

AFRICAN DEVELOPMENT BANK GROUP



UGANDA

**FIVE URBAN CENTRES WATER SUPPLY AND SEWERAGE
REHABILITATION PROJECT**

Project Performance Evaluation Report (PPER)

**OPERATIONS EVALUATION DEPARTMENT
(OPEV)**

9 March, 2000

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CURRENCY EQUIVALENTS

Currency unit Ugandan Shillings (UShs.)
1 U.Shs 100 Cents

At Appraisal

1FUA UShs 101.80571 (1st Quarter 1983)
1 UA UShs 100.532 (1st Quarter 1983)
1 UA USD 1.10311(1st Quarter 1983)

At PCR

1FUA UShs 40.59 (2nd Quarter 1993)
1UA UShs 1757.38 (2nd Quarter 1993)
1UA USD 1.39773 (2nd Quarter 1993)

At PPER

1 FUA UShs 1530.30 (2nd Quarter 1999)
1 UA UShs 1661.47 (2nd Quarter 1999)
1 UA USD 1.33536 (2nd Quarter 1999)

1UA FUA 0.921052

MEASURES

lpc/d litre per capita per day
l/s litre per second
m³ cubic meter
m³/d cubic meter per day
m³/s Cubic meter per second
mm millimeter
km kilometer
km² square kilometer

FISCAL YEAR

July 1 to June 30

ACRONYMS AND ABBREVIATIONS

ADB	African Development Bank
ADF	African Development Fund
DWD	Directorate of Water Development
F.C	Foreign Exchange Cost
GOU	Government of Uganda
ICB	International Competitive Bidding
KfW	Kreditanstalt für Wiederaufbau
L.C	Local Cost
MFEP	Ministry of Finance and Economic Planning
MOH	Ministry of Health
MWLE	Ministry of Water, Lands and Environment
MLG	Ministry of Local Government
MNR	Ministry of Natural Resources
NGO	Non-governmental Organisation
NORAD	Norwegian Aid for Development
NWSC	National Water and Sewerage Corporation
O&M	Operations and Maintenance
OPEC	Organisation of Petroleum Exporting Countries
PCR	Project Completion Report
PPER	Project Performance Evaluation Report
UA	Unit of Account
UfW	Unaccounted for Water
VIP	Ventilated Improved Pit Latrine
WDD	Water Development Department
WHO	World Health Organisation
WS&S	Water Supply and Sanitation

PREFACE

1. This Project Performance Evaluation Report (PPER) is a post-evaluation of the Five Urban Centres Water Supply and Sewerage Rehabilitation Project in the Republic of Uganda. The total cost of the project was estimated at UA15.97 million (FUA17.34 million) to be covered by an ADF loan of UA 13.81 million (FUA15 million) and Government of Uganda contribution of UA 2.16 million (FUA 2.34 million). The Loan was approved in December 1983.

2. The Project was to provide potable water supply and water borne sewerage services by rehabilitating and expanding existing water supply and sewerage facilities in the five urban centres to meet the short- and medium-term demand. The project comprised the provision of new water sources and improvement of supply network for Gulu and Lira; the provision of a complete new water supply system for Kaberamaido; improvement of water sources and storage facilities for Kamuli; improvement of the sewerage works in Mbarara, Gulu and Lira. A technical assistance component was also included in the form of expatriate experts to enhance capacity building. Logistical support such as workshops and accommodations were also included in the scope of the project. The project with a reduced scope (due to cost overrun) was completed in 1992 registering 8 years delay due mainly to the then political environment.

3. The project has contributed to alleviate the water supply shortage and provide the needed sewerage facilities in the areas covered. However, the project's sustainability has been adversely affected by inadequate institutional development, incomplete systems and high operation and maintenance costs. In recent years significant sectoral studies and decentralisation process have been carried out in the light of the public sector policy reforms, which aims at encouraging private sector participation in the development of infrastructure facilities in the country. The benefits of these reforms are yet to be realised.

4. The Bank's Operations Department had prepared a completion report for the project in June 1994; and the rating for the overall performance was satisfactory. It was considered necessary to carry out post-evaluation on this project after some years of operations in order to underscore the causes and effects on the key areas such as relevance of the project, achievements of objectives (efficacy), efficiency, institutional development and sustainability. Reassessment of the project in the light of these evaluation benchmarks showed that the overall performance of the project was unsatisfactory and its sustainability is at risk due to the inappropriate choice of technology and poor service coverage that have impacted on the financial performance of the utilities. Recommendations are made to address these issues and improve future performance.

5. This PPER is a result of the Bank's performance evaluation mission to Uganda in June 1999. It referred to the appraisal and completion reports of the project and was based on information and data gathered at the time of the mission.

SUMMARY DATA SHEET**FIVE URBAN CENTRES WATER SUPPLY
AND SEWERAGE REHABILITATION PROJECT**

1. Country : Uganda
 2. Project : Five Urban Centres Water Supply and Sewerage Rehabilitation Project
 3. Loan Number : CS/UG/PU/83/11 – ADF Loan
 4. Borrower : Government of Uganda
 5. Beneficiary : Town Councils and the National Water and Sewerage Corporation (WASC)
 6. Executing Agency : Water Development Department now renamed as Directorate of Water Development in the Ministry of Water, Lands and Environment

A. LOAN

	<u>Appraisal</u>	<u>Actual</u>
1. Amount (UA million): ADF	13.81 (FUA15.00)	13.81 (FUA15.00)
2. Interest Rate (%):	0	0
3. Repayment Period (year):	40	40
4. Grace period (year):	10	10
5. Loan Approval Date:		07-12-1983
6. Loan Signature Date:		09-03-1984
7. Loan Effectiveness Date:		22-03-1985

B. PROJECT DATA

1. Total Cost (UA million):	15.97 (FUA17.34)		15.36 (FUA16.68)	
2. Financing Plan (UA million):	FC	LC	FC	LC
ADF	8.43	5.38	12.68	1.13
GOU	--	2.16	---	1.55
3. Effective Date for First Disbursement			25-07-1985	
4. Effective Date for Last Disbursement			31-12-1994	

C. PERFORMANCE INDICATORS

1.	Cost Overrun/ (Underrun)	:	Project scaled down
2.	Time Overrun/ (Underrun)	:	8 years
	- Slippage of Effectiveness	:	1 year
	- Slippage of Last Disbursement	:	7 years
	- Number of Extensions for Last Disbursement	:	3
	- Slippage on Completion Date	:	8 years
3.	Project Implementation Status:		Completed
4.	Implementation Performance and Project Outcome:		
	Implementation Performance	:	Unsatisfactory
	Bank Performance	:	Unsatisfactory
	Project Outcome	:	Unsatisfactory

D. Missions	Dates	No. of Missions	No. of Persons	Man-Weeks
- Identification	----	----	----	----
- Preparation	1979	2	2	4
- Appraisal	1980	1	2	4
- Supervision	1983 – 1993		7	11
- PCR	June/July 1993	1	2	4
- PPER	June 1999	1	2	4

E. LOAN DISBURSEMENT (FUA million)	Appraisal	Actual
- Total Disbursed	13.81	13.81
- Amount Cancelled		
- Unused Balance		
- Yearly Disbursement (FUA million):		
1983	0.00	0.000
1984	7.73	0.000
1985	5.11	0.640
1986	0.33	0.142
1987	0.37	0.621
1988	0.27	0.750
1989		0.193
1990		0.746
1991		3.234
1992		4.961
1993		1.813
1994		0.709
Total	13.81	13.810

1. EVALUATION SUMMARY

1.1 Project Objective and Scope

1.1.1 The sector goal was to promote good health and economic development through the provision of adequate water supply and sanitation services to the population of Uganda.

1.1.2 The objective of the project was to ease the potable water supply shortage and provide sewerage facilities in line with the increasing demand from domestic consumers and economic and social sectors.

1.1.3 The Project involved completing an earlier project financed by the Bank from ADB resources but discontinued due to the war situation at the time. It was to cover only five urban centres (Mbarara, Lira, Gulu, Kamuli and Kaberamaido). Its scope was to further raise the production capacity of the water systems and provide water borne sewerage facilities in order to meet the short and medium term demand in these centres. A completely new system was envisaged for Kaberamaido since it did not have piped water supply at all.

1.2 Project Implementation

1.2.1 The Project was implemented with major modifications. The Kaberamaido water supply scheme was dropped due to security problems from the war situation of the time compounded with shortage of funds. The technical assistance component was also removed with the understanding that staff had already been trained under other schemes. The savings from these two components were used to cover the cost overrun in others particularly the Lira scheme (which was costly due to the sophistication of the scheme) and the engineering services (resulting from delayed implementation of the project). The project was scheduled to take off in 1983 and completed in 1988; but the then security problems in the areas shifted project start up to 1985 and the completion date to 1992. There had been also delays in the preparation of design and tender documents due to change of engineering consultants.

1.2.2 The total cost of the Project as appraised was UA15.97 million (FUA17.34 million) raised from ADF resources amounting to UA13.81 million (FUA 15.00 million) and GOU contribution of UA2.16 million (FUA 2.34 million). The project was scaled down to be covered with the loan amount and reduced Government contribution of UA1.55 million (FUA1.68 million). The overall implementation delay was 8 years. The major causes for the implementation delays were attributed mainly to the poor political and war situations at the time.

1.3 Institutional Aspects

1.3.1 The Executing Agency of the project was the then Water Development Department (WDD) now restructured as Directorate for Water Development (DWD) under the Ministry of Water, Lands and Environment. Engineering consultants supervised the implementation of the projects and a Project Implementation Unit (PIU) was set up to oversee the overall implementation. Local and international suppliers and contractors were used for the supply of goods and construction of works.

1.3.2 Following the decentralisation policy, all the small centres and rural water supply schemes that used to be run by WDD were taken over by the local governments. DWD is now responsible for implementing schemes and monitoring the performance of the Town Councils and rural communities responsible for the operation and maintenance of the schemes.

1.3.3 The National Water and Sewerage Corporation (NWSC) is responsible for the provision of urban water supply and water born sewerage services. At the time of appraisal NWSC used to run the systems in 7 urban centres but this number has been increased over the years to 12 urban centres (Kampala, Jinja, Entebbe, Tororo, Mbale, Masaka, Mbarara, Lira, Gulu, Kasese, Port-Portal and Kabale). NWSC used to have significant institutional problems that adversely affected its revenue generation capacity. In recent years, NWSC has undergone serious organisational restructuring with the long-term objective of moving towards privatisation.

1.3.4 The major concern is the issue of sustainable management of water supply and sanitation infrastructure. Currently a sector reform study has been initiated in order to determine, among others, the best management options and the needed investments for the sector.

1.4 Project Impact and Sustainability

1.4.1 The project has contributed to increase water production and has provided the sewerage facilities in all the centres covered. However, some of the water production schemes and all the sewerage facilities are operating far below their design capacity and at very high costs. Overall impact is not satisfactory and the technological and operational problems as well as lack of additional investment to expand the reticulation system have been the main causes of undermining the positive impact and sustainability of the project. In addition a wide range of problems relating to productivity, service coverage and cost recovery have compromised the financial viability of the schemes. In recent time, utilities are preoccupied more on the activities of billing and revenue collection with less concern on quality and coverage of services particularly in informal settlements and peri-urban areas.

1.4.2 An average of about 10% of the population has house connections and very few households have water borne sewage systems in the four centres. Consequently, the majority of households use a community water system or public stand pipes and more than 90% are using either a traditional or a ventilated improved pit latrine in these centres. The limitation of the reticulation systems and the high cost of connections explain the low level of house connections both for water supply and sewerage services.

1.4.3 The projects' financial viability was determined on the basis of the Average Incremental Cost (AIC) of supply approach. Because of the high O&M costs and low capacity utilisation, the schemes are not still financially viable. As government subsidy has been eliminated, it is the revenues from the major towns (Kambala, Jinja and Entebbe) that subsidise the overall cost of supply (O&M costs as well as interest on loans) for the three centres under NWSC. The required level of subsidy to cover the O&M costs is currently about Kshs.888.0/m³ (US\$71/m³) when calculated at 11% cost of capital. The Kamuli scheme is meeting its O&M costs from its revenues (albeit the inadequate maintenance of the systems) while its loans have continued to be repaid by the Government.

1.4.4 When viewed from the country-wide perspective, the overall water supply and sanitation services in the country have improved from 18% and 10% in 1980s to 50% and 40% by 1998 respectively. By and large, the domestic water supply has benefited the communities, which consist mainly women and children who are more active in fetching water and hygiene activities. However, overall access of potable water to urban poor and peri-urban areas is still a problem.

1.4.5 In general, the decentralisation policy is not backed with adequate capacity building and appropriate incentives particularly at local government levels. The technological inappropriateness and the resultant O&M problems as well as the low service coverage have jeopardised the financial

viability and sustainability of the project. This situation has negatively impacted on poverty reduction and environmental betterment in the areas served.

1.5 **Conclusion, Feedback and Recommendations**

1.5.1 **Conclusion**

1.5.1.1 This project has had a difficult history. There was a war of liberation in late 1970 to oust the then regime. In addition, there was continuing civil unrest in the north during much of the time of project implementation. As a result, the project had known serious delays, cost overruns and exclusion of a few components to meet the budget constraints.

1.5.1.2 Since project commissioning, some technological and O&M problems have cropped up and have remained unsolved over the years. With the exception of Gulu and Kamuli, the water supply production capacity is over sized and the under utilisation is all the more aggravated due to the limitation of the reticulation systems. All the sewerage facilities are operating under capacity due to the low quantity of sewage being received that resulted from inadequate usage of water in the households and fewer connections to the system. The technological or design shortcomings may have emanated from the following:

- It appears that the original studies may not have been critically reviewed and necessary revision made in the light of the adverse socio-economic and political conditions of the country at the time that would have resulted in changes in the design parameters and the technological option adopted (the scheme in Lira and the over capacity of the sewerage facilities could be cited in this context);
- The benefits or otherwise of rehabilitation as compared to replacement was not well studied. For example, in Gulu, the reticulation system was not functioning for several years but only a part was replaced under the project making it inadequate to utilise the capacity of the rehabilitated source;
- Little investment went into the reticulation system and sewer connections limiting optimisation of capacity utilisation of the water supply as well as the sewerage facilities;
- The high cost of connections and charges for sewerage services has hindered many households from hooking up to the system more so as they have already invested in septic tanks.

1.5.1.3 The project has partially succeeded in its primary objective of increasing the access of urban dwellers in the four sites to improved water supply. However, because of the above mentioned limitations the schemes are costly in relation to the income level of the majority of consumers and the level of economic activities in the areas served. Thus, the project's contribution to addressing poverty and environmental issues is sub-optimal.

1.5.1.4 There is concern about the effectiveness of the decentralisation of water and sewerage services since it is not backed with adequate capacity building at local government levels. There is also concern about the move towards privatisation unless the Government's capability is reinforced to enforce legislation and maintain quality control of the systems. A long-term capacity building effort needs to be exercised at all levels.

1.5.1.5 With the increasing growth in population, urbanisation and possible industrial development, there is high pressure on Uganda's urban WS&S development, which is already characterised by heavy dependence on foreign financing as the overall capacity of the Government to finance the sector is still very limited. This capacity is even more limited at the local government levels to which the water supply activities have been decentralised. Whereas, donors have often come to support the sector, new avenues for sector financing as well as reforms in the management of the services are required. Fortunately, there seems to be willingness among the top authorities to undertake the needed reforms. The forthcoming World Bank funded study on Sector Reform may provide some guidelines as to how the services should be managed and funded in order to enhance the sector's development. Moreover, there is a need for the donor communities including the Bank to collaborate more closely with the Government to reinforce its efforts in capacity building in order to help the decentralisation work successfully and encourage the private sector participation in more concrete terms.

1.5.2 **Feedback/Lessons**

Several important lessons are presented in the Project Completion Report of this project, which are still valid. The following additional lessons are drawn to re-orient future Bank Group intervention in the sector.

- Handling decentralisation and privatisation more prudently and gradually is expected to result in positive and sustainable outcome; (paras. 7.1.5 and 7.1.6).
- The inappropriate choice of technology could significantly compromise the benefits and sustainability of projects; (paras 5.2, 5.3, 7.1.3 and 7.1.4).

1.5.3 **Recommendations**

The following recommendations are made in order to address the sustainability issue and the overall development effectiveness of the project and future interventions.

MWLE/DWD

- While the overall Government effort to enhance participatory approach, good governance and accountability is commendable, the move towards decentralisation and privatisation need to be handled prudently and gradually to allow sufficient lead time for capacity building and commercialisation of the activities in order to avoid stretching out the already scarce human and financial resources; (paras. 4.4.8, 7.1.7).
- A thorough and objective feasibility study including social survey should be conducted to look at all technical options, with comparative cost effectiveness of each option prior to sanctioning funding in any future investment; and subsequently revised with changing economic conditions (paras. 4.1.3, 4.1.4, 5.8).
- A water supply and sanitation (WS&S) sector policy should co-ordinate all water supply and sewerage activities in order to ensure balanced development of the sector; (paras. 4.1.3, 4.7.3).
- For the decentralisation policy to succeed, among other things, DWD must be revamped and strengthened to fully exercise its overall regulatory and monitoring power. In addition, care must be taken to ensure that the technical and managerial skills are present in the local municipalities; (paras. 3.4.3, 4.1.6, 4.4.8, 5.9, 7.1.5, 7.1.6).

- A policy of promoting kiosks and standpipes instead of house connections would seem to be appropriate for most of the smaller towns in order to supply effectively scarce water resources to poorer communities cost effectively; (para. 5.7).
- A rigorous training program needs to be introduced to ensure that sufficient technical personnel are available to properly operate and maintain WS&S systems. This process should begin with the requirement that contractors adequately train personnel in the O&M procedures of systems that they have installed. An ongoing DWD training program should ensure that practically trained engineers are retained within the organisation by providing them with appropriate incentives; (paras. 4.1.8, 5.9).
- There is need to develop appropriate mechanism of controlling water quality and enhancing enforcement of environmental regulations; (para. 4.6.2).

Ministry of Health (MOH)

- The decentralised Ministry of Health will have to practice interactive management by visiting the water points under their jurisdiction to ensure that there is adequate drainage at stand posts; (para. 4.6.2).

NWSC

- Ensure that its concern between water production and metering including standards and levels of services with that of billing and collection is well balanced such that the service provider's role as producer of potable water and sanitation facilities is not overshadowed with concern in revenue collection; (paras. 4.2.6, 4.2.18).
- There is need to visit areas' performance regularly to resolve O&M problems on time. In this connection the O&M problems of the Water Treatment Plant at Lira need to be assessed and come up with appropriate long-term solution; (paras. 3.4.3, 4.1.6, 4.1.8, 4.2.18).
- There is need to give more emphasis on practical training and rewarding experienced engineering personnel with appropriate incentives in order to retain their services; (para. 4.1.8).
- There is need to iron out the conflicting position of NWSC management and the Management Consulting Firm responsible for the Kampala area with a more transparent performance contract; (para. 4.2.9).
- There is need to undertake a study to review the tariff structure and level to adequately factor in affordability and justifiably needed cross subsidisation with the view of avoiding passing over the utility's inefficiencies on the consumers; (paras. 4.2.11, 4.2.18, 5.9).

Bank

- Ensure that sector studies and thorough feasibility studies including social surveys are conducted prior considering projects for financing and appropriate revisions are made in the light of the changing economic conditions in order to ensure the appropriateness of the technology selected and implemented; (para. 4.9.1).

- Closely monitor implementation and ensure that technical and financial reports are regularly forwarded to the Bank. Above all, the Bank needs to give appropriate feedback to borrowers; (para. 3.4.2, 4.9.2).
- Create a mechanism by which the Bank continues its monitoring commissioned projects at least for a few years after they are put in service; (para. 4.9.2).
- Review its involvement and participation in the sector to ensure integrated approach including capacity building in order to enhance balanced and sustainable development in the sector; (para. 5.9).

1.5.4 **Follow-up Action**

The follow-up action matrix, derived from the main findings and recommendations, is given in Appendix IV. The most immediate action is for the Bank to initiate dialogue with the Government to assist in the on-going sector reform and capacity building.

2. BACKGROUND

2.1 Country Economic Context

2.1.1 The Republic of Uganda is a landlocked country bounded by Kenya, Tanzania, Rwanda, Zaire and Sudan. It covers 241,000km² of which about 20 percent represent numerous waterways and lakes, most notably the White Nile River and the Ugandan part of Lake Victoria. Uganda is situated on a plateau with four-fifths lying at an altitude of 1000 to 1500 meters, due to which most of the country enjoys a pleasant climate with plenty of sunshine and rain. There is little seasonal variation in temperature because of its position along the Equator. Mean maximum temperature range from 20° C at night to 35° C during the day with mean minimum temperature from 8° C to 23° C. Annual rainfall varies from about 1,400 mm per year in the southern part to 500 mm in the arid Northeast. There are normally two dry seasons per year, one from December to February and the other in June and July.

2.1.2 The population is estimated at (1994 census) 18.5 million growing at about 2.5 percent annually. Per capita GNP was estimated to be US\$170 (1992) which improved to US\$200 in 1994. Rural population accounts for about 90 percent of the total population. Due to Uganda's prolonged political and economic difficulties in the past, migration to urban areas was relatively low, but in recent time the migration has been on the increasing trend.

2.1.3 In 1987 the Government introduced its Economic Recovery Program (ERC), the principal objectives of which were to promote economic rehabilitation and growth, restore internal financial stability, lower inflation, and reduce the imbalance in the external accounts through diversification of the economy into non-traditional exports. The rehabilitation of the basic infrastructure facilities including water supply and sanitation services was also a part of the ERC.

2.1.4 In an effort to remove structural bottlenecks, the Government have since then continued to undertake further policy initiatives ranging from exchange rate adjustments to several other reforms of the economic, social and financial sectors with the assistance of donor institutions including the Bank. Consequently, there has been significant progress towards macroeconomic stabilisation and improving the economy's basic infrastructure. Real GDP increased at an annual average of 5 percent during the period 1988/89 -1993/94. The annual average rate of inflation has been steadily brought under control, reducing from 32 percent in 1990/91 to about 7.7 percent in 1993/94. In recent years, the growth rate of GDP has been on the average 7.8 percent per annum notwithstanding the decline to 5 percent in 1996 due to prolonged drought.

2.1.5 Government is currently encouraging private sector development through its public sector reforms and diversification policies. It is currently on an aggressive drive for industrialisation, modernisation and poverty eradication. It is committed to pursue universal coverage, social justice and equity in the health and social welfare sector.

2.2 Water Supply and Sanitation Sector

2.2.1 Uganda is rich in surface water resources resulting from abundant rainfall. The major sources of water can be grouped in three categories: the upper Nile system, the Ugandan catchments, and groundwater source.

2.2.2 In the 1960s, modern water supply facilities served almost the total urban population and about 70 percent of the rural population. However, during the next two decades, the facilities were not expanded and the quality of service deteriorated considerably due to poor management, lack of funds

and shortage of qualified personnel. At the time of appraisal of this project, it was estimated that water systems operating in the country served only 30 percent of the total population of Uganda. Of the domestic supply 80 percent was through individual connections and 20 percent through public kiosks. As a result of extensive looting during the war in the country, services had deteriorated considerably.

2.2.3 In the rural areas, water supplies were drawn from protected and unprotected springs, boreholes, a few shallow wells, water holes, rivers, swamps and lakes. Boreholes were supplied with hand pumps but most of them were defective. Similarly, a good number of the protected springs required substantial repair.

2.2.4 The sewerage coverage was relatively low. Only about 15 percent of the urban population were served with the sewerage systems, while about 60 percent use septic tanks and pit latrines. The remaining 25 percent were left without any acceptable excreta disposal systems. It was estimated that more than 50 percent of the rural population use pit latrines.

2.2.5 At the time, the major problems of the sector were lack of sector policy and development strategy, acute manpower shortage in all categories, and financial resources constraints. O&M facilities and logistics were inadequate resulting in poor service delivery to consumers. It was against this background that the Government gave high priority to the sector in its recovery programme. Since the launching of the Economic Rehabilitation Program in early 1980s, there has been increasing donor involvement mainly the ADB, the World Bank, EEC, bilateral assistance through development agencies such as DANIDA as well as United Nations agencies such as UNICEF. In addition international non-governmental organisations (NGOs) have been active in rural areas. Thus, over the years improvements have been made in both the physical facilities and institutional development of the sector, the outcomes of which are discussed in details in section 4.4.

2.3. History of Bank Group Intervention in the Sector

The Bank Group involvement in the sector dates back to 1968 when the Bank provided a grant of UA 30,000 to the Government of Uganda for the financing of a feasibility study including detailed engineering designs. This study culminated in 1970 with the extension of an ADB loan of UA 3 million to meet the foreign exchange cost of a project involving some 18 water supply and 5 sewerage schemes in some 20 urban centres. Severe economic conditions and prolonged civil war in 1970s disrupted the implementation of this earlier project. No other project was financed in the sector until 1982, during which time Bank considered to finance the Five Urban Centres Water Supply and Sewerage Rehabilitation Project, the subject of this PPER.

2.4 Project Formulation and Rationale

2.4.1 This project was initiated to complete an earlier ADB project, which was left incomplete due to the security problems of the time. By 1975, the status of implementation was limited to a few centres with an initial take off and procurement of some equipment and pipes, the most part of which were recorded later to have been either stolen or lost during the war. Preparation missions were carried out to reassess the status of the earlier project and come out with a reduced scope and cost estimates to cover only five urban centres in the light of the available ADF resources. An appraisal mission was launched in 1980.

2.4.2 The general project rationale was to promote good health and development through the provision of sustainable safe water supply and sanitation services. The project's actions taken to augment water supply and sanitation services in five towns in Uganda specifically satisfied three of the

main criteria set out in the 1987 Economic Recovery Program adopted by the Uganda's National Resistance Movement (NRM). These were:

- rehabilitation in preference to new systems
- emphasis on major population centres
- preference for urban centres with administrative status and potential for industrial and commercial development

2.4.3 It was in the light of the above criteria that the Bank extended a fresh loan to rehabilitate and complete the unfinished project that was disrupted during the prolonged civil war of the 70s and provide technical assistance for capacity building.

2.5 Objectives and Scope at Appraisal

2.5.1 The objective of the earlier project was to address to the shortage of potable water supply and avail appropriate sanitation services to the growing population and economic activities in selected priority urban centres. The earlier project aimed at augmenting existing water capacities in 11 centres by extensions and refurbishment of the intake works, treatment plants, transmission and distribution mains and storage facilities. About 6 centres were to be provided with completely new water supply facilities. It was further planned to augment the existing sewerage systems in 5 centres by the replacement of non-operational mechanical equipment with treatment lagoons, replacement of non-functional sewer lines and the extension of the coverage of the sewerage network.

2.5.2 While the overall objective of the earlier project remained, the following changes were made in the scope of the earlier project at the appraisal stage:

- a) Due to the extensive destruction that occurred during the liberation war (1979-80), some schemes had to be completely rehabilitated.
- b) The number of schemes in the project were reduced to the augmentation of 3 water supply schemes, 1 new water supply scheme and the augmentation of 3 sewerage systems as follows:
 - Gulu and Lira (water supply and sewerage augmentation)
 - Kamuli (water supply augmentation)
 - Mbarara (sewerage augmentation)
 - Kaberamaido (new water supply system)

2.5.3 Further scaling down was necessitated during implementation due mainly of the cost overrun as discussed in section 3.2.

2.6 Financial Arrangements

The estimated total cost of the project at appraisal was UA15.97 million of which UA8.43 million was in foreign cost and UA7.54 million was in local costs. Although the earlier project was financed from ADB resources, the then economic condition shifted the eligibility of the sector to ADF resources. However due to the limitation in ADF resources, the original project was scaled down to cover only Five Urban Centres. Thus, the Bank extended UA13.84 million and the Government of Uganda raised the remaining balance of the project cost. The ADF loan was to be employed to cover 100 percent of the foreign cost and 71 percent of the local costs. No other financiers were involved in this particular project.

2.7 Evaluation Methodology and Approach

2.7.1 This PPER complements the findings of the PCR and reviews the performance of the operating systems and the various stakeholders in order to assess the impact and long-term sustainability of the project. Lessons from the water and sanitation sector are drawn in order to improve project formulation, design, implementation and operation in the future. The evaluation methodology employed is the before and after project approach. Plans and projections in the Appraisal Report and the Project Completion Report (PCR) are compared with the actual situation existing at the project sites after a number of years of operation. However, the lack of verifiable indicators in the Appraisal Report limits the extent of comparison and assessing the impact of the project in quantitative terms.

2.7.2 The report has been prepared following a mission to Uganda during June 1999 and is based on information obtained from appraisal reports, project completion reports and the project's files. This was supplemented from information obtained from the executing agency and discussions with stakeholders in Uganda. Visits were made to all of the sites (Mbarara, Gulu, Lira, Kamuli), during which time meetings were held with persons in charge of plant operations as well as with local municipal personnel.

2.7.3 The team met with all relevant personnel in the DWD, NWSC and the Ministry of Health (MOH). In addition meetings were held with other donor agencies operating in the sector (DANIDA, UNICEF, World Bank). The team also referred to various reports and studies that have been carried out recently.

3. PROJECT IMPLEMENTATION

3.1 Loan Effectiveness

The loan became effective only on March 1985 some 14 months from date of approval of the project. The delay was not surprising in a situation when the political environment and the stability of the country was threatened by civil war of the time. Since the conditions to loan effectiveness were providing undertakings, it didn't lead to prolonged delays for the loan to be declared effective.

3.2 Changes in Project Scope

The Appraisal Report of the project originally planned for the development of five urban centers: Mbarara, Gulu, Lira, Kamuli and Kaberamaido. However, implementation delays resulting from the civil unrest as well as costly technological option adopted for the Lira scheme, led to huge cost overruns. This necessitated scaling down the original project plan. First, the Technical Assistance (TA) Component was dropped out for reasons that the staff got the required training from other schemes due to the late start of this project. Secondly the Tochi Dam at Gulu, which was 15 percent completed when it was realised that there was previous strata under the incomplete dam, was dropped out and instead a rehabilitation work was carried out on the existing Oyitino Dam. Third the Lira Water Supply Scheme required extensive rehabilitation than originally foreseen. In addition, a difficult intake structure on lake Kaima, a long (42 km) pipeline from the source to the users, an expensive choice of water treatment technology (pulsator-clarifier system), and the delay due to civil unrest occurring during construction all contribute to increase the cost of the Lira scheme. Finally, the continued insecurity in the north and the overall cost over run lead to abandoning the Kaberamaido Water Supply Scheme; while the size of Kamuli scheme was considerably reduced. The budget released from these changes was used to meet the cost overrun for the engineering services, which was originally under budgeted and to cover the cost of additional tasks of site investigation at the Tochi

dam site, Gulu; and the cost overrun of the Lira Scheme. The inappropriate choice of technology and the poor political situation have contributed to the cost overrun that led to the scaling down of the original scope of the project.

3.3 Implementation Schedule

At appraisal, the completion date for the construction works was scheduled for 1985. However, due to the force majeure situation that prevailed in the country during the project implementation period, the project was completed during the period 1989-1992. Of the individual contracts, the Lira and Gulu schemes were completed within the approved contract time (1991-92), while the Kamuli scheme was delayed by 21 months (1998-90) and the Mbarara scheme was delayed 23 months (1998-90). These delays were caused partly by the additional works, which were carried out and partly due to the contractors' laxity in fulfilling their contract on time. In the case of the Mbarara scheme, there was delayed payments by the Government to the contractor for work leading to further delays in project completion.

3.4 Reporting

3.4.1 Quarterly progress reports were regularly sent to the Bank. The information contained in the reports was considered adequate. In addition, the consultant prepared periodic technical reports on various aspects of the project. The consultant also kept both the Bank and the Executing Agency informed about the budget situation of the project including that of the consultancy services.

3.4.2 Reporting with respect to the fulfilment of conditions on tariff study, reduction of the unaccounted for water, legislative water act was, however, not carried out. No audit reports about the executing and beneficiary utilities were submitted to the Bank. It is not clear if the Bank had supervised progress on the fulfilment of the conditions and the required reporting thereof. In line with the Bank's operation manual, it is necessary to closely follow-up submission of reports and forward appropriate feedback to borrowers to ensure smooth implementation of the project and transfer of knowledge.

3.4.3 After the completion of the project, the DWD and the NWSC issued status reports about project's operations. However some of the glaring operation and maintenance (O&M) deficiencies that were discovered during the mission's field visits were not mentioned in these O&M reports or for those mentioned no corrective measures were taken. As a result, poor O&M practice continued for years. It is necessary to carry out periodic field visits to verify the reliability of O&M reports that are being submitted and take appropriate measures to resolve the reported O&M problems.

3.5 Procurement

The procurement of goods and services were carried out in line with the Bank rules, and this is sufficiently discussed in the PCR.

3.6 Project Costs

3.6.1 The estimated total cost of the project at appraisal was UA 15.97 million of which UA 8.43 million would be the foreign exchange costs, while the balance of FUA 7.54 million would be in local costs. The comparison of cost estimates at appraisal and actual costs are shown in the following table:

Table 3.1
Cost Comparison
(in UA million)

	<u>Foreign Cost</u>	<u>Local Cost</u>	<u>Total</u>
Appraisal Estimate	8.43	7.54	15.97
Actual Cost	12.31	2.68	15.36

Source: Bank's PCR

3.6.2 The reason why the foreign cost has increased by about 50 percent from what was envisaged at appraisal was due to the following factors:

- A substantial part of the existing imported materials and equipment for the Lira water supply were looted during the force majeure period from 1986-88 and had to be replaced;
- The Lira and Gulu contracts, which formed the major part of the project, were awarded to foreign contractors and most of the payment was mainly in foreign currencies.

3.6.3 Much of the cost escalation was mainly on the Lira scheme and on the Engineering Services. This is because the Lira scheme included new construction works while others were mainly rehabilitation works. Also the Lira water supply scheme was the most complex system and included the most sophisticated water treatment of all the systems. The main reason for the escalation in costs of the engineering services was due to the long implementation period and the fact that there was a heavy reliance upon expatriate engineering personnel.

3.7 Disbursements and Financial Sources

It was envisaged at appraisal that disbursements will run from 1984 to 1988. But actual disbursements were effected between 1985 and 1993. This prolongation was tied up with the problems of implementation discussed earlier. The disbursements were contained within the budget at appraisal with Government contribution being lower by about 30 percent in terms of FUA although it was over the budget when expressed in terms of the local currency which had depreciated significantly. The financial sources remained to be ADF and Government of Uganda and scaling down the scope of the project was required to offset the cost overrun.

3.8 Compliance with Loan Conditions and Covenants

3.8.1 The conditions stipulated for fulfilment during project implementation were either not fulfilled or for those fulfilled after long delays, reporting was not made to the Bank. The poor institutional framework of both the executing agency (the then WDD) and that of NWSC coupled with the instability of the country seem to have contributed to not seriously observe conditionalities of the loan.

3.8.2 However, donors continued dialogue with the Government to creating the enabling environment with respect to sector reforms and enactment of legislation; and the Government's commitment to supporting the sectoral development efforts have been very significant and rewarding over the years. This is in line with the current development agenda of making the environment right rather than imposing piecemeal conditions on each intervention.

4 PERFORMANCE EVALUATION

4.1 Operating Performance

4.1.1 Following project completion in 1992, the Mbarara, Lira and Gulu schemes were handed over to NWSC for operation and maintenance. In line with the on going decentralisation policy of the Government, the Kamuli scheme was taken over by the local government of the Kamuli Town Council.

4.1.2 In spite of the delays and cost overruns that necessitated the exclusion of some components, most of the outputs of the project were in line with those specified at the time of appraisal. The major findings relating to project performance are discussed in the subsequent paragraphs.

4.1.3 In retrospect, it appears that a lack of pre-project planning was evident. A lack of a social survey and proper technical feasibility study resulted in the installation of inappropriate technologies and designs that were not supported by local infrastructure and market conditions. As a result many of the existing lagoon systems were greatly under utilised. There also seemed to be a lack of coordination between the water sector and sewerage planning since there was not an adequate water supply to feed the sewage collection systems. A sewage collection system and lagoons assumes that there is a well functioning water supply system to provide water to feed the water-based sewage collection system.

4.1.4 The technology used for the Lira treatment plant was not supported by the existing infrastructure in the area. An example is the pulsator-clarifier system, which in fact was suitable for a highly developed urban setting where space is a priority and a continual electrical supply is assured. Neither of these conditions existed at Lira. Another aborted effort was the decision to commence the construction of a second dam at Tochi for the Gulu water supply system. There is plenty of evidence that this decision was taken hastily at the time but fortunately abandoned (but having incurred about 15 percent of the cost) when it was realised later that the geo-technical studies of the foundation were not adequately carried out. This led to rehabilitating an existing dam. There was not adequate feasibility studies of other water sources (groundwater and protected springs) carried out even though a later study has indicated that there is promising potential in these areas.

4.1.5 There is evidence that there was a lack of rigor in requiring the contractors to fulfil their obligations and provide adequate training to ensure that the projects could be competently operated and maintained after the departure of the contractors. The treatment plant at Lira was handed over without the air scrubbers being installed. As a result the back washing procedure was never executed correctly. The training of personnel to maintain the plant must have been minimal or those trained were not retained. The non-functioned pulsator-clarifiers and the broken inlet flow meter were not repaired. The missing air scrubbers remained unattended. In addition, the situation at the water intake at Lake Kaima in Lira is very serious. The causeway, at Lake Kaima in Lira serves as access road to the intake works and carries a portion of the pipe line from this source to the reservoirs (over 42 km). This causeway has been severely eroded by wave action and the pumping house floor is now at the same level as the lake, making it very susceptible to flooding. This problem is more due to an act of nature than to poor design and construction. The rise of the lake by about 2 meters could not have been easily predicted. If the causeway and related intake works are not repaired immediately the entire system will become inoperative. Reasonable efforts are now being done to rectify the situation.

4.1.6 The continuation of serious unattended O&M problems affects both the NWSC and the DWD. The problem of the malfunctioning water treatment plant at Lira has persisted for years. The continual cleaning of the storage reservoirs was a desperate move to patch up the situation without ever getting to the root of the problem. The improper dosing of chlorine at Kamuli continued for years without

readings being taken of the chlorine levels. The result was that the scheme at Kamuli was producing water that the majority of users judged as undrinkable. There have been institutional and technical changes that have been made both at NWSC and DWD, but the impact of these changes has not yet reached the field sites. For example a new water quality laboratory has been constructed at Entebbe and the DWD has set up a Quality Assurance Section, but still the improper dosing of chlorine at Kamuli has continued for years unchecked and uncorrected.

4.1.7 Most of the systems are still incomplete and lack optimal operations thereby limiting service delivery to reach out consumers either through house connections or stand posts for water supply and hook more consumers to the sewerage facilities; thereby limiting the financial viability of the schemes.

4.1.8 There is need to seriously evaluate the magnitude of these problems and come out with a long-term and least cost solutions. In addition, the training, certification and retention of well-qualified engineers need to be seriously addressed. Practical field training and experience has to be promoted and rewarded in the water and sanitation sector in order to ensure the long-term sustainability of the schemes.

4.2 Financial Performance

National Water and Sewerage Corporation

Income and Expense Accounts

4.2.1 At appraisal, the executing agency and beneficiary of the project was the then Water Development Department (WDD) in the Ministry of Lands, Minerals and Water Resources, which were restructured over the years. The former is renamed the Directorate of Water Development (DWD) and the latter, the Ministry of Water, Lands and Environment. The then WDD had no autonomous financial status. As part of the loan agreement, a separate water and sewerage account under the direct control of WDD was imposed at the time.

4.2.2 Upon project completion in 1992, three of the completed schemes (Mbarara, Gulu and Lira) were handed over to the National Water and Sewerage Corporation (NWSC), which is currently responsible for 12 urban centres including the three schemes. Kamuli scheme remained to be run by WDD (DWD) for some years and then taken over by the local government of the Kamuli Town Council since 1997 in line with the Government policy of decentralisation. The subsequent paragraphs will first discuss the financial performance of NWSC and the schemes under it followed by that of Kamuli scheme.

4.2.3 In the earlier years of its existence, NWSC's financial performance had been negative, mainly resulting from the application of low tariff, high level of production and distribution losses, high operation and maintenance costs and sub-optimal billing and revenue collection efforts. As a result, NWSC was depending largely on Government subsidy. Following the implementation of Government's public sector reforms, there has been some improvement to turn around the corporation to be self-financing. However, the effort was not adequate to improve the financial performance of the utility as shown in the Table 4.1.

Table 4.1
Revenue and Expenditure Account ¹
(Financial Year ending 30 June 1992-98)
(in million US\$)

	1992	1993	1994	1995	1996	1997	1998
Total Revenue	6.724	8.598	14.441	19.468	21.084	21.716	21.908
Total Expenditure	5.631	9.380	15.729	18.879	20.368	21.491	27.753
Surplus/Deficit	1.093	(0.782)	(1.288)	0.589	0.716	0.225	(5.845)

Source: NWSC financial statements

4.2.4 Only three (Kampala, Jinja and Entebbe) out of the 12 areas have been operating with profit while all the others including the project schemes have remained far below break-even operation. The poor financial performance in 1998 necessitated the Government to take drastic action by appointed new Board members drawn from the various stakeholders. The Board in turn appointed a new Managing Director.

4.2.5 The new management launched in February 1999 a scheme called 100 Days Program to improve NWSC services. Under this program the areas were encouraged to improve their performance against well-determined criteria on the basis of which the best performers were awarded prizes. The outcome was satisfactory and to continue with this momentum, the NWSC management has introduced another 200 days Service and Revenue Enhancement Program to run from 1 July to 31 December 1999. This program will focus on (1) water production and sewerage services, (2) water distribution, and (3) customer care. A three-year financial forecast was made based on the expected output of this program as summarised below.

Table 4.2
Revenue and Expenditure Forecast
(Financial Year ending 30 June 1999-2002)
(in million US\$)

	1999	2000	2001	2002
Total Revenue	26.038	26.447	28.198	31.255
Total Expenditure	34.475	30.089	30.419	28.385
Surplus/Deficit	(8.437)	(3.642)	(2.221)	2.870

Source: NWSC financial statements

4.2.6 As shown above, a turn around of the deficit situation will be achieved by the fiscal year 2001/2. Undoubtedly, the new management is exerting all its efforts to bring about positive results and develop corporate norm in the business of water supply and sanitation services. There is now a move to concentrate more on billing and revenue collection functions away from the past orientation of installing new production systems. This effort is justified on the ground that the Utility had to run commercially and profitably. However, one observes a tendency of giving less priority on ensuring the quality of O&M of the systems and reaching out to satisfy the demand of the low-income and peri-urban consumers. NWSC need to strike a balance between its core activities of supplying potable water supply and adequate sanitation services and that of its functions of billing and revenue collection in order to have an integrated development of the sector.

¹ The PCR portrays positive financial performance based on the assumptions of higher capacity utilisation of the schemes, reduced unaccounted for water, annual tariff increase and lower O&M costs, all of which did not materialise as reflected in the actual performance.

Financial Structure

4.2.7 A summary of the Balance Sheet for the years ended June 30, 1992 to 1998 is given in the Table 4.3.

Table 4.3
Balance Sheet as at June 30, 19__
(in Million US\$)

	1992	1993	1994	1995	1996	1997	1998
Assets							
Total Current Assets	5.816	7.867	13.326	15.680	21.002	20.242	24.703
Total Net Fixed Assets	45.509	89.013	87.783	85.863	84.360	90.622	93.125
Total Assets	51.325	96.880	101.109	101.543	105.362	110.864	117.828
Total Liabs. & Capital							
Total Current Liabs.	0.868	1.583	4.220	5.793	6.530	6.477	9.654
Equity, funds and Reserve	50.457	49.634	51.072	49.932	50.437	50.470	53.168
Donors Funds	-	45.663	45.817	45.818	48.395	53.917	55.006
Total Liabs. & Capital	51.325	96.880	101.109	101.543	105.362	110.864	117.828
Current Ratio	6.70	4.97	3.16	2.70	3.22	3.12	2.55
Debt/equity Ratio	N.A	N.A	N.A	N.A	N.A	N.A	N.A

Source: NWSC's Financial Statements

4.2.8 As can be seen from the above table, the Current Ratio has deteriorated over the years resulting from increased current liability although the current assets have been also increasing over time. Debtors account represents over 70 percent of the total current assets. The fixed assets are financed by Equity, accumulated funds and reserves plus donors funds (grants and loans). NWSC is required to repay principals of the loans including interest as well as corporate tax. A large proportion of the donors' funds is either from grant or concessionary sources. Debt/equity ratio could not be determined with accuracy since breakdown was not available. NWSC's financial structure is still fragile and it has not yet cleared its accumulated loss.

Billing and Collection Efforts

4.2.9 In the past the billing and collection functions had been neglected since NWSC was not obligated to run its business on sound commercial basis. The level of unaccounted for water (UFW) for all the areas excluding Kampala area was as high as 49 percent of water produced (30 percent of system losses and 19 percent administrative losses). The UFW for Kampala area was and is still much higher and is largely accounted by illegal connections and leakage in the distribution systems. The average level of outstanding receivables from water and sewerage bills was as high as 13.6 months of revenue, which compares poorly to a 2-month sale target prescribed in the Bank's Public Utility Policy Document. With the view of improving the operational and commercial functions of Kampala area, a separate scheme called Kampala Revenue Improvement Project (KRIP) was launched under which the O&M including the billing and collection functions are contracted out to a Management Consulting Firm. NWSC management has reported that progress achieved is less than satisfactory while the consulting firm reports the limitation to its autonomy to deliver its services. There is a need to iron out this conflicting position with a more transparent performance contract.

4.2.10 For the areas outside Kampala, some improvements have already been registered in the billing and collection functions of NWSC by the closing date of the 100 days program (May 1999). It is expected that further improvements could be made when the ongoing 200 days program is completed.

Pricing Policy (Cost Recovery and Affordability)

4.2.11 NWSC operates a national tariff, which includes a cross-subsidy facility between the various categories of consumers. Periodic revisions have been made on the tariff structure and rates with the aim of meeting the long run marginal cost of supply. At appraisal, the tariff rate applied for house connections was US\$8/m³ for Kampala and US\$3/m³ for the other areas. Water supplied from standpipe was charged at the rate of 35 Ugandan cents per jerrycan (20 liters), while private vendors charged from US\$20 to US\$50 per jerrycan depending on both distance and availability. There were no sewerage charges at the time. The current average water tariff rates for Kampala consumers and other areas are US\$1150/m³ and US\$950/m³ respectively. This translates into an average of US\$0.80/m³ and US\$0.66/m³ respectively. The difference in the average tariff in the two categories is due to the fact that in other areas consumption is skewed towards domestic consumption since the expected commercial and industrial development was not achieved. Secondly, the sewerage component accounts for lower billings in the other areas when compared to Kampala since sewerage connection is very low in the other areas for the same reason. Sewerage charge is applied at the rate of 70 percent and 100 percent levy on connected domestic and commercial/industrial consumers respectively. The weighted average connection fee is currently US\$133,000 (about US\$100). The general assessment is that the rates particularly the connection fees and the charges for sewerage services are very high deterring connection. This partly explains the under utilisation of the sewerage systems. Moreover, the issue of cost recovery and affordability is not adequately factored in the current rates. The overall average compares with the upper range determined for other African countries (US\$0.10/m³ to US\$1.00/m³). There is a proposal to reduce connection fees by 36 percent to encourage house connection for both the water supply and the sewerage services. Private vendors currently sell water at prices as high as five times the utility's rates.

4.2.12 It costs NWSC somewhere between US\$349/m³ and US\$3,797/m³ to produce and supply potable water from the various areas; the Lira and the Gulu schemes financed under this project costing US\$3,797/m³ and US\$3,204/m³ (1996/97 figures) respectively. Thus, the current average tariff, though it is already on the high side, does not cover the full cost of supply for most of the areas. There is need to review tariff structure and rates taking into account cost recovery and affordability. More importantly, there is even a greater need to optimise system utilisation and enhance productivity and quality of services in order to reduce the risk of passing the inefficiency of the utility on to the customers.

Directorate of Water Development (DWD)

4.2.13 DWD was until recently responsible for urban and rural water supply not under NWSC. It operates with budget allocated annually by the Government treasury and its accounts are maintained in line with the Government's accounting procedures that follows cash basis to control budget allocation and expenditures. At appraisal, DWD was required to maintain separate project accounts to show the income and expenditures arising from the project. At the time of the PCR, DWD operated 29 rural and small town water supply and sewerage schemes including the ADF financed Kamuli Water Supply Scheme, which was completed in November 1990. None of the schemes generate revenue high enough to cover all the operation and maintenance costs. In the case of Kamuli, the low revenue resulted from the absence of large institutional and commercial consumers and the existence of alternative and unbilled source of water supply from boreholes. The Government continued to subsidise all the water schemes under DWD.

4.2.14 In line with the new Act of 1997 governing Local Governments, these schemes were taken over by the local councils. Most of the schemes need capital injection to put them in optimal operating conditions and expand the distribution systems. Moreover, they lack qualified personnel since local government work force was not geared to handle such schemes in the past. While the decentralisation policy is a positive development in the country, the prerequisite capacity building and running the schemes on sound commercial basis are lagging behind with the results that service delivery and coverage have been adversely affected.

4.2.15 In the last couple of years, Kamuli has been reported to generate revenue that meets its operation and maintenance costs. This was possible because of the charges imposed on borehole supplies, the quality of which was reported to be superior to that supplied from the ADF financed scheme. The poor quality of water from the Kamuli scheme was a result of the malfunctioned water meter at the treatment plant, which made accurate chlorine dosing impossible.

Financial Rate of Return

4.2.16 The Financial Internal Rate of Return (FIRR) was not calculated in the Appraisal Report. The average cost of supply at a discount rate of 2 percent was US\$30.68/m³ against an average tariff rate of US\$3/m³ resulting in cross subsidy of US\$27.68/m³. For the PPER, the financial viability of the project is assessed on the bases of the long run average incremental cost (AIC) of supply. Both the 2 percent rate used in the Appraisal and Project Completion Reports and the current average cost of capital, which is 11 percent is applied for comparison purposes. The results are summarised in Table 4.4, while the details are given in Appendix II.

Table 4.4
Financial Viability of the Project

	At Appraisal	At PCR	At PPER	At PPER
Average cost of loan used as discount rate	2%	2%	2%	11%*
Average Tariff for the four centres	US\$3/m ³	US\$189/m ³	US\$512/m ³	US\$512/m ³
Average cost of water supply	US\$30.68/m ³	US\$1469/m ³	US\$1200/m ³	US\$1400/m ³
Cross Subsidy	US\$27.68/m ³	US\$1280/m ³	US\$688/m ³	US\$888/m ³

Source: Missions' Estimation

*Cost of Capital (source Central Bank- average rates for 1999)

4.2.17 At a 2 percent cost of loan considered in the Appraisal and Project Completion Reports, the recalculated average cost of water supply will be US\$1200/m³ against an average tariff rate of US\$512/m³. This leads to a cross subsidy of US\$ 688/m³ short of tariff increase. However, at the current average cost of capital of 11 percent, the cross subsidy required will increase to US\$ 888/m³. Thus, the three centers (Mbarara, Gulu and Lira) will continue to be subsidised by revenue from the three major towns (Kampala, Entebbe and Jinja) but at a reduced rate if the required investment is made to improve service delivery. On the other hand, if no capital injection is made, the amount of subsidy will even be higher (US\$ 3488/m³) since more will be spent in O&M to run the deteriorating system and with no additional connections to the systems. The Kamuli water supply service as a whole is operating currently at breakeven level since tariff has been levied on borehole supplies as well. But the Kamuli scheme by itself is operating at very high cost due to low capacity utilisation resulting from poor water quality supplied from this scheme. For Kamuli, being under the local government jurisdiction, government subsidy could not be ruled out unless the existing problem particularly relating to water quality is not resolved to attract more consumers into the system.

4.2.18 When taken globally, the prevailing rate, although among the highest in Africa, is still below long run marginal cost of supply. NWSC will have to minimise its per unit cost of supply by enhancing productivity and efficiency of its manpower and by increasing capacity utilisation of its systems. In particular, there is need to expand sewerage connection (with possible reduction of the exorbitant sewerage connection fees and charges) in order to connect more dwellings into the system and hence generate more revenue. There is also the need to rehabilitate and expand the water supply reticulation systems and resolve the technological problem in Lira in order to minimise the overall O&M costs of the system and to improve the quality of water supplied.

4.3 **Economic Performance**

The economic performance of the project could not be measured quantitatively due to lack of base data on the social benefits such as health impacts and time saved by women and children from fetching water. In addition, these schemes have not yet attracted industrial ventures in the areas as originally conceived. Considering the limitation of the reticulation system particularly in the informal settlements and peri-urban areas and the limited sewer connections, it can be deduced that the indirect benefits for sustainable economic development relating to poverty reduction and environmental betterment of the project areas have not yet been fully realised.

4.4 **Institutional and Social Performance**

Institutional Development

4.4.1 The institutional and organisational status of the water supply and sanitation sector has undergone significant changes over the years to respond to the evolving challenges and accommodate the different sector players with a clearer roles and responsibilities in order to enhance co-ordination and collaboration of the sectoral functions. The main players in the sector are the Ministry of Water, Lands and Environment (formerly Ministry of Natural Resources), with its two major agencies - the Directorate of Water Development (DWD) and the National Water and Sewerage Corporation (NWSC); and the Ministry of Local Government (MOLG), which, through its councils, is currently responsible for O&M of the systems taken over from DWD following the decentralisation policy.

4.4.2 At the time of appraisal, the major constraints in the Sector included 1. Lack of co-ordination and collaboration among sector actors; 2. Lack of clearly defined sector policies of medium and long term investment planning; 3. Inadequate co-ordination between sector agencies; 4. Lack of sufficient financial and manpower resources; and 5. Inadequate cost recovery mechanism. Over the years some of these deficiencies have been addressed. To address the capital investment and manpower constraints, several donors have been active in the sector with both financial and technical assistance. The World Bank has been involved in major urban areas in the past and is currently financing the Small Towns Water and Sanitation Project in small towns and rural growth centres to provide basic water and sanitation services in a demand-led fashion. KfW has also been involved in several towns and rural growth centres spread all over the country. In rural water supply, UNICEF and DANIDA are the lead external support agencies. In support of the water sector a review of water resources was carried out recently by the World Bank. A Water Sector Reform for both urban and rural water supply and sanitation services will be soon undertaken with funding from the World Bank and DANIDA respectively to serve as the basis for future interventions.

4.4.3 The Government, on its part, has taken drastic measures such as restructuring the sectoral institutions, revising the Water Legislation as well as other sub-sector legislative acts in recent years. As a first measure, the Government formulated in 1993/4 the Water Action Plan (WAP), which set the guidelines for future water use in Uganda.

4.4.4 Subsequent legislative act has enumerated the details of the implementation of the WAP. As part of the restructuring of the water sector in Uganda, the government has enacted various codes, laws and policy documents, among which are:

- The National Environment Management Policy (1994) and Statute (1995)
- The Water Statute (1995)
- The Uganda Water Action Plan (1995)
- The National Water and Sewerage Corporation Statute (1995)
- The Water (Waste Discharge) Regulations (1998)
- The National Water Policy (1999)
- The Sewerage Regulations (1999)
- Water Supply Regulations (1999)
- Water Resources Regulations (1999)

4.4.5 The above developments are guided by the decentralisation policy of the Government which has been vigorously implemented since 1997 with the enactment of the Local Governments Act that defined roles for the different levels of governance in the provision and management of water related services and activities. Thus, quite a lot has been accomplished when compared with the situation at appraisal of the project; and this is positive lesson to be drawn relating to Government's effort in redressing the sector to encourage participation of the private sector in the socio-economic activities of the country.

Management and Organisation Effectiveness

4.4.6 Subsequent to the above, DWD divested itself from the operational functions of rural and small town water supply and sanitation schemes, which have now become the responsibility of local councils in the districts. But DWD has continued to be the lead water sector agency. It has mandate for water resources monitoring, assessment and management including abstraction and waste discharge regulation in addition to the overall planning and supervision of the implementation of urban and rural water supply and sanitation programmes in liaison with relevant agencies. It has recently reinforced its water quality control function through the Water Resources Assessment Project (WRAP). As part of the WRAP, the water control laboratory at Entebbe has been refurbished and has now attained an international standard. It has further embarked on a long-term program of capacity building to provide needed support and guidance to the local councils.

4.4.7 While local councils are expected to run these schemes on a commercial basis, the issue of subsidy has still remained to be resolved since few of these locally operated systems are financially self-sufficient. DWD is currently handling this issue cautiously and two forms of subsidies are being provided: grants from the central government and conditional grants from DWD, which is performance contingent.

4.4.8 While government is committed in providing the enabling environment for the decentralisation policy to succeed, funding limitations and lack of full adherence to the requirement of the policy seem to have curtailed providing the required level of capacity building particularly at district level. DWD needs to be revamped and strengthened to fully exercise its overall regulatory and monitoring power. The ability of the local government to take charge of the handed over systems should be seriously

reinforced with appropriate incentive package. It is for this reason that the World Bank and DANIDA are actively involved in providing financing for further studies of the sector and capacity building.

4.4.9 With regard to NWSC, this utility had faced over the years both organisational and managerial shortcomings. Although NWSC was to operate on sound commercial basis since its incorporation in 1972, the lack of autonomy and inadequate enabling environment had been limiting its performance in every respect. It is following the public sector reforms and decentralisation policy pursued by the Government over the last few years that NWSC was making an effort to rationalise its organisational structure and improve the quality of its management. In particular, a positive trend is beginning to show up since 1998 with the appointment of a new Board members that were drawn from the various stakeholders (including the private sector) and a new Managing Director.

4.4.10 The thrust of the new corporate management is to improve overall performance of the utility. NWSC is overburdened by the problems of capital financing, running nonviable towns, high cost of debt serving (as no more subsidies are forthcoming from the government), huge arrears, high cost of the labour force, and high operation and maintenance cost of its water and sewerage systems. Only 3 of its 12 areas have been financially viable, while all the others have remained far below the break-even point. The 100-DAY PROGRAM TO IMPROVE NWSC SERVICES is resulting in some improvement and more is expected from the on going 200 days program, which aims at further enhancing revenue generation and the corporate norm.

4.4.11 It is commendable that the Government of Uganda has gone a long way in its decentralisation policy. This is a step towards encouraging the participation of the private sector in all socio-economic activities including the water supply and sanitation services.

Socio-Economic Impact

4.4.12 Overall, there has been improvement in the supply of potable water and sanitation services in Uganda compared to the situation at appraisal of the project. In terms of access, of 34 urban centres in Uganda with some form of existing piped supplies, 24 towns depend on surface water and 10 on groundwater. In the 12 major towns operated by the NWSC, about half of the inhabitants get their water from the piped network. This is broken down into 45 percent served by public stand posts (against 20 percent at project appraisal); 25 percent yard tap; 30 percent house connections (against 80 percent at appraisal). The decline in house connection is a result of increasing urban population without proportionate increase in the level of income that could afford house connections as well as the limitations in the reticulation systems. With respect to sewerage services, there are currently 13 public sewerage systems in Uganda designed to serve about 20 percent of the respective urban population. However less than 10 percent are currently connected to the sewerage system. The majority of the population still uses septic tanks or VIP latrines while about 30 percent of the urban population have no adequate sanitation facilities. Access to potable water supply and proper sanitation services are all the more lacking in informal settlement and peri-urban areas. This situation has limited the positive socio-economic impact of the overall water supply and sanitation services in the country including that in the project areas.

4.4.13 One of the main social impacts expected was the increase in health improvement due to improved water supply and sanitation. Because many other factors are at work and no measurable indicators were provided at appraisal, it is difficult to draw direct consequences from the installation of the four schemes. The health statistics for the four districts under question show that the major diseases present, in order of frequency of occurrence, (1) malaria, (2) upper respiratory infections (which also includes HIV cases), (3) internal worms and (4) diarrhoea diseases. It is to be noted that three of these are water-related diseases. Unfortunately the health statistics are only given by district,

with no distinction made between urban and rural areas. Given the reasonably good water quality figures for the four urban areas, it is most probable that reported diseases occurred in the rural areas.

4.4.14 An alarming rate of Guinea worm disease was noted in Mbarara district. This is a water-related disease that is relatively easy to control and was thought to have been mostly eradicated in Africa. Its presence here in Mbarara reflects a lack of basic sanitation, probably around open wells mainly in the rural areas.

4.4.15 The overall conclusion to be drawn is that the project has contributed to improve the health situation in the towns that are being served. The health situation in the poor neighbourhoods, urban informal settlements, peri-urban and rural areas, however, remains precarious. Quantifiable comparisons could not be made since no verifiable indicators were given in the Appraisal Report and separate figures relating to the impact of the scheme could not be obtained to assess project impact based on before and after approach.

4.4.16 The economical impact of the project was not significant. Its catalytic effect to enhance economic activities has not been significantly pronounced; this is one of the reasons for the grossly under-utilised sewerage systems. This situation is not surprising as it takes years to reconstruct an economy that has reached near collapse in the 1970s and early 1980s.

4.5 Impact on Women

4.5.1 Gender issues did not arise during appraisal. However, in the NWSC there seems to be an awareness of the need to incorporate more women into the corporation's operations. This is reflected by an effort to train and recruit more women in technical and managerial fields. NWSC has also a fair proportion of female employees. Of the total 1,529 employees in, 221 (14 percent) are female. Of the total 107 senior and middle managerial posts, 50 (46 percent) are occupied by female employees. In the case of DWD, of the total 156 employees, 26 (16 percent) are represented by female employees; but about 70 percent of this occupy non-engineering/technical posts.

4.5.2 A sector policy on gender was developed with the assistance of the Ministry of Gender, which was adopted in 1994. Since then, a great deal of effort is being exerted to adequately deal with the gender issues. To this end, both NWSC and DWD are taking appropriate measures to visibly mainstream gender aspects in policy, strategy and capacity building activities.

4.5.3 It is difficult to segregate the impact of the project on women since available figures on coverage are not presented as such. However, the general impression is that women and children have benefited from the water supply schemes since they are responsible for fetching water from distant places and from precarious sources in the absence of accessible and potable water supply sources.

4.6 Environmental Performance

4.6.1 The very low hook-up rates to the sewage treatment lagoons installed under this project indicate that users are still using more conventional methods like septic tanks and VIP latrines. At some point in the future when urban housing becomes too dense these methods could contribute to the pollution of the groundwater system. Under-utilised sewerage lagoons do not as such constitute an environmental hazard, but neither they do much to improve the environment of the urban areas in which they are located.

4.6.2 Because of the reasonably good water quality that is generally being provided by the three NWSC water supply schemes, it is likely that an improvement has been recorded in the health of town dwellers. However it was noted that the drainage at water collection sites (kiosks and hand pumps) was often neglected. With the decentralisation of MOH services it is to be hoped that the sanitation at urban water points will be improved. Although Uganda has internationally accredited laboratory facilities, there is lack of adequate mechanism of controlling and monitoring water quality and a less vigorous enforcement of laws in particular relating to untreated industrial discharges into the water bodies.

4.7 **Performance of Consultants, Contractors and Suppliers**

4.7.1 As noted in the PCR there were serious problems with civil unrest during the implementation of this project which resulted in delays and changes in the consultant and three of the contractors for Gulu, Lira and Kamuli. This may partly explain the haste with which the project was implemented when a peaceful period finally arrived in the area, but nevertheless poor pre-project planning occurred which lead to less than optimal choices of technology and often weak operation and maintenance (O&M) procedures.

4.7.2 There was very little evidence of social surveys being done that would have determined the existing usage of water sources and sanitation systems, There was also very little evidence of proper feasibility studies that would have investigated other technological options, specifically groundwater exploitation. An inappropriate, sophisticated technology was chosen at Lira (pulstator-clarifier) when a simpler gravity type clarifier would have sufficed. In addition the air scrubbers were not installed in the filters which should have been a requirement of the contractor who installed the water treatment system. Moreover there is no evidence that the contractor had provided adequate training to handle O&M of a somewhat 'Turnkey Plant'. It appears that lack of technical personnel capable of correctly maintaining the plant is still absent on the ground.

4.7.3 There also seemed to be very poor co-ordination between the water supply system and the sewage collection system at the design stage. The reasons for this situation may have been lack of social survey to see how people were then disposing wastewater and whether they were willing to connect to a lagoon system, and at what cost to them? There seems to be lack of proper assessment of the water supply system, which is needed to supply the sewage collection system. For example the Mbarara scheme involved only sewerage system. It was only at a latter stage that water supply system was enlarged with World Bank funding.

4.7.4 The design and planning for the sewage lagoon systems seems to have been based on industrialised country criteria. Overall control by the consultant appears to have been minimal. The result is that the lagoon systems are over designed particularly in Mbarara with insufficient clients connected to it to make it a viable system.

4.7.5 At Gulu a dam was begun at Tochi and discontinued when the construction was 15 percent completed. One reason was that the foundation of the dam was found to be pervious. This reflects the poor performance of the consultant who should have done adequate geo-technical surveys to determine the reliability of the foundation before construction commenced. There is no evidence that a proper groundwater survey was done to investigate other options of water sources before the construction of a large dam. A subsequent Feasibility Study by another consulting firm in 1997 has indicated that there is a strong potential for water supply from protected springs and boreholes in the Gulu area that need to be thoroughly assessed before going into construction of a Dam.

4.8 Performance of Borrower and Executing Agency

4.8.1 The Government of Uganda, as the borrower, should have been more critical in accepting an inappropriate technology at the Lira water treatment plant, but since the funding was coming from without, the Bank (the donor) should have also been critical about the technology selected.

4.8.2 Many of the over designed systems that were installed were due to a lack of pre-project planning (lack of social surveys, adequate technical feasibility studies, etc.). The borrower and the executing agency (DWD) should have insisted on these studies but again the blame should be shared with the donor, which should also demand adequate studies before funding.

4.8.3 There may have been inadequate training provided by the contractors who installed the systems, but some of the blame for the ongoing poor O&M of the systems has to be shared by the entities responsible for their operation and maintenance. For example, DWD should have detected the O&M problem in Kamuli Scheme which seem to have been left for several years. If DWD could not properly operate this plant, it is difficult to imagine how the local authorities can do any better. Local authorities may have more motivation to improve the system, but the technical expertise seems to be lacking.

4.9 Bank Group Performance

4.9.1 The Bank, as the lender of the funds to this project, did not seem to ensure the thoroughness of the feasibility study and the appropriateness of the technology selected particularly in the case of Lira. Its capacity building assistance was also sub-optimal. The Bank needs to ensure that sector studies and thorough feasibility studies including social survey are conducted prior considering projects for financing and appropriate revisions are made in line with the changing economic conditions.

4.9.2 In addition, there was a lack of continuity in the monitoring of this project, especially after the project was completed, as is the case for all Bank Group financed projects. A mechanism need to be put in place by the Bank to continue monitoring commissioned projects at least for a few years after they are put in service.

5 PROJECT IMPACT AND SUSTAINABILITY

5.1 Overall, there has been improvement in the supply of potable water and sanitation services compared to the situation at appraisal of the project (although the service coverage is lower percentage wise due to the increase in urban population). By and large, the project has contributed to improve the health situation in the towns that are being served for which women and children are the major beneficiaries although it is difficult to quantify. On the other hand, the economical impact of the project was not significant. Its catalytic effect to enhance economic activities has not been fully realised. This outcome is not surprising since it would take years to reconstruct an economy that had reached near collapse in the 1970s and early 1980s.

5.2 The project is not sustainable mainly as a result of the inappropriate technology, over-sized capacity, inadequate reticulation systems, excessive connection charges in particular for low-income consumers, and sub-optimal O&M of the systems. As a result, there is an excess capacity in the sewage lagoons in all of the sites (Mbarara, Gulu and Lira).

5.3 The water supply system for most of the areas (except in Gulu) is not fully utilised due to lack of reticulation system. The overall capacity utilisation of the water supply systems under NWSC is on the average 53 percent, the lowest being that of Lira at 20 percent. In Gulu, the water source at the

Oyitino dam is reaching its limits and a growing population in town is increasing the water demand. On the other hand, the capacity of the water treatment plant in Gulu is more than adequate. In the immediate future increases in the water source, expansion of the reticulation and the sewage collection networks are required to optimise the existing capacity of the water treatment plants and the lagoon system. During the course of this project, the construction of another dam at Tochi was started but because of various problems, both technical and financial, this project was set aside at the time. A recent Feasibility Study has indicated that there is the potential of developing both protected springs and pumped groundwater sources. These avenues should be fully exploited before the option of Dam construction is considered to arrive at the least cost solution for future expansion of the water supply system.

5.4 At Lira the water supply is not technically sustainable since the plant operation is inefficient. In order to become sustainable, there is need to rebuild the system to suit the circumstance in the country. In addition, the situation at the water intake at Lake Kaima in Lira is very serious. If the causeway and related intake works are not repaired immediately the entire system will become inoperative. The NWSC is presently tackling this problem.

5.5 At Kamuli, the water supply is being used mainly for washing purposes. This, to say the least, is an inappropriate use of development funds. It should be relatively easy to fix the chlorine dosing equipment, and in fact this raises the question as to why this simple O&M problem was not remedied long ago. With properly chlorinated water and hygiene education it may be possible to persuade more users to drink the water from this water supply system instead of using it for washing purposes.

5.6 Since a DANIDA study has shown the potential of groundwater development in the area, the way forward to sustainable development in Kamuli may be to first exploit the ground water options and hand pumps to expand the water supply system in the future.

5.7 It may be more sustainable to promote kiosks and standpipes rather than house connections in the near future until the economic situation of the consumers improve. In fact such policy has been put forward by government authorities at Gulu in order to reach the low-income consumers in the town and peri-urban areas to rationalise affordability and accessibility of potable water supply. This move will also allow economical expansion of the system and optimal use of scarce water reserves.

5.8 With regard to the sewerage systems, their viability is largely dependent on greater water usage as these are water driven systems and cannot function adequately if adequate water is not available to the users. After adequate water is made available, then more paying clients need to be connected to the sewer collection system. In some cases this will entail enlarging the network of sewer collecting pipes. It may be that the lagoon treatment systems will only become viable and sustainable when the economies of the town centres become sufficiently advanced to enable the people to pay for this service. It thus appears that the installation of collection systems and lagoons occurred before it was economically sustainable. This again points to the lack of revising the original designs, following the deterioration of the socio-economic situation in the country, before project implementation.

5.9 With respect to the institutional reform, a great deal has been achieved following the policy of decentralisation. Emphasis should now be given to capacity building with appropriate incentives particularly at the local government levels to retain qualified personnel and improve service delivery. In addition there is need to review tariff structure and levels taking into account cost recovery, affordability and above all productivity and quality of services so that the utilities inefficiencies are not grossly passed over to the consumers. The donor communities, including the Bank, need to review their involvement and participation in the sector to enhance integrated approach including capacity building in order to ensure balanced and sustainable development in the sector.

6 PERFORMANCE RATINGS

6.1 Performance indicators were not sufficiently developed at appraisal nor was it a practice to prepare Logical Framework Matrix at the time. A retrospective Matrix has been developed for this PPER, on the basis of which the performance of the project and the involved parties was rated (Appendix III).

Implementation Performance Rating

6.2 The overall project implementation performance was rated as *unsatisfactory*. This was largely due to delays and cost overruns which reduced the scope of the work. The then political situation was not conducive for effective implementation and co-ordination of activities. It was recognised that external factors had influenced the project, but a considerable part of the problem can be attributed to human decisions. The choice of technology and designs for some of the schemes were inappropriate with the result that it has negatively impacted on the operations of the schemes.

Bank Performance Rating

6.3 The Bank's performance was also rated as *unsatisfactory*. There was too much reliance on written reports, and it appears that supervision missions were not thorough to identify technological shortcomings and design problems. Also the bank must share some of the blame for the lack of pre-project planning, and adequate revision of original designs following the deterioration of the socio-economic condition of the country before project implementation. Since supervision ended at commissioning, the Bank has no way of following up most of the operation and maintenance problems and advising the borrower on ways of resolving them.

6.4 The Bank has contributed very little in capacity building. Even the technical assistance component included in the project was later deleted to meet cost overruns in other components. Unfortunately, the concern at the time was more on physical investment than institutional building.

Project Outcome

6.5 The overall project outcome is rated *unsatisfactory*. The improvement in health and social condition is not obvious in low-income and pre-urban areas since consumers from such areas are not connected to the system either due to the high tariff or the limitation in the reticulation systems. The improvement in the environmental aspect is also marginal since the sewerage systems are under-utilised. Although significant institutional development has taken place in recent years, many restructuring plans have been made on paper, but beneficial effects of these organisational reforms have yet to reach the project areas. The hoped benefits of decentralisation have yet to be realised at local levels that have been decentralised from DWD to the local municipalities.

6.6 The sustainability prospects of the project are also unlikely unless capacity building efforts and incentive measures particularly at local government levels are reinforced. Tariff rates need to be reviewed taking into account efficiency, affordability and consumers willingness to pay in order to improve and sustain the financial and economic viability of the service providers. This could help improve operation and maintenance and invest in distribution and connection systems in order to serve the under-served low-income communities. The Government's regulatory framework and monitoring systems need to be reinforced to achieve overall environmental viability of the activities in the sector in general and the project in particular.

7 CONCLUSION, FEEDBACK AND RECOMMENDATIONS

7.1 Conclusion

7.1.1 This project has had a difficult history. There was a war of liberation in late 1970 to oust the then regime. In addition, there was continuing civil unrest in the north during much of the time of project implementation. As a result, the project had known serious delays, cost overruns and exclusion of a few components to meet the budget constraints.

7.1.2 Since project commissioning, some technological and O&M problems have cropped up. In the case of Lira, the technology applied for the Treatment Plant was inappropriate. In Lira and Kamuli there is fundamental O&M problems that have remained unsolved over the years. With the exception of Gulu and Kamuli, the water supply production capacity is over sized and the under utilisation is all the more aggravated due to the limitation of the reticulation systems. All the sewerage facilities are operating under capacity due to the low quantity of sewage being received that resulted from inadequate usage of water in the households and fewer connections to the system. The technological or design shortcomings may have emanated from the following:

- It appears that the original studies may not have been critically reviewed and necessary revision made in the light of the adverse socio-economic and political conditions of the country at the time that would have resulted in changes in the design parameters and the technological option adopted (the scheme in Lira and the over capacity of the sewerage facilities could be cited in this context);
- The benefits or otherwise of rehabilitation verses replacement have not been well studied. For example, in Gulu, the reticulation system was not functioning for several years but only a part was replaced under the project making it inadequate to utilise the capacity of the rehabilitated source;
- Little investment went into the reticulation system and sewer connections limiting optimisation of capacity utilisation of the water supply as well as the sewerage facilities;
- The high cost of connections and charges for sewerage services has hindered many households from hooking up to the system more so as they have already invested in septic tanks.

7.1.3 The choice of inappropriate technology in the case of Lira has lead to high O&M costs in terms of the use of costly chemicals, electricity and spare parts as well as labour force. There is also concern on the availability of skilled technical personnel at the plant sites to address technical problems and adequately operate and maintain the system.

7.1.4 The project has partially succeeded in its primary goal of increasing the access of urban dwellers in the four sites to improved water supply. However, most of the systems are still incomplete particularly with respect to secondary and tertiary distribution systems thereby limiting house connections or getting the supply source closer to the users through yard or stand posts. The sewage collection systems are so under utilised that the health benefits derived from this aspect of the project is debatable. In addition, at Kamuli, since the water supply system is rarely used for drinking or cooking purposes, it has greatly diminished the health benefits that could have been accrued from this scheme. The schemes are costly in relation to the income level of the majority of consumers and the level of

economic activities in the areas served. Thus, the project's contribution to addressing poverty and environmental issues is sub-optimal.

7.1.5 There is concern about the effectiveness of the decentralisation of water and sewerage services. In the case of Kamuli scheme, basic flaws in the system has persisted for years. Neither the local technical personnel in Kamuli nor the DWD support personnel had solved this problem. It appears that DWD needs to take up the challenges of decentralisation more seriously and enhance capacity building at local government levels. If well-motivated technical personnel are not present at the project sites the decentralisation policies may not function correctly.

7.1.6 There is also concern about the move to privatisation that is being planned for the water sector. The role of the government will be to maintain quality control of the systems, but if all of the good and qualified engineers go into the private sector, who will exercise adequate quality control? A long-term capacity building effort needs to be exercised at all levels in order to have a positive and sustainable outcome.

7.1.7 With the increasing growth in population, urbanisation and possible industrial development, there is high pressure on Uganda's urban WS&S development, which is already characterised by heavy dependence on foreign financing as the overall capacity of the Government to finance the sector is still very limited. This capacity is even more limited at the local government levels, to which the water supply activities have been decentralised. Whereas, donors have often come to support the sector, new avenues for sector financing as well as reforms in the management of the services are required. Fortunately there seems to be willingness among the top authorities to undertake the needed reforms. The forthcoming World Bank funded study on Sector Reform may provide some guidelines as to how the services should be managed and funded in order to enhance the sector's development. Moreover, there is a need for the donor communities including the Bank to collaborate more closely with the Government to reinforce its efforts in capacity building in order to help the decentralisation work successfully and encourage the private sector participation in more concrete terms.

7.2 Feedback/Lessons

Several important lessons are presented in the Project Completion Report of this project, which are still valid. The following additional lessons are drawn to re-orient future Bank Group intervention in the sector.

- Handling decentralisation and privatisation more prudently and gradually is expected to result in positive and sustainable outcome; (paras. 7.1.5 and 7.1.6).
- The inappropriate choice of technology could significantly compromise the benefits and sustainability of projects; (paras. 5.2, 5.3, 7.1.3 and 7.1.4).

7.3 Recommendations

The following recommendations are made in order to address the sustainability issue and the overall development effectiveness of the project and future interventions.

MWLE/DWD

- While the overall Government effort to enhance participatory approach, good governance and accountability is commendable, the move towards decentralisation and privatisation need to be handled prudently and gradually to allow sufficient lead time for capacity

building and commercialisation of the activities in order to avoid stretching out the already scarce human and financial resources; (paras. 4.4.8, 7.1.7).

- A thorough and objective feasibility study including social survey should be conducted to look at all technical options, with comparative cost effectiveness of each option prior to sanctioning funding in any future investment; (paras. 4.1.3, 4.1.4, 5.8).
- A water supply and sanitation (WS&S) sector policy should co-ordinate all water supply and sewerage activities in order to ensure balanced development of the sector; (paras. 4.1.3, 4.7.3).
- For the decentralisation policy to succeed, among other things, DWD needs to be revamped and strengthened to fully exercise its overall regulatory and monitoring power. In addition care must be taken to ensure that the technical and managerial skills are present in the local municipalities; (paras. 3.4.3, 4.1.6, 4.4.8, 5.9, 7.1.5, 7.1.6).
- A policy of promoting kiosks and standpipes instead of house connections would seem to be appropriate for most of the smaller towns in order to supply effectively scarce water resources to poorer communities cost effectively; (para. 5.7).
- A rigorous training program needs to be introduced to ensure that sufficient technical personnel are available to properly operate and maintain WS&S systems. This process should begin with the requirement that contractors adequately train personnel in the O&M procedures of systems that they have installed. An ongoing DWD training program should ensure that practically trained engineers are retained within the organisation by providing them with appropriate incentives; (paras. 4.1.8, 5.9).
- There is need to develop appropriate mechanism of controlling water quality and enhancing enforcement of environmental regulations; (para. 4.6.2).

Ministry of Health (MOH)

- The decentralised Ministry of Health will have to practice interactive management by visiting the water points under their jurisdiction to ensure that there is adequate drainage at stand posts. (para. 4.6.2).

NWSC

- Ensure that its concern between water production and metering including standards and levels of services with that of billing and collection is well balanced such that the service provider's role as producer of potable water and sanitation facilities is not overshadowed with concern in revenue collection; (paras. 4.2.6, 4.2.18).
- There is need to visit areas' performance regularly to resolve O&M problems on time. In this connection the O&M problems of the Water Treatment Plant at Lira need to be assessed and come up with appropriate long-term solution; (paras. 3.4.3, 4.1.6, 4.1.8, 4.2.18).
- There is need to give more emphasis on practical training and rewarding experienced engineering personnel with appropriate incentives in order to retain their services; (para. 4.1.8).

- There is need to iron out the conflicting position of NWSC management and the Management Consulting Firm responsible for the Kampala area with a more transparent performance contract; (para. 4.2.9).
- There is need to undertake a study to review the tariff structure and level to adequately factor in affordability and justifiably needed cross subsidisation with the view of avoiding passing over the utility's inefficiencies on the consumers; (paras. 4.2.11, 4.2.18, 5.9).

Bank

- Ensure that sector studies and thorough feasibility studies including social surveys are conducted prior considering projects for financing; and appropriate revisions are made in the light of the changing economic conditions in order to ensure the appropriateness of the technology selected and implemented; (para. 4.9.1).
- Closely monitor implementation and ensure that technical and financial reports are regularly forwarded to the Bank. Above all, the Bank needs to give appropriate feedback to borrowers; (paras. 3.4.2, 4.9.2).
- Create a mechanism by which the Bank continues its monitoring function on commissioned projects at least for a few years after they are put in service in order to play fully its development role in the sector; (para. 4.9.2).
- Review its involvement and participation in the sector to ensure integrated approach including capacity building in order to enhance balanced and sustainable development in the sector; (para. 5.9).

7.4 Follow-up Action

The follow-up action matrix, derived from the main findings and recommendations, is given in Appendix IV. The most immediate action is for the Bank to initiate dialogue with the Government to assist in the on-going sector reform and capacity building.

UGANDA: PROJECT PERFORMANCE EVALUATION
FIVE URBAN CENTRES WATER SUPPLY PROEJCT

RETROSPECTIVE LOGICAL FRAMEWORK MATRIX

COUNTRY : UGANDA
PROJECT : FIVE TOWNS WATER SUPPLY PROJECT
DATE OF PPER : June 1999
EVALUATION TEAM : G.YIRGA-HALL and Eric SCHILLER (Consultant)

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS & RISKS
<p align="center">GOALS</p> <p>1.1 To promote good health and development through provision of sustainable safe water supply and sanitation services</p>	<p>1.1 Service levels by population served in urban and rural areas</p> <p>1.2 Quality of service as determined from the type of services and laboratory test results</p>	<p>1.1 National reports on service coverage</p> <p>1.2a Utilities Laboratory reports</p> <p>1.2b Reports of Ministry of Health and other sources on trends on water-borne diseases</p>	<p>(Goal to Super goal):</p>
<p align="center">OBJECTIVES</p> <p>2.1 To alleviate the shortage of potable water required for domestic, social and economic uses by augmenting the capacities of the existing water supply systems</p>	<p>At Appraisal</p> <p>2.1 Service coverage in the five urban centres to be improved The five centres were Gulu, Lira Kaberamaido, Kamuli and Mbarara</p> <p>At Completion</p> <p>Only four centres were implemented (Gulu, Lira, Kamuli and Mbarara)</p>	<p>2.1 Data of the Utilities on service coverage</p> <p>2.2 Verification of data by spot checks at selected sites</p>	<p>(Project Objective to Goal):</p> <p>At Appraisal</p> <ul style="list-style-type: none"> -Political stability expected to be restored -Government commitment to sector development -Enabling legislation for WDD,NWSC <p>Post Evaluation Findings</p> <ul style="list-style-type: none"> -Civil unrest continued during project implementation -Political stability and Government commitment achieved in recent years.

OUTPUT			(Output to Project Objective) At Appraisal
3.1a <u>Source works</u> including a dam at Gulu, valley tanks at Kamuli, swamp intake at Kaberamaido and lake intake at Lira constructed and made operational	3.1a Bidding launched for procurement of goods and works for the various components, selection made and contract awarded- and work completed and commissioned	3.1a Signed contracts for the various components; progress reports of the Utility; reports of supervision missions of donors; Certificate of completion of works	-Correct engineering services and design
3.1b <u>Water treatment plants</u> in Lira and Kaberamaido constructed and existing plants in Lira and Kamuli rehabilitated and made operational		3.1b Visits to selected sites to verify construction and O&M	-Adequate funding is available -The implemented project is the least cost solution And appropriate technology
3.1c <u>Pumping stations</u> constructed and clear water pumps installed in Gulu and Kaberamaido and made operational		3.1c Financial accounting reports	-Well defined organisational structure for WDD and NWSC -The Utilities will properly operate and maintain the installed works -Continuous power supply available
3.1d <u>Storage reservoirs</u> constructed in Gulu, Lira, Kaberamaido and Kamuli and existing steel tanks in Gulu and Lira rehabilitated and made operational		3.1d O&M reports(no .of personnel, work descriptions, work schedule reports)	Post Evaluation Findings -Some of the installed works are too sophisticated leading to malfunctioning of the system
3.1e <u>Distribution mains</u> including water meters supplied and installed in the five centres and made operational			-Not enough replacement or rehabilitation of distribution systems
3.1f <u>Sewerage systems</u> including main delivery sewers constructed in Gulu, Lira and Mbarara and made operational			-Unreliable power supply and the high cost of running the standby generators adversely affected the operation of the system
3.1g <u>Sewage Treatment Works</u> provided at Mbarara and Gulu and made operational			-Inadequate budget to meet operating and maintenance costs
3.2a <u>Workshops, office buildings and other logistics</u> such as furniture and fixtures, vehicles, communication equipment and operators dwelling units availed and used	3.2 Buildings constructed and logistics procured as per the specifications	3.2a Building specifications and physical presence of the buildings	-Inadequate capacity building for the local authorities to whom the schemes are handed over

<p>3.2b <u>Looted equipment</u> replaced at Gulu, Lira and Kaberamaido and made operational</p> <p>3.3 Technical assistance provided and counterpart staff trained</p> <p>3.4 Institutional Strengthening; WDD and NWSC</p> <p>3.5 Development of manpower</p> <p>3.6 Rehabilitation of leaking water distribution lines</p>	<p>3.3a Contract entered with selected technical assistants and retained for a period of 144 man-months</p> <p>3.3b Assigned counterpart staff</p> <p>3.4 Operating framework of WDD and NWSC</p> <p>3.5 Number and experience of trained personnel</p> <p>3.6 Reduction in water losses</p> <p>At Completion and Post-Evaluation</p> <p>Kaberamaido water supply scheme was dropped due to shortage of funds.</p> <p>The technical assistance component was also dropped</p> <p>The construction of a new Dam in Gulu was also dropped and the existing dam was rehabilitated instead</p>	<p>3.2b specifications and physical presence of the items purchased</p> <p>3.3a Signed contracts for the technical assistants</p> <p>3.3b Manpower reports</p> <p>3.4 Relevant legislation passed</p> <p>3.5 Manpower reports (temporary and permanent employees)</p> <p>3.6 Reports of field water loss tests</p>																	
<p>ACTIVITIES /COMPONENTS</p> <p>4.1 Improvement of <u>raw water intake</u> Works at all centres</p> <p>4.2 Increased <u>water treatment</u> Capacity at all centres</p> <p>4.3 Construction of <u>pumping stations</u> And supply and installation of pumping equipment</p>	<p>Financing Plan (in FUA million)</p> <p>At Appraisal</p> <table border="1"> <thead> <tr> <th></th> <th>Forex</th> <th>Local</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>ADF</td> <td>9.15</td> <td>5.85</td> <td>15.00</td> </tr> <tr> <td>GOU</td> <td>-</td> <td>2.34</td> <td>2.34</td> </tr> <tr> <td>Total</td> <td>9.15</td> <td>8.19</td> <td>17.34</td> </tr> </tbody> </table>		Forex	Local	Total	ADF	9.15	5.85	15.00	GOU	-	2.34	2.34	Total	9.15	8.19	17.34	<p>Financial/disbursement reports</p> <p>Progress reports of the Utilities</p> <p>Bank's mission reports</p> <p>Quality of constructed works verified by spot checks in the field</p>	<p>(Activity to Output):</p> <p>At Appraisal</p> <p>-Implementation schedule will be adhered</p> <p>-Various parties will perform satisfactorily</p> <p>-Qualified and motivated staff</p>
	Forex	Local	Total																
ADF	9.15	5.85	15.00																
GOU	-	2.34	2.34																
Total	9.15	8.19	17.34																

4.4 Construction and/or supply And installation of <u>water storage facilities</u>	<p>At Completion and Post-Evaluation</p> <table border="1"> <tr> <td data-bbox="417 253 470 277">ADF</td> <td data-bbox="512 253 575 277">13.37</td> <td data-bbox="585 253 638 277">1.23</td> <td data-bbox="659 253 722 277">15.00</td> </tr> <tr> <td data-bbox="417 280 470 305">GOU</td> <td data-bbox="512 280 533 305">-</td> <td data-bbox="585 280 638 305">1.68</td> <td data-bbox="659 280 722 305">1.68</td> </tr> <tr> <td data-bbox="417 308 470 332">Total</td> <td data-bbox="512 308 575 332">13.37</td> <td data-bbox="585 308 638 332">2.91</td> <td data-bbox="659 308 722 332">16.68</td> </tr> </table>				ADF	13.37	1.23	15.00	GOU	-	1.68	1.68	Total	13.37	2.91	16.68		<p>Post-Evaluation Findings</p> <ul style="list-style-type: none"> -Implementation period not adhered. An overall delay of 8 years after loan approval -Government was not providing on time the counterpart funding for the project -Lack of incentive to motivate and retain staff
ADF					13.37	1.23	15.00											
GOU					-	1.68	1.68											
Total					13.37	2.91	16.68											
4.5 Construction of <u>water Transmission and distribution pipelines</u>																		
4.6 Construction of <u>workshops, Accommodation and office buildings</u>																		
4.7 <u>Operational assistance</u> in the Form of vehicles and equipment																		
4.8 Construction of <u>sewerage facilities</u>																		
4.9 <u>Technical assistance</u> for 144 man-months																		
4.10 <u>Engineering services</u>																		

UGANDA: FIVE CENTRES WATER SUPPLY AND SEWERAGE PROJECT
FINANCIAL VIABILITY OF THE PROJECT
(Value in Ugandan Shillings)

YEAR	COSTS				Water	WS	Tariff	BENEFITS		Discounted	
	CAPITAL	Exchange	CAPITAL	O&M	TOTAL	Produced	Sold	Rate	Total	Net	Value
	Million UA	Rate				M3million	M3million	UShs/M3			
1985	0.776	567.793	440.61		440.61					-440.61	-396.94
1986	0.149	1660.050	247.35		247.35					-247.35	-200.75
1987	0.871	1344.565	1171.12		1171.12					-1171.12	-856.31
1988	0.828	110.138	91.19		91.19					-91.19	-60.07
1989	0.658	230.809	151.87		151.87					-151.87	-90.13
1990	1.11	522.500	579.98		579.98					-579.98	-310.08
1991	3.23	876.917	2832.44	40.2	2872.64					-2872.64	-1383.63
1992	5.04	1550.850	7816.28	60.5	7876.78	0.7	0.46	189	86.00	-7790.79	-3380.63
1993	2.698	1693.195		338.5	338.50	0.7	0.46	189	86.00	-252.51	-98.71
1994				837.5	837.50	0.8	0.52	512	266.24	-571.26	-201.19
1995				948.0	948.00	1.5	0.98	512	499.20	-448.80	-142.40
1996				1094.5	1094.50	1.5	1.05	512	537.60	-556.90	-159.18
1997				1108.6	1108.60	1.5	1.05	512	537.60	-571.00	-147.04
1998				2041.2	2041.20	2	1.4	512	716.80	-1324.40	-307.25
1999				2269.5	2269.50	2.5	1.75	512	896.00	-1373.50	-287.07
2000			450.00	1687.0	2137.00	2.7	2.03	1200	2430.00	293.00	55.17
2001			750.00	1749.0	2499.00	2.9	2.18	1200	2610.00	111.00	18.83
2002			900.00	1588.6	2488.60	3.2	2.4	1200	2880.00	391.40	59.81
2003			1000.00	1500.0	2500.00	3.5	2.8	1200	3360.00	860.00	118.40
2004			800.00	1500.0	2300.00	3.8	3.04	1200	3648.00	1348.00	167.20
2005			400.00	1200.0	1600.00	3.8	3.04	1200	3648.00	2048.00	228.85
2006				1200.0	1200.00	3.8	3.04	1200	3648.00	2448.00	246.44
2007				1200.0	1200.00	3.8	3.04	1200	3648.00	2448.00	222.02
2008				1200.0	1200.00	3.8	3.04	1200	3648.00	2448.00	200.01
2009				1200.0	1200.00	3.8	3.04	1200	3648.00	2448.00	180.19
2010				1200.0	1200.00	3.8	3.04	1200	3648.00	2448.00	162.34
2011				1200.0	1200.00	3.8	3.04	1200	3648.00	2448.00	146.25
2012				1200.0	1200.00	3.8	3.04	1200	3648.00	2448.00	131.76
										0.01	2%

Base Scenario: Notes and Assumptions

1. Unaccounted for water with respect to technical losses is expected to gradually reduce levelling at 20%
2. Additional investments will be made starting year 2000 to enhance the reticulation system and sewer connections
3. Water sold will be increased as a result of the additional investment to increase service coverage and reduce unaccounted for water.
4. The respective revenue and costs are calculated for Mbarara, Lira, Gulu and Kamuli schemes from the Reports of NWSC and DWD.
5. The prevailing average tariff for the 4 centers, which is UShs 512/m³ will have to be increased to UShs. 1200 at a discount rate of 2% (which is used in the appraisal report and PCR) in order to achieve break even operation.

Thus, the cross subsidy required for the base scenario, would be UShs. 688/m³ at a discount rate of 2%

At a discount rate of 11% (the current average cost of capital), the tariff needs to be increase to Ushs. 1400/m³ or cross subsidised by UShs. 888/m³ to achieve break even operation

If no investment is made to improve the system and increase service coverage, the tariff has to be increased to UShs. 4000/m³ at a discount rate of 2% or cross subsidised by UShs.3488/m³ to achieve break even operation since the O&M cost will be increasing per annum to maintain the deteriorating system.

UGANDA: PROJECT PERFORMANCE EVALUATION
FIVE URBAN CENTRES WATER SUPPLY PROJECT

IMPLEMENTATION PERFORMANCE RATING

Component Indicators	Score (1 to 4)	Remarks
1. Adherence to time	1	8 years delay after loan approval
2. Adherence to cost Schedule	2	Cost overrun on Loan was avoided by reducing the scope of work.
3. Compliance with Covenants	1	There was a delay of over a year in fulfilling conditions to loan effectiveness. Only 2 out of 6 conditions were fulfilled at the time of project completion, but external problems of civil unrest accounted for some of these.
4. Adequacy of Monitoring & Evaluation and Reporting	2	Technical progress reports and project finance were adequately prepared and submitted to the Banks; implications not appreciated as the technological shortcomings not questioned at the time
5. Satisfactory Operations	1	Frequent operational problems due to incomplete rehabilitation or replacement of pipes and inappropriate choice of technology.
Overall Assessment of Implementation Performance	1.5	Unsatisfactory

BANK PERFORMANCE RATING

Component Indicators	Score (1 to 4)	Remarks
1. At identification	N.A.	Project was a result of Bank financed study
2. At Preparation of project	1	Some missions carried out to access the status of the project financed earlier for which implementation was interrupted due to the war situation in the country. The project was to complete and rehabilitate an on going project with a supplementary financing. But the options of rehabilitation verses replacement were not well studied. The design parameters were not critically reviewed in the light of the changes in the socio-economic situation of the time leading to inappropriate choice of technology.
3. At appraisal	1	Carried out based on the consultants report on the status of the project interrupted and field mission but the technological options not critically examined
4. At supervision	1	Technical supervision was reported to be useful but the timeliness and frequency of the missions were sub-optimal; and problems associated with choice of technology not resolved
Overall Assessment of Implementation Performance	1	Unsatisfactory

PROJECT OUTCOME

No.	COMPONENT INDICATORS	SCORE (1 TO 4)	REMARKS
1.	Relevance and Achievements of Objectives	2.0	
i.	Macroeconomic Policy	3	In line with the then Recovery Programme of the Country
ii.	Sector Policy	2	Project in line with Sector goals although overall sector study was lacking.
iii.	Physical (including Production)	2	Achieved water production targets, but all available technical options were not considered leading to operational problems
iv.	Financial	2	Revenue level and collection sub-optimal; consumers continued to use cheaper source of water supply from boreholes.
v.	Poverty Alleviation & Social and Gender	2	Increased water supply has improved service delivery to the population of the centres served. However, the limitation in the reticulation system has been a set back to supply water to informal settlements and peri-urban areas.
vi.	Environmental	1	The sewerage facilities are grossly under utilised. Enforcement of environmental legislation is poor. Statistics on water borne diseases are not significantly on the decline.
vii.	Private Sector Development	2	Has not served as a catalyst since very little private sector development is seen in the areas
2.	Institutional Development	2.25	
i.	Institutional Framework (incl. Restructuring)	3	Project has not contributed to institutional strengthening of WDD and NWSC. But other donors' and Government's effort has brought about institutional reforms over the years.
ii.	Financial and MIS (including Audit systems)	2	Financial system in place, but cost accounting and revenue collection not carried out effectively. MIS is not adequate
iii.	Transfer of Technology	2	The technical assistance component of the project was dropped. Limited training facilities at WDD. But need was identified in a couple of studies undertaken. NWSC is relatively better organised in ensuring the transfer of technology for projects implemented under it.
iv.	Staffing by qualified persons and Training	2	There is lack of qualified staff to operate the sophisticated equipment in some of the schemes

3.	Sustainability	1.9	
i.	Continued Borrower commitment	2	Government is committed to provide the enabling environment but a great deal of emphasis need to be given to capacity building of the service providers
ii.	Policy Environment	2	Several policy documents have been produced redefining the roles and responsibilities of the sector actors; but emphasis now should be given to capacity building and enforcement of legislation.
iii.	Institutional Framework	2	While NWSC's institutional framework is being rationalised those of the local councils require a lot of support from DWD to provide them with adequate autonomy and assistance in capacity building.
iv.	Technical Viability and Staffing	2	Engineers need to be used more in their fields to resolve technical problems and appropriate incentive should be developed in the utilities to retain capable staff.
v.	Financial Viability including cost recovery mechanisms	2	Tariff reviews required in order to determining cost recovery mechanisms, affordability of the services and consumers ability to pay.
vi.	Economic Viability	1	Low economic activities in the centres thereby limiting capacity utilisation of the systems particularly sewerage system.
vii	Environmental Viability	2	Poor enforcement of legislation and lack of feedback mechanism for effective quality control.
viii	O&M facilitation	2	Very high O&M costs for most of the schemes against low revenue base
4.	Economic Internal Rate of Return	1	No industrial development as expected and not enough data to factor in the social benefits.
	Overall Assessment of Outcome	1.8	Unsatisfactory

RECOMMENDATIONS AND FOLLOW UP MATRIX

MAIN FINDINGS AND CONCLUSIONS	RECOMMENDATIONS	FOLLOW-UP ACTIONS	RESPONSIBILITY
<u>Formulation and Project Rationale</u> 1.1 Project objectives in line with sector goals, but lack integrated approach; prepared without overall sector study. The choice between rehabilitation and replacement was not well reviewed and parameters were not revised following the war situation and its attendant impact on the economic development of the country	1.1 Project formulation needs to have integrated approach with appropriate choice of technology	Adequately review technical and social survey studies prior to funding	Operations Department
<u>Project Implementation</u> 2.1 Delays resulting from the war situation leading to cost overrun and scaling down of the scope of the project. 2.2 Supervision missions largely focussed on technical aspects; and the timeliness and frequency of the missions were sub-optimal.	2.1 Need to fully discuss project risks and the cost implications as well at the time of project preparation and appraisal 2.2 The Bank's supervision missions need to be balanced focusing on technical, institutional and overall sector development aspects.	Ensure that project designs takes account of risks with appropriate measures for effective implementation Continue to improve the skill mix and frequency of supervision missions.	Operations Department.
<u>Compliance with Loan Conditions</u> 3.1 Most of the conditions were not fulfilled on time and some are not fulfilled at all.	3.1 Conditionalities should be relevant, attainable and supporting integrated sector development. Key success factors need to be identified and monitored.	Initiate dialogue for discussing conditionalities up-front during the preparation of projects.	Operations Department
<u>Performance Evaluation and Project Outcome</u> 4.1 There is imbalance in sector investment leading to limitation in service delivery 4.2 There is severe technological faults (in the case of Lira) and operational problems in most of the schemes leading to poor service delivery and poor financial performance	4.1 Support required to enhance balanced management and development of the water supply and sanitation services 4.2 Ensure that least cost solution is adopted in investment decisions	Initiate dialogue to discuss the planned sector review to determine the management and investment options for the sector to enhance integrated approach Review the investment priorities of the sector based on least cost solutions	Operations Department

<p><u>Sustainability</u></p> <p>5.1 Capacity building and incentive measures are lagging behind the decentralisation process.</p> <p>5.2 Additional investment is required to rehabilitate and expand the water supply and sanitation infrastructure</p>	<p>5.1 Reinforce capacity building and assist in formulating appropriate incentive measures to improve service delivery.</p> <p>5.3 External support is required to finance the investment required</p>	<p>Initiate dialogue to support Government's capacity building efforts</p> <p>Review the investment priorities of the sector for possible future intervention and/or to serve as a catalyst to encourage private sector participation</p>	<p>Operations Department</p>
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