sector interest. Members of the private sector and governmental agencies from abroad should be invited to present papers and participate on panel discussions to describe privatization experiences involving water and wastewater services. This would take place in Jamaica and could be organized as a two- to three-day conference. In addition to providing an information forum on privatization outside Jamaica, it would present an opportunity for the GOJ to publicize its interest and objectives in this area.

4. Following the detailed privatization study and the conference, the GOJ should set its overall direction and develop a privatization strategy for the delivery of water and wastewater services.

5. Consistent with the development of a privatization strategy, the NWC Board should develop and adopt, with the approval of the Minister, detailed procedures to guide NWC management in the implementation of private contracting in the following priority areas:

   (a) Metering functions (procurement, installation, maintenance, calibration, replacement, and reading);

   (b) Collection of overdue accounts;

(c) New service connections; and

(d) Printing.

7.4 Recommendations on NWC Institutional Strengthening

7.4.1 Recommendations on Organization Changes

1. Recognize the long-term effects of the privatization recommendations in evaluating recommendations on organization changes.

2. Investigate the possible advantages of decentralization, but defer actions on possible decentralization of NWC functions until the NWC has adequate control over the functions of planning, operations and maintenance, commercial operations, and information systems. Once these improvements are made, reconsider various alternatives for decentralizing NWC's operations.

3. Recognize the importance of commercial operations relative to administration functions and:

   (a) Establish a new position of Deputy Managing Director for Commercial Operations (DMD/CO), and

   (b) Delete the position of Deputy Managing Director for Administration and reassign the two divisions now under that position, Administration and Legal, to the Deputy Managing Director for Finance.

4. Place all metering functions under the DMD/CO. These include specifications and procurement, installation and removal, reading and recording, and calibration and repair.

5. Appoint a new position of Director of Metering to be in charge of all metering functions, and hold that person fully accountable for the reliability of the meters and the accuracy and timeliness of the meter readings.

6. Move the "Stores" Division (Materials, Management and Transport) from the position of the DMD/F&A to the position of Deputy Managing Director for Engineering and Operations, since divisions under the latter position have the greatest need for materials and transport.

7. Delete the position of Director of Water Quality Division and place responsibility for water (and wastewater) quality with the Operations Division.

8. Create a new "office" at the DMD level called the Office of the Managing Director. This should be an assembly of departments which do not appropriately fall under the three DMD positions, and which provide special support to the Managing Director. The MD will be the head of this office which would include the following:

(a) Director, Internal Audit;

(b) Director, Corporate Planning;

(c) Director, Information Systems; and

(d) Manager, Public Relations.

9. Consider closer links between the operations and maintenance divisions, including the possibility of joining the two functions again.

10. Establish a new "Environmental Department" in the Division of Engineering and Planning, and institute requirements for conducting environmental impact analyses of all proposed NWC projects. Assign this department responsibility for monitoring activities on all NWC watersheds and for making recommendations for improved management of these watersheds.

11. See Appendix H for the present NWC table of organization and Appendix I for the proposed table of organization described above.

7.4.2 Other Recommendations

1. *Maintenance Improvement.* The improvement of all phases of maintenance and rehabilitation of existing facilities that have deteriorated as a result of inadequate maintenance should be a priority. Steps in this improvement program should include:

   (a) Inventory existing needs for remedial actions or rehabilitation, in order of priority, with listing of facilities and cost estimates;

   (b) Identify needs to resume a full program of preventive maintenance and restock spare parts, vehicles, and equipment needed for this program, with cost estimates; and

   (c) Estimate strengthening of security forces required to bring vandalism under control.

   Recognizing that the costs to implement this maintenance and rehabilitation program are beyond current and likely near-future budgets, place a moratorium on all but the most urgent capital development programs for the next several years and divert those funds to the maintenance program.

   It makes little sense for the NWC to be installing new works when it is unable to maintain existing facilities. The value of facilities that can be recovered through sound maintenance and rehabilitation greatly exceeds the funds required to keep them operating effectively.

2. *Reduction of Water Losses.* The reduction of water losses and waste should be a high priority. NWC can account for only 30 percent of water produced. Major elements of this reduction program should include:

   - Installation of accurate meters on all water production sources;
   - Upgrading of customers' meters so that reliable consumption data can be obtained;
   - Repair of all visible leaks, in the streets and on the customers' premises;
   - Initiation of a pilot program to determine the extent of leakage on the customer's side of the meter;
   - Making customers responsible for the repair of leaks and the control of wastage within their premises. This can be done only if meter readings are accurate. Customers could be given a one-month grace period to make the necessary repairs;
   - Study economic tradeoffs between the NWC assuming the cost of plumbing repairs (on a one-time only basis) against the savings through reduced operating costs and/or deferred capital investments for developing new sources;
   - Develop and implement a regular program for water main leak detection and repair;
   - Aggressively seek out and eliminate illegal connections to the system;
   - Control waste from public standpipes by requiring payment for *all* waters delivered by the NWC;
   - Develop a special program to ensure that all water delivered to public buildings is accurately metered and billed, whether or not payment can reasonably be expected at this time; and
   - Implement a program of billing realistic amounts for water delivered, and aggressively collecting the amounts due. Such a program provides significant incentive for customers to eliminate waste on their side of the meter.

3. *Implement a Management Information System.* The lack of reliable and current information on NWC's operations is a serious problem. NWC hopes to acquire a system, which initially will cover only the billing function. At present NWC lacks the funds to purchase even this part of an MIS. Implementation of an MIS should be a high priority. The following steps should be taken to implement this program:

   - Consolidate all the information developed to date by the NWC internal MIS committee, with the detailed proposals from the contractor;
   - Prepare a report identifying the information needs and proposed systems to be incorporated into the MIS; and

- Discuss with funding agencies their potential interest in funding the proposed MIS, and their needs to verify the data supporting the proposed system or requirements for further review or modifications to the proposed system to be acquired.

4. *Management Accountability*. Prepare clear, comprehensive, written descriptions of the specific responsibilities of each significant NWC department, from DMD groups through Director divisions, down to Manager levels, or even below that, if warranted. These "Assignments of Accountability" should include the extent of the support each department can expect in regard to information, resources, and cooperation from other departments.

5. *Commercial Strengthening*. Commercial operations should be strengthened in a variety of ways. Recommendations for such strengthening include:

   - Adoption and implementation of a new progressive tariff structure for water and wastewater services as proposed in the tariff study (Roth et al.);

   - Expansion of coverage for payment of water and wastewater services to those now receiving such services at no cost. This could include:

     - Charging for services in the Parish Council "minor water schemes;"

     - Instituting charges for water received through public standpipes or trucked water supplies. Consideration should be given to "privatizing" such supplies. Sale to the consumers could be regulated by the newly established PUC.

   - Undertake, with the assistance of the HRD Division, training programs to educate NWC employees that NWC is a commercial entity, and that competitive employee compensation is linked to the organization's success.

   - Develop and/or improve the full range of systems and procedures necessary for the Commercial Operations group to perform its responsibilities and to generate the information needed by all levels of management.

   - Reorganize the entire metering function to ensure that the following functions are performed either by the Commercial Operations division or assigned to a private sector contractor:

     - Meters should be specified and procured to ensure that they are economical, accurate, easy to repair, and durable.

     - Meters should be installed in locations where they are easy to read, protected from casual damage, and appropriate to the site. Dwellings with a single tap probably should be on a flat rate without a meter. Meters should be sized to match consumption rates.

     - Meters should be removed and recalibrated every six years for domestic customers, and once a year for commercial customers.

- Meters should be removed and replaced whenever they cease to function.
- Meters should be read monthly by trained meter readers with assigned quotas for numbers of meters to be read per day. Meter readings should be checked independently and randomly to ensure accuracy.
- Meter readings should be promptly and accurately entered into the billing accounting system (with periodic checking for verification)
- An adequate supply of spare meters and meter parts should always be available.
- Facilities should be available for calibration of new meters before installation and after repairs.

- Improve means of responding to customer complaints in general, especially complaints on billings. Faster and better systems for adjudicating complaints need to be devised and implemented. Expand and improve on the telephone lines and office locations where complaints can be lodged. Coordinate with the HRD Division in developing training programs for those employees dealing directly with the public to improve this important function.

6. *Other Matters*. The following additional recommendations are suggested:

- The Managing Director, and, as appropriate, the Chairman of the Board, should meet regularly with the leaders of key institutions which are in a position to influence the environment in which NWC operates. Such routine contacts could greatly enhance NWC's position for delivery of services.
- In evaluating sources of technical assistance for the implementation of institutional strengthening, give serious consideration to private water companies, such as those in the United States or United Kingdom. Such companies generally should be similar in size and condition to those of NWC.
- Institute a program of management training within NWC. This program should include a needs assessment of management capabilities. To the extent possible, identify institutions in Jamaica capable of tailoring programs directed at NWC's specific needs.
- Consider the possibility of sending key NWC officials to visit developing countries where water and wastewater organizations are well run. Specific utilities to be considered should include the Penang Water Authority in Malaysia, the National Water Supply and Drainage Board of Sri Lanka, and SANEPAR, the state water company in Paraná, Brazil.
- Greatly strengthen the Corporate Planning Division and select a director. This position could be an executive assistant to the MD. In addition to leading planning

matters related to NWC's internal activities, the incumbent can serve as NWC's project manager for the implementation of an institutional strengthening project.

- Initiate regular, periodic meetings with the representatives of international and bilateral funding agencies in Jamaica to discuss this study and to identify possible financial participation in the implementation of the recommendations.

Chapter 8

PROPOSED IMPLEMENTATION PROGRAM

8.1 Commitments Required from GOJ and NWC

Commitment of the GOJ. Implementation of these recommendations will depend on several factors. The most important of these is whether the government is prepared to make the commitment to sector reform. The GOJ must decide between offering water as a subsidized social service or requiring customers to pay the full costs of the services they receive. The GOJ must also be prepared to accept the risks of allowing NWC to pay competitive wages to its employees.

Commitment of the NWC. External technical assistance will be required to implement many of these recommendations. Experience in Jamaica and other countries indicates that such assistance will be useful and lasting only if the entire strengthening program has the full commitment of the target organization, including its Board of Directors and senior management staff.

8.2 Lessons from Failures and Successes

Reasons for Failure. There are a number of reasons for failure of institutional strengthening projects in developing countries. A lack of central government willingness to grant the fundamental autonomy required to allow the strengthening improvements to take root and flourish can be a factor, as can lack of commitment on the part of the target organization to cooperate fully in the program. Opposition from various quarters with vested interests in opposing change can undermine success, as well as inadequate planning and low quality technical assistance.

The example of the National Water Supply and Drainage Board (NWSDB) of Sri Lanka may be particularly instructive. This organization provides water and wastewater services to 3.4 million people through 200 schemes. In 1984, NWSDB had problems which were more serious than those of NWC. An intensive five-year program of technical assistance has transformed the organization into an effective supplier of services. See Appendix J for a brief summary of the improvements made in Sri Lanka during this program.

8.3 Role for Development Institutions

Role for Development Institutions. Most of the major international agencies have indicated strong preliminary interest in assisting NWC's institutional strengthening. The NWC should discuss with these donors how best to provide the recommended technical assistance.

8.4 Implementation Program

Implementation Program. The following implementation program is proposed:

1. *Action:* Initiate high-level discussions within the GOJ to determine the extent to which the government is prepared to commit itself to sector reform, and what direction that reform should take.

   Comment: The Office of the Prime Minister should sponsor these discussions. Parties to the discussions should include representatives from OPM, MPUT, NIBJ, the NWC Board, and the NWC Managing Director, as members of a GOJ-appointed "Water and Wastewater Sector Policy Committee." The NWC Board should lead these talks, inviting comments from other GOJ bodies, the international agencies, or other parties as appropriate.

2. *Action:* NIBJ to evaluate the WASH findings and recommendations on privatization and present the results of that evaluation to the sector Policy Committee.

   Comment: The GOJ should request NIBJ to make this evaluation which would be used to assist the Committee in its deliberations.

3. *Action:* GOJ to reach basic agreement on a policy for the provision of water and wastewater services in Jamaica as a guide to necessary actions for privatization and/or NWC institutional strengthening.

   Comment: Ideally, this agreement would be formulated in a national policy statement similar to that in Appendix F. The policy would provide guidance and direction for all parties in making future changes in the sector.

4. *Action:* Hold a workshop in Kingston to discuss the recommendations of the WASH report, the NIBJ privatization evaluation, the Morgan decentralization study, other appropriate studies, and the newly adopted GOJ sector policy statement.

   Comment: The purpose of the Kingston workshop would be to decide on priorities to pursue, to assign responsibilities, and to agree on follow-up actions required. Consider using trained facilitators to run the workshop. The principal outcome of this workshop would be a detailed implementation plan reflecting the governments' sector policy.

Other Implementation Activities. Given the wide range of future policy options open to the government for the water and wastewater sector, it does not seem appropriate to present a detailed implementation program in this report. Such a program should be developed only after the policy decisions have been made. Whatever decisions are made in regard to privatization and decentralization, however, it seems reasonable to assume that there will be a role for NWC. If so, NWC will need to be strengthened. To assist in a strengthening program, consideration should be given to the following:

- With donor assistance, send a small group of NWC representatives on a reconnaissance tour of the NWSDB in Sri Lanka, and the Penang Water Authority in

Malaysia. This group might include the Board Chairman, the Managing Director, and a third NWC officer selected by the MD as someone with the interest and potential to play the lead role as NWC's manager of the institutional strengthening efforts.

- With donor assistance, engage appropriate technical assistance to work with the NWC. This assistance could be provided by a water/wastewater agency which is in position to provide the services on a contract basis, or by a consultant team which includes experienced utility managers.
- With donor assistance, engage the services of a "Monitor Team" which could consist of the same small group of specialists who conducted the initial workshop. The purpose of this type of team, which was used effectively in Sri Lanka, is to work with the NWC managers and the technical advisors from the outset to assist in establishing an initial work plan. The team will reconvene about twice a year to monitor progress and assist in developing a detailed work plan for the next period.

Appendix A

STATEMENT OF WORK

Management Analysis

National Water Commission

Background

The Jamaica Shelter and Urban Services Program (HG-013) is currently carrying out a series of projects and policy measures with the NWC designed to enhance water availability to low income settlements. These projects include minor water supply schemes, water and sewer hook-up programs, leak detection and repair activities, and off-site infrastructure for lower income serviced site projects. The Sectoral Program will also conduct a series of policy initiatives designed to facilitate the delivery of essential infrastructure for lower income households in Jamaica. The purpose of this study is to initiate these efforts in the areas of overall financial and organizational management, privatization of certain functions, and technological improvements.

The National Water Commission (NWC) is the parastatal agency charged by the Government of Jamaica with the provision of water and sanitary sewer services throughout the island. The NWC has been plagued for some time by a set of serious problems that have severely limited its ability to efficiently deliver these services in general, and specifically to low-income Jamaicans. This lack of access to basic water and sanitation facilities has significant direct impacts on the health and economic well-being of the populace. In addition, infrastructure bottlenecks also prevent the production of adequate housing in both the formal and informal sectors.

Analyses of the NWC's operation in 1983, 1986, and 1989 have identified a wide range of constraints inhibiting the agency from operating effectively. The leading causes of sub-optimal operation were found in NWC's 1)organizational and institutional structure, 2)management scheme, and 3)financial and revenue structure. Specific examples include the creation in 1983 of a separate organization for the design and management of capital projects, a lack of qualified staff at managerial and technical levels, and a lack of control at the NWC over the yearly allocation of funds for capital works. These and other systematic problems create conflicts between NWC and other governmental agencies, and dissipate critical staff and financial resources.

Effective operation of NWC and the service levels this implies are central to the sucessful outcome of low income housing programs initiated by RHUDO to meet the shelter needs of the poor.

Article I - Title

Jamaica Shelter & Urban Services Project Number 532-0149

Article II - Objective

A comprehensive Management Analysis will assess the organizational and institutional setting of NWC and suggest ways to organize the utility so as to improve its operation and planning. This analysis will be conducted as an update of previous reports prepared in 1983 and 1986, and will determine the operating entity or entities best suited for effectively delivering basic water and sanitary sewer services. It will investigate the appropriate level of control to be exercised over the disparate parts of the organization: water supply, treatment plants, distribution, revenue collection, and the like. Thus, the extent to which functions should be centralized, decentralized, or divested will be determined.

The analysis will review present and future demand for services, and note the level of capital resources necessary to meet projected demand. Capital projects both planned and underway will be examined, including the proposed USAID/Japanese cofinancing project.

The analysis will also assess the organization as a whole and specific functions from a financial basis, in order to determine whether they could and should be privatized. The outcome of the effort will be an Action Plan of activities that could be used to allow the NWC to work more effectively, and to deliver infrastructure to lower income households.

Article III - Statement of Work

The contractor shall perform the following specific tasks, in close collaboration with technical and managerial staff at the National Water Commission:

Task 1: The contractor shall prepare an overall Management Analysis of the NWC, using the 1986 Management Report as a base document and building upon it. The report should identify the critical policy, management, and operational issues relating to the overall functioning of the National Water Commission. The contractor shall detail in the report the most significant and obtainable management and organizational actions that will assist in helping the NWC to improve access to essential infrastructure to lower income families in Jamaica.

The contractor will examine all aspects and operating entities of the National Water Commission in order to identify opportunities for divestment and privatization of selected functions.

The contractor shall address the following specific themes in carrying out Task 1:

A. Examine and assess the operations of key operating divisions of the NWC. This examination should begin with the current operating structure, and the structure described in the 1986 Management Report prepared by Camp, Dresser, and McKee, and focus on changes and revisions to the operating structure and proceedures subsequent to this study. In particular, the consultant should examine the engineering, operations and maintenance, commercial operations and finance functions of the NWC.

B. The contractor will address the following key issues relating to the NWC: What is the most appropriate structure for the organization to meet its stated goal of providing water and sanitation services in the country? How will the NWC address continued demand for services, and capital investments necessary to meet with this demand? Are there structures that can reduce conflict and unclear responsibilities between the NWC and other agencies and GOJ institutions involved in the sector? What is the best system to plan and implement major projects? Which functions at which levels of the NWC are working best and why? Are there structures that can reduce or eliminate the tension between the utility's social welfare function on the one hand and its goal of economic self-sufficiency on the other?

C. The contractor will examine the following environmental themes: Is the organization equipped with adequate technical resources to address critical issues relating to water delivery and the impact of expanding sewerage systems on coastal areas? What is the best method to allocate responsibility for environmental issues within the NWC and other GOJ organizations with responsibility in this area?

D. The contractor will examine the NWC in order to identify opportunities for divestment and privatization. Specific issues in privatization to be studied will include an examination of functions that should be decentralized and given over to parish or community operation, and those that could be sold to private interests. The contractor will examine current licensing arrangements and evaluate the potential of

this for large scale use by the NWC. This work is intended to identify those aspects of the NWC that lend themselves to privatization and suggest follow-up analyses to make a new definitive determination.

E. The contractor will examine the social and health benefit of the Program on lower income families, in order to quantify the impacts improved access to water and sanitation will have on these families.

F. The contractor will also examine other key management and organizational issues as they are identified by RHUDO, the NWC, or the Contractor during the consultancy.

Task 2: From the analyses undertaken in Task 1, the contractor will develop practical recommendations for both the short and long term designed to achieve improvements in the overall operational efficiency and sustainability of the NWC to meet both present and future needs for service. The analysis will also contain an Implementation Plan to assist in transforming the NWC, and a Training Plan to support the overall effort.

The contractor shall address the following specific themes in carrying out Task 2:

A. From the detailed analysis of the present structure of the NWC, the environment it exists in, and the stated need to transform and change the institution to meet increased and diverse demands being placed upon it, the consultant will prepare a comprehensive list of recommendations to change the NWC, to meet these needs in an efficient and effective manner. This should also contain the results of the privatization analysis as described in Task 1 above. The analysis should estimate the impact of the proposed changes, and the costs necessary to implement the action.

B. The contractor will also develop an Implementation Plan in collaboration with the NWC staff and possibly the Board to put in place the recommendations as proposed in section A. The Implementation Plan should identify a clear series of steps to initiate the transformations and program intitiatives as developed, and rank the interventions by their potential impact on overall

operational efficiency of the institution. The contractor will also prepare an estimate of technical assistance needed to implement the organizational changes, which will include financial and technical resources needed and an estimated time frame for implementation.

C. In conjunction with the Implementation Plan, the contractor shall prepare an overall Management Training Plan for the NWC. This plan will contain a summary of overall short and long term training needs of the organization, both for overall staff development and to implement changes and transformations as proposed in the Implementation Plan. The Training Plan will contain separate components on: 1) Short term technical assistance from US public and private water utilities that have specialized experience in privatization, leak detection, collection systems and other areas; 2) A Twinning arrangement with a water utility in Florida or another US location that will serve as a permanent source of expertise for site visits, information exchange, and short term technical assistance to the NWC; and 3) A formal training analysis that will target key personnel and operating units of the NWC, identify appropriate workshops and courses, and prioritize the training opportunities. Estimates of costs for all components should be included.

Article IV Reports and Deliverables

The contractor shall submit preliminary reports for the work as proposed under Tasks one and two within (4) weeks of the completion of field work in Jamaica. The contractor will then submit a final report within ten (10) days of the receipt of comments from RHUDO and the National Water Commission. And the off-shore consultants will return to Jamaica and, with the Jamaican consultant, present to the NWC Board and other GOJ agencies as necessary the final issues, conclusions and recommendations.

Article V Relationships and Responsibilities

The contractor will work under the direction of the RHUDO/Carribbean office in cooperation with USAID/Jamaica.

Article VI Performance Period

The contractor shall begin work within thirty (30) days of the execution of the contract documents. A draft report containing the analyses described will be submitted to RHUDO within ten (10) days of the end of field work, with a final report to be submitted within ten (10) days of the receipt of comments, if any, on the draft report.

Article VII Work Days Ordered

The services of a senior water engineer/team leader, a water/sanitation engineer and a financial/privatization specialist are required for this assignment.

A. Senior Water Engineer/Team Leader

The services of a Senior Water Engineer/Team Leader, with extensive experience in institutional assessments is requested. The consultant have previous experience in consultanting to water authorities in developing countries, and in institutional development.

B. Senior Engineer/Institutional Specialist

The services of Senior Engineer/Institutional Specialist with experience in consulting to water and sanitation authorities in developing countries is requested. This individual will be an AID direct hire employee to be provided by AID/W and therefore is not included under this PIO/T.

C. Financial/Privatization Specialist

The services of a Financial/Privatization Specialist with experience in the the financial analysis and management evaluations of water and sanitation institutions and project activities and privatization issues is requested. It is expected that this specialist will be secured locally under a sub-contract to provide orientation on local financial/privatization practices.

Position	Work Days
Senior Engineer/Team Leader	33
Financial Analyst	26 (local sub-contract)

(0092N, pp. 84-89)

National Water Commission
Management Analysis Study Scope of Work
Amendment No. 1

Privatization Analysis

BACKGROUND

The Privatization Analysis is to be part of the Management Analysis study. This is an additive amendment to the initial Scope of Work and is intended to increase the level of effort by adding one additional person (a privatization specialist) to the original team.

The Government of Jamaica's (GOJ) objectives with regard to privatization are:

1. To improve the general efficiency of the economy
2. To democratize ownership
3. To optimize the use of government human resources
4. To realise financial resources to better achieve the social agenda

In general terms, GOJ privatization efforts have been a two step process: assets are first evaluated and a determination made regarding the modality of divestment; and secondly, investment applications are solicited, negotiations completed and the transaction concluded.

PURPOSE

The purpose of this exercise is to complete most of the first step and to insure that the Privatization Analysis becomes an integrated part of the Management Analysis. The objective is to provide an array of viable privatization alternatives to policy makers and management that could shift the risks and rewards of water and sewage system ownership and/or operations to the private sector, while simultaneously retaining a satisfactory level of service.

SCOPE OF WORK

Proposed tasks include:

1. Review the legislation and government policies which would have an impact on any possible NWC privatization effort.

2. Assess the assets, liabilities, and contractual and other obligations, including those to labor of the NWC.

3. Assemble all key documents evidencing such things as right of tenure or title to properties, encumbrances of assets, union agreements, supply contracts, loan agreements, licences, incorporating statutes, etc.

4. Assess NWC operational requirements, and using the data identified above, formulate privatization options for all or part of NWC involving leasing of existing facilities, outright sales, management contracts, or any combination of other viable options.

5. Mount a series of meetings and/or workshops for policy makers and management (i.e. the NWC "Working Group") to present and discuss the pros and cons of privatization alternatives in general, and more specifically, the recommendations arising out of the analysis described above.

Depending upon the needs and demands of the program, the consultant may, with the approval of USAID, request that up to 5 working days of the contracted time be set aside for consultations following his departure from Jamaica. The purpose of this set aside time would be to respond to GOJ policy initiatives arising from this privatization work.

Appendix B

PERSONS CONTACTED IN JAMAICA

National Water Commission

Dr. Wayne G. Reid	Chairman of the Board
Mr. Claude Stewart	Board Commissioner
Ms. Faye Pickersgill	Board Commissioner
Mr H. Karl Bennett	Managing Director
Mr. Paul Morgan	Deputy Managing Director Engineering and Operations
Ms. Erica Harris	Deputy Managing Director Finance
Mrs. Valerie Walker	Deputy Managing Director Administration
Mrs. Florence Logan	Director, Commercial Operations
Mr. Anthony Brown	Director, Finance
Mr. Harold Stewart	Director, Internal Audit
Mr. Don Witter	Director, Human Resource and Development
Mr. Lloyd Grey	Director, Operations
Mr. Maurice Mitchell	Director, Maintenance
Mr. Everton G. Hunter	Director, Engineering
Mr. V.E. Matthews	Director, Materials Management and Transport
Mrs. Marcia Erskine	Manager, Public Relations

Ms. Joy Nobel	Manager, Personnel Services
Mr. Leroy Dixon	Manager, Compensation and Employee Benefits
Mrs. Delsie Davis	Manager, Finance
Mr. Garnet Richards	Manager, Purchasing
Mr. Godfrey Esson	Manager, Stores
Mr. Maurice Charvis	Financial Analyst (Former Acting Director of Finance)
Miss Delmarci Christian	Chief Accountant, General Ledger
Mr. Basil Burke	Chief Accountant, Projects and Fixed Asset Manager
Miss Jennifer Jackson	Customer Service Supervisor
Mr. Christopher Peralto	Chief Stores Accountant
Mr. Michael Falloon	Internal Auditor
Mr. Sylvanious Fray	Internal Auditor
Mrs. Hazel Campbell	Internal Auditor
Mrs. Valerie Williams	Internal Auditor
Mr. Vernon Barrett	Engineer
Mr. Slater Morris	Consultant to NWC

KPMG Peat Marwick (External Auditors)

Miss Caryl Fenton	Partner-in-charge

USAID/RHUDO

Mr. William Gelman	Chief
Mr. Skip Kissinger	Program Officer
Mr. Keith Ford	Regional Disaster Advisor
Ms. N. Pitter-Patterson	Regional Training Officer
Mr. Steve Reeve	Environmental Consultant

US Agency for International Development

Mr. Robert Queener	Mission Director
Mr. Charles Scheibel	Chief Engineer, OEE
Mr. Hasan Hasan	Chief Engineering Advisor, OEE
Mr. Walter Coles	Director, OPE
Mr. Tom McAndrews	Project Officer, OPE
Mr. Gary Vanderhoof	Project Officer, OPE
Ms. Kathleen G. Davidson	Project Officer, OPE
Mr. Mark A. Nolan	Project Officer, Agricultural & Environment
Ms. Denise Rollins	Program Officer, OPPD
Mr. Edward A. Dragon	Regional Legal Advisor

Research Triangle Institute: Revenue/Tariff Study Team

Mr. Richard Noth	Team Leader
Mr. Dempsey Benton	Team Member

Mr. Franklyn Johnson	Team Member

H.E.A.R.T./National Training Agency

Mr. Quincy D. Francis	Chief Technical Director

National Investment Bank of Jamaica

Mr. Peter Bunting	Acting President
Mr. Stephen Sterling	Director, Privatization Division

Caribbean Applied Technology Centre Ltd.

Dr. Henley W. Morgan	Chairman and Managing Director

Commission of the European Communities (EEC)

Mr. Jean-Claude Heyraud	Delegate
Mr. Peadar O'Sullivan	Technical Assistant Consultant

Inter-American Development Bank (IDB)

Mr. James Campbell	Engineer, Local Specialist

World Bank (IBRD)

Dr. Roy Ramani	Project Officer

Appendix C

SUMMARY OF KEY POWERS UNDER THE NATIONAL WATER COMMISSION ACT[1]

Specific Power	*Section*	*Limitations/Comments*
Make contracts	3 4	(1) Subject to approval of the Minister for construction contracts exceeding an amount published periodically
Acquire land	6	Subject to approval of the Minister
Borrow money	7	Subject to consent of the Minister
Adjust rates and charges	11 19	Subject to approval of the Minister, (1) but required to generate revenue sufficient to meet total costs each year (includes O&M, capital costs)
Establish annual budget	13	(1) Required to submit to Minister for approval
Create new positions	13	(2) Subject to approval of the Minister
Spend money	13	(3) May not exceed budget amounts approved by the Minister
Prepare financial statements	14	Required to submit audited financial statements each year to the Minister, subject to approval of format and auditor by the Minister
Make policy	18	The Minister may make policy after consultation with the Chairman
Make regulations	19	Subject to approval of the Minister
Lease lands	23	Subject to approval of the Minister when rent exceeds a set amount

[1] The National Water Commission Act of September 1980

Pay, hire and fire	12[2]	Subject to the approval of the Minister, employees make regulations to hire, fire, discipline and pay NWC employees

[2] Section from "First Schedule," attached to the Act.

Appendix D

PERFORMANCE INDICATORS

Selected Technical Performance Indicators: Water Systems

Indicator	Definition
Unit of Service or Accounts	Piped connections for which bills are prepared. *Data Required*: Number of connections billed
Staff per 1000 Connections	A measure of staff productivity of the utility. *Data Required*: Number of connections and persons employed
Unaccounted-for-Water	Measure of system and billing efficiency that is quite sensitive to the quality of metering. *Data Required*: Metered water production and measured amount of water delivered to customers
Metered Coverage	Measures the proportion of connections actually metered. An indicator of the possibility (assuming effective metering) of the accuracy of the amounts of water billed. *Data Required*: Numbers of total connections and metered connections
Population Served	Measures the percentage of the population in the utility's service area provided with water. Separate data should be calculated for people served by piped connections or indirectly through public standposts or other means. *Data Required*: Service area population, number of piped connections, estimates of persons per connection. For indirect use, estimated persons served per standpost (difficult to measure)
Connection Density	Measures the amount of distribution piping necessary per connection (pipe length/connection)

Data Required: Number of connections and total length of distribution pipe installed

Minimum Night Flow	Measures the water produced to the distribution system in the 2-4AM period when consumption should be nil. Serves as a fair indication of possible system leakage and waste. The higher the ratio of minimum night flow to average daily flow the higher the amount likely to be leakage or waste. *Data Required*: Measured flow into the system during this period.
Storage Capacity	Measures the total amount of distribution system storage available as a percentage of average daily water use. *Data Required*: Volume of distribution storage, average daily water use

Selected Financial Performance Indicators

Indicator	Definition
Efficiency in Billings and Collections	Measure the following: ■ Ratio of water billed to water produced ■ Percent collected vs. billed, monthly and yearly ■ Delay period, from billings to collection *Data Required*: Volume of water produced and billed, billed accounts and collected accounts, and time period of billing and receipt of revenues
Anuai O&M Costs as a % of Fixed Assets Value	Indicator to track operation and maintenance. ■ Must define operation costs to include salary and benefits ■ Must define maintenance costs to incude spare parts and consumables *Data Required*: Costs of operation and maintenance and the value of fixed assets

Current Ratio

This gives an indication of the current liquidity of the Utility, and measures whether current liabilities can be met when due with current assets. This figure should be greater than one, and as a rule greater than 1.5.

Data Required: Taken from the balance sheet: Debts, cash on hand, tax payments, accounts payable, accounts receivable

Working Ratio

This gives a measure of NWC's ability to meet Operating Costs as % of operating revenue. The working ratio should generally be below 1.

Data Required: Taken from the income/expenditure statement: operating expenses, interest payments, total annual water sales, and fees collected

Debt Service as % of Operating Revenue

The ratio of debt service (principal and interest) to total operating revenues is a measure of the amount of operating revenue is required to service debt.

Data Required: Taken from balance sheets and statement of income/expenditure: debt service (principal and interest) and operating revenue.

Appendix E

REPORT OF NWC PRIVATIZATION COMMITTEE

A meeting of the Privatisation Committee was held on Thursday, 11th April, 1991 and in attendance were:

Dr. Wayne G. Reid - Chairman
Messrs: Richard Burgher - Commissioner
Claude Stewart - Commissioner
Mr. H. Karl Bennett - Managing Director

The following is presented to the Board for consideration and approval as the Privatisation Policy of the Commission.

(1) The Government's Policy on deregulation will be followed.

National Water Commission shall retain responsibility for potable water whilst affording the private sector the opportunity of participating in any of the areas of responsibility. The economics of potable water delivery must always be taken into consideration.

(2) The areas to be considered for privatisation -

(a) Total integrated systems, that is, production, transmission and delivery including all of the support services such as daily collections, maintenance, etc.

(b) Support Services - example - connection of new supplies, meter reading, maintenance of motor vehicles and delivery of bills.

(3) National Water Commission will retain the responsibility for the following:

(a) Development of new water supplies and waste water treatment systems.

(b) Approval of all new water and waste water systems, including the verification and certification of these systems.

(c) National Water Commission will be the supplier of the last resort for systems which have been privatised. This means that if a private supplier defaults, the National Water Commission shall be responsible for taking over and supplying water until a new supplier is found.

(4) The areas for immediate consideration should be within the support services, as they will have an immediate impact on our economy and items which are readily identifiable include:

(a) Connection of new supplies

(b) Meter reading

(5) In the privatisation of any portion of the Commission management must always include in its submission to the Board the:

(a) economic analysis of the proposed element for privatisation.

(b) The basis of a review of the performance of the licencee.

Appendix F

DRAFT NATIONAL POLICY FOR WATER AND WASTEWATER

JAMAICA

The Government of Jamaica, recognizing the critical importance of its waters to the welfare of our country and the needs of its people for an adequate water supply, for sanitation services and for a healthy environment, both now and in the future, hereby enacts the following National Policy as one of utmost importance.

Although the people have a fundamental right to adequate water and sanitation services, they have the corresponding duty to perpetuate these rights for future generations. While the waters of Jamaica are a gift of nature, the benefits provided by capturing and treating this water and conducting it to the people, and the subsequent need to remove and effectively dispose of the wastewater, are not without cost.

Therefore, it is the policy of the Government that the full costs for providing these services be paid by those who receive their benefits. The government will make every effort to ensure that the cost of basic services will be affordable to everyone but water cannot be provided free of cost. Only through adequate payments for water and sanitation can we ensure that these services will be available to current and future generations.

The Government will facilitate the use of its waters, both directly and from underground sources, for meeting the water needs of individuals, communities and business interests. It will do so by enacting legislation, issuing regulations and taking such other steps as may be required in order to strengthen organizations which will deliver water and wastewater services wisely, economically and effectively.

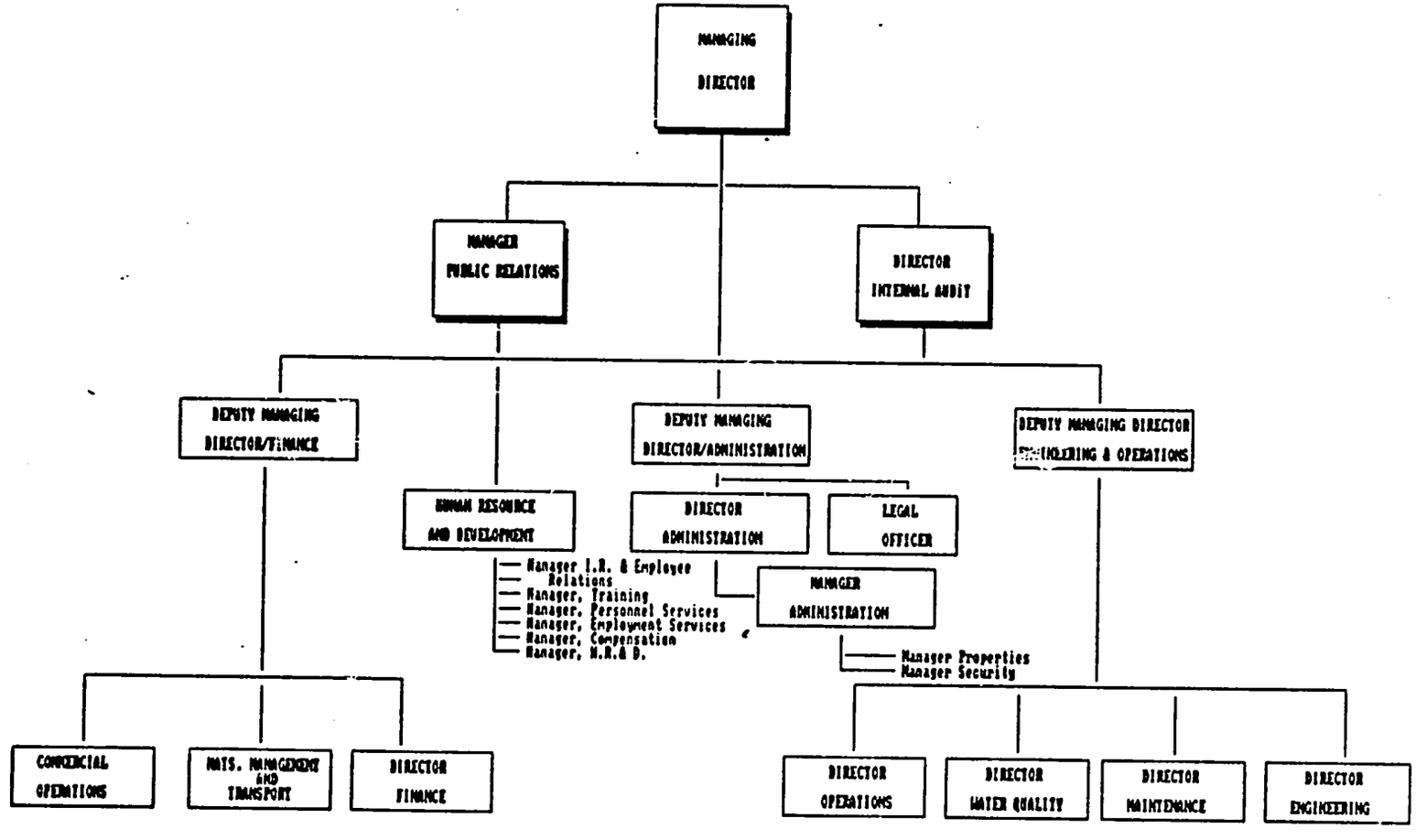
Appendix G

RESPONSIBILITIES OF KEY OVERSIGHT BODIES AND BOARDS OF DIRECTORS

Finance ministry	*Sector ministry*	*Central SOE organization*	*Holding company*	*Board*
Review and approve Subventions Investments which affect government finance Dividend payments *Other functions* Serve on board Approve monopoly prices Approve budgets Approve borrowing Approve sales, liquidation or creation of SOEs	Set sector policy Review and approve corporate plans and investment *Other functions* Serve on board Nominate or appoint management team and much of Board Approve budgets Approve borrowing Approve major procurement Recommend creation, sale, or dissolution Evaluate and monitor performance	Evaluate and monitor performance Suggest follow-up to evaluation Analyze sectoral trends and macro-economic impact Improve coordination, government oversight Safeguard managerial autonomy Standardize reports and maintain central data bank Develop files on candidates for managerial slots *Other functions* Approve budget Approve investments Approve personnel actions Set sectoral standards for labor policy and corporate practices	Appoint board and managing director of subsidiaries Approve budget, investments, accounts, and borrowing of subsidiaries Approve creation or dissolution of subsidiaries Do company corporate plan and approve subsidiary plans *Other functions* Shift funds, inventories, other assets from subsidiary to subsidiary Borrow and distribute funds Provide centralized services (training, computerized MIS) Appoint or second key officers (finance directors) to subsidiaries	Approve budgets and corporate plans Approve annual accounts Monitor performance on quarterly basis and advise management Approve investments Approve major procurement Nominate or appoint management Approve major changes in corporate policy vis-à-vis staffing, marketing, internal controls Approve sales of assets

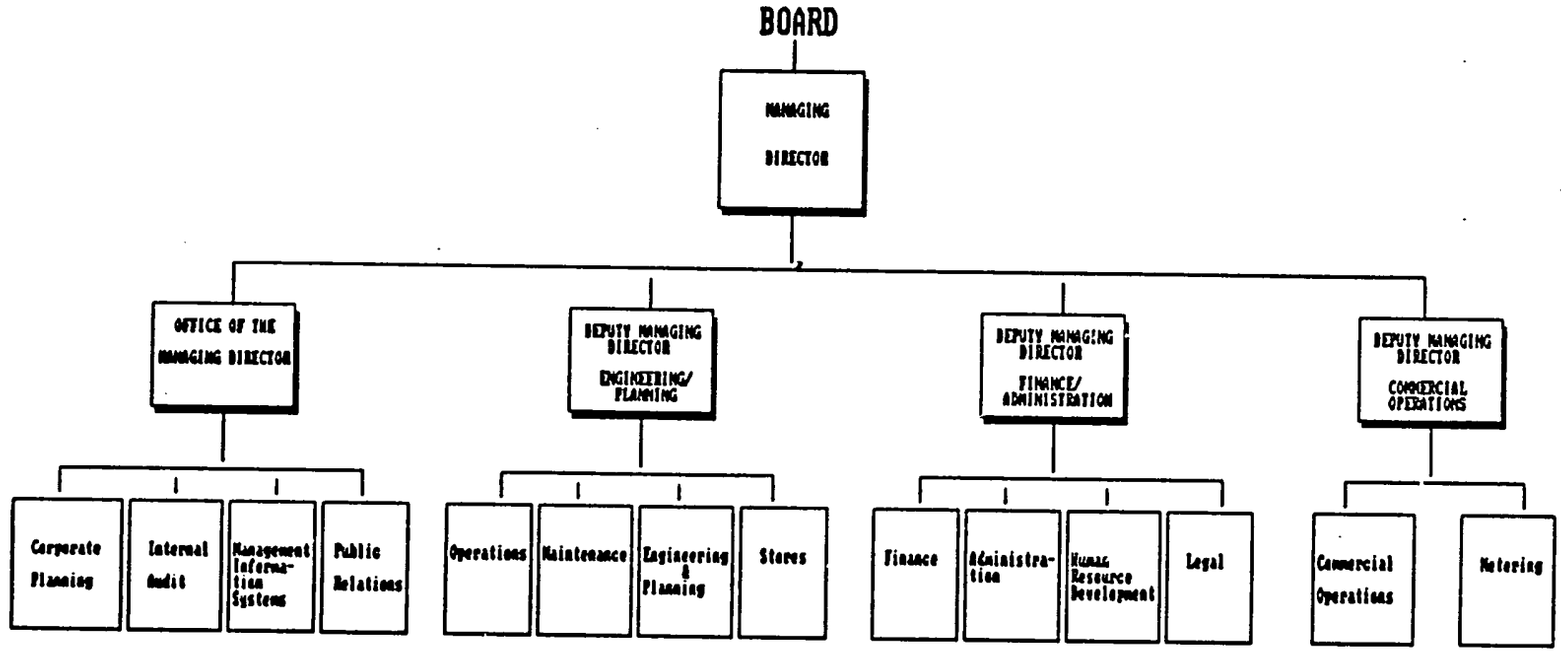
Appendix H

EXISTING NWC TABLE OF ORGANIZATION



Appendix I

PROPOSED NWC TABLE OF ORGANIZATION



Appendix J

ASSESSMENT OF WATER AND WASTEWATER SECTOR IN SRI LANKA[1]

Situation in 1983

1. Construction of new schemes carried out reasonably well
2. Operation and financial viability less than satisfactory. Revenues collected covered only 12% of O&M costs
3. Ratio of total NWSDB staff per 1.000 billing accounts was 119
4. The mandated shift from a government agency to a public authority, ordered in 1975, was not proceeding effectively after 8 years
5. The plan to change the emphasis on capital projects to improved O&M and better consumer orientation was not being implemented
6. An assessment conducted in 1983 drew these conclusions:
   - Negligible attention was being given to O&M
   - There was no evidence of a commitment to attaining financial viability
   - Accounting practices were poor and there was little budget discipline
   - There was no effective long term planning
   - Little attention was being paid to the interests of customers or the community in general
   - NWSDB was heavily reliant on government subsidies
   - NWSDB was totally reactive to its governing ministry, local politicians and members of parliament

Summary: These deficiencies were of such concern that a decision was made to change NWSDB to better meet its responsibilities.

Objectives of the Reform Program

1. Consolidate the NWSDB organization by recombining the part of the organization that had been split off to assume responsibility for a World Bank funded capital project

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[1] **National Water Supply and Drainage Board (NWSDB)**

2. Decentralize operations and management to regional offices
3. Change overall organizational structure, attitudes and actions to focus on operation and maintenance as the most important function of the NWSDB to be improved
4. Coordinate the activities of other entities with responsibilities related to the sector, including the Ministry of Health, municipal governments and non-governmental organizations (NGO's)

Major Elements of the Sector Reform Program

1. Decentralization
2. Management Development
3. Long Term Planning
4. Financial Viability
5. Human Resource Development
6. Community Participation

Improvements Attained by 1990

Operational Indicator	*1984*	*1990*
Water Produced (Million m^3/year)	155	219
Billed Connections (1,000's)	79	185
Ratio of Staff per 1,000 Connections	77[2]	38
Revenue Billed (Million Rupees)	224	503
Billing Lag Time (Days)	180	30
Revenue Collected (Million Rupees)	56	422
Revenue Collected as % of Billed	25%	84%
O&M Costs Covered by Revenue	31%[3]	99%
Consumer Complaints (% of Connections)	>10%	3%

[2] 119 in 1983

[3] 12% in 1983

Appendix K

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