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# **WATERLAT GOBACT**

## **NETWORK**

### **WORKING PAPERS**

**PRINWASS PROJECT: An examination of the politics of privatization of water and sanitation services in Africa, Europe and Latin America (1990-2004) – Cases from Kenya and Tanzania**



**Vol. 5, N° 2**

(In English)

Newcastle upon Tyne and Buenos Aires, June 2018

Cover picture: Water supply infrastructure in rural and peri-urban areas, Kenya, 2005.

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Research Projects Series  
PRINWASS Project

An examination of the politics of privatization of water and  
sanitation services in Africa, Europe, and Latin America  
(1990-2004) – Cases from Kenya and Tanzania

José Esteban Castro (Ed.)  
Newcastle upon Tyne and Buenos Aires, June 2018



## **WATERLAT-GOBACIT Research Network**

5th Floor Claremont Bridge Building, NE1 7RU Newcastle upon Tyne, United Kingdom

E-mail: [waterlat@ncl.ac.uk](mailto:waterlat@ncl.ac.uk)

Web page: [www.waterlat.org](http://www.waterlat.org)

## **WATERLAT-GOBACIT NETWORK Working Papers**

### **General Editor**

Jose Esteban Castro

Emeritus Professor,  
Newcastle University  
Newcastle upon Tyne, United Kingdom  
E-mail: [esteban.castro@ncl.ac.uk](mailto:esteban.castro@ncl.ac.uk)

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# **Cuadernos de Trabajo de la Red WATERLAT-GOBACIT**

Vol. 5, N° 2

Serie Proyectos de Investigación

Proyecto PRINWASS

Un examen de la política de privatización de los servicios  
de agua y saneamiento en África, Europa y América  
Latina (1990-2004). Los casos de Kenia y Tanzania

José Esteban Castro (Ed.)

Newcastle upon Tyne y Buenos Aires, junio de 2018



## Research Projects Series

### PRINWASS Project

**Title:** An examination of the politics of privatization of water and sanitation services in Africa, Europe, and Latin America (1990-2004) – Cases from Kenya and Tanzania.

**Corresponding Organizer:**

Jose Esteban Castro  
Emeritus Professor,  
Newcastle University  
Newcastle upon Tyne, United Kingdom  
E-mail: [esteban.castro@ncl.ac.uk](mailto:esteban.castro@ncl.ac.uk)

**Corresponding authors:**

For comments or queries about the individual articles, contact the relevant authors. Their email addresses are provided in each of the articles.

## Serie Proyectos de Investigación

### Proyecto PRINWASS

**Título:** Un examen de la política de privatización de los servicios de agua y saneamiento en África, Europa y América Latina (1990-2004). Los casos de Kenia y Tanzania.

**Organizador Correspondiente:**

Jose Esteban Castro  
Profesor Emérito,  
Newcastle University  
Newcastle upon Tyne, United Kingdom  
E-mail: [esteban.castro@ncl.ac.uk](mailto:esteban.castro@ncl.ac.uk)

**Autores Correspondientes:**

Para enviar comentarios o consultas sobre los artículos individuales incluidos, por favor contacte a los autores relevantes, cuyos datos de contacto son provistos en cada uno de los artículos.

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## Presentation of the Working Paper

We are glad to present another issue of the PRINWASS Project Series (SPIPRW). The SPIPRW Series has the objective of making available edited materials based on the final reports of the PRINWASS Project ([www.prinwass.org](http://www.prinwass.org)). This project was carried out between 2001 and 2004 and was funded by the European Union's Fifth Framework Programme. PRINWASS is a major landmark for our Network, as WATERLAT-GOBACIT was created by a group of PRINWASS partners after the project ended to continue working together on the politics of water and water services.

Although some time has passed since the project ended, the topics addressed, and the project's findings have significant relevance and can contribute towards better understanding some of the challenges currently facing the implementation of progressive, egalitarian water politics. In short, PRINWASS' main objective was to examine critically the policies of privatization of water and sanitation services implemented worldwide during the 1990s, looking at specific cases from Africa, Europe and Latin America. The project carried out case studies in Argentina, Bolivia, Brazil, England and Wales, Finland, Greece, Kenya, Mexico, and Tanzania, and developed comparative analyses of the main findings. Although the original reports were freely available by request, and we produced several specific publications based on the project's findings, much of the material remains largely unknown and, for this reason, we launched the SPIPRW Series to facilitate the dissemination of research results.

This issue of the WATERLAT-GOBACIT Working Papers features two articles presenting edited materials based on the original reports from the case studies carried out in Kenya and Tanzania. These two cases provide examples that have important lessons for current debates on the privatization of essential public services in developing countries, as we currently experience a revival of the water politics implemented worldwide in the 1990s, often with complete disregard for the lessons learned from the recent past. The two Kenyan cases examined in Article 1 provide excellent information about the overall situation of essential water services in the country, and a detailed account of the process of privatization launched by the government in the mid-1990s with the support of international financial institutions and development agencies. In practice, the two cases under consideration in the article, the experiences of Nyeri Town and Tala Town, are mostly cases of commercialization of water supply services. Article 2 discusses the implementation of privatization policies in Tanzania, which took place around the same time than in Kenya, and under relatively similar circumstances, with a strong presence of international financial institutions and development agencies providing support and funding for the required reforms. The article focuses on the privatization of the capital city Dar es Salaam's public utility, DAWASA, which was a very difficult experience and took almost six years to be completed. Differently from the Kenyan cases, where the participating private companies were local, in Dar es Salaam there was a strong presence of multinational water companies.

The original reports were written in 2003 and 2004, and therefore the articles contain references that may be outdated. We have not updated the information, as the purpose of

the publication is to disseminate the original information. We hope that the readers will find this material useful and that it may contribute to the work of researchers, students, activists, and others in their activities to understand better the internal workings and the huge impacts of water privatisation processes. As mentioned earlier, these policies are not only very much alive but are also experiencing a worldwide revival. Therefore, we believe that the findings and lessons that emerged from the PRINWASS Project deserve this publication effort. We wish you all a pleasant and fruitful reading.

Jose Esteban Castro

General Editor and Issue Editor

Newcastle upon Tyne and Buenos Aires, June 2018

## Presentación del Cuaderno de Trabajo

Presentamos con gusto otro número de la Serie del Proyecto PRINWASS (SPIPRW). La Serie SPIPRW tiene el objetivo de facilitar el acceso a materiales editados basados en los informes finales del Proyecto PRINWASS ([www.prinwass.org](http://www.prinwass.org)). El proyecto fue realizado entre 2001 y 2004 y fue financiado por el Quinto Programa Marco de la Unión Europea. PRINWASS representa un momento fundante de nuestra Red, ya que WATERLAT-GOBACIT fue creada por un grupo de los socios que llevaron adelante el Proyecto PRINWASS, quienes una vez finalizado el proyecto decidieron continuar trabajando juntos sobre la política del agua y de los servicios básicos de agua y saneamiento.

Aunque ha pasado algún tiempo desde el fin del proyecto, los temas y los hallazgos del proyecto tienen mucha relevancia hoy y pueden contribuir a la mejor comprensión de algunos de los desafíos que confronta la implementación de políticas del agua progresistas, igualitarias. En resumen, el principal objetivo de PRINWASS fue el de examinar críticamente las políticas de privatización de los servicios básicos de agua y saneamiento implementadas internacionalmente durante la década de 1990, estudiando casos específicos de África, América Latina y Europa. El proyecto realizó estudios de caso en Argentina, Bolivia, Brasil, Inglaterra y Gales, Finlandia, Grecia, Kenia, México y Tanzania, y desarrolló análisis comparativos de los principales resultados. Aunque los informes siempre estuvieron disponibles al público a pedido, y aunque hemos producido varias publicaciones basadas en los hallazgos del proyecto, buena parte del material sigue siendo desconocido, por lo cual hemos creado la Serie SPIPRW para contribuir a la diseminación de los resultados de investigación.

Este número de los Cuadernos de Trabajo WATERLAT-GOBACIT incluye dos artículos que presentan materiales editados basados en los informes originales de los estudios de caso realizados en Kenia y Tanzania. Los dos casos suministran ejemplos que contienen lecciones importantes acerca de la privatización de servicios públicos esenciales en países en desarrollo, ya que en estos momentos experimentamos una reedición de las políticas del agua que fueron implementadas en la década de 1990, con frecuencia sin prestar atención a las lecciones aprendidas del pasado reciente. Los dos casos de Kenia examinados en el Artículo 1 proveen información excelente sobre la situación general de los servicios de agua y saneamiento en el país, con un informe detallado del proceso de privatización lanzado por el gobierno a mediados de la década de 1990 con el apoyo de las instituciones financieras y agencias de desarrollo internacionales. En la práctica, los dos casos considerados en el artículo, las experiencias de Nyeri Town y Tala Town, son principalmente casos de mercantilización de servicios de provisión de agua. El Artículo 2 discute la implementación de políticas de privatización en Tanzania, que fueron iniciadas aproximadamente al mismo tiempo que en Kenia, y bajo circunstancias relativamente similares, con una fuerte presencia de instituciones financieras y agencias de desarrollo internacionales. El artículo trata el caso de la privatización de la empresa pública de la capital Dar es Salaam, DAWASA, que fue una experiencia muy difícil y tomó casi seis años en ser concluida. A diferencia de los casos de Kenia, en los que las empresas privadas participantes eran locales, en Dar es Salaam se dio una fuerte presencia de empresas de agua multinacionales.



Los informes originales fueron escritos en 2003 y 2004 y, por lo tanto, los artículos contienen referencias que pueden estar desactualizadas. No hemos actualizado la información, ya que el propósito de la publicación es diseminar la información original. Esperamos que los lectores encuentren este material de utilidad y que pueda contribuir al trabajo de investigadores, estudiantes, activistas, y otros actores, en búsqueda de una mejor comprensión de la dinámica interna y de los enormes impactos de los procesos de privatización. Como se mencionó previamente, estas políticas no solamente continúan existiendo, sino que están experimentando un renacimiento a nivel mundial. Por lo tanto, consideramos que los resultados y lecciones que surgieron del Proyecto PRINWASS merecen este esfuerzo de publicación. Les deseamos una placentera y fructífera lectura.

*José Esteban Castro*

*Editor General y del Número*

*Newcastle upon Tyne y Buenos Aires, junio de 2018*

## Article 1

### The experience of Kenya<sup>1</sup>

*Ezekiel Nyangeri Nyanchaga*<sup>2</sup> - Department of Civil Engineering, University of Nairobi, Nairobi, Kenya.

#### Abstract

The article discusses the implementation of privatization policies in the Kenyan water and sanitation sector in the late 1990s. It addresses the decision taken by the Kenyan Government, with support from the international financial institutions, to introduce reforms aimed at commercializing the provision of water and sanitation services, including the transfer of management and operation activities to private companies. The article provides information about the overall situation of water and sanitation services in the country and presents results from two case studies involving different experiences of private sector participation, in the towns of Nyeri and Tala. It extracts lessons and discusses positive and negative results, implications and prospects of privatization of essential public services in Kenya.

**Keywords:** Water and sanitation, privatization, essential public services, Nyeri Town, Tala Town, Kenya

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1 The article is based on results from the PRINWASS research project, which was supported by the European Commission under the Fifth Framework Programme 1998-2002, Contract: PL ICA4-2001-10041 ([www.prinwass.org](http://www.prinwass.org)).

2 E-mail: [enyangeri@uonbi.ac.ke](mailto:enyangeri@uonbi.ac.ke).

## Resumen

El artículo discute la implementación de políticas de privatización en el sector de servicios de agua y saneamiento en Kenia, a finales de la década de 1990. Aborda la decisión tomada por el Gobierno de Kenia, con apoyo de las instituciones financieras internacionales, de introducir reformas orientadas a la mercantilización de la provisión de servicios de agua y saneamiento, incluyendo la transferencia de actividades de gestión y operación a empresas privadas. El artículo suministra información sobre la situación general de los servicios de agua y saneamiento en el país y presenta resultados de dos estudios de caso con diversas experiencias de participación privada en las ciudades de Nyeri y Tala. El trabajo extrae lecciones y discute resultados, implicaciones y posibilidades positivos y negativos de las políticas de privatización de servicios públicos esenciales en Kenia.

**Palabras clave:** Agua y saneamiento, privatización, servicios públicos esenciales, Nyeri Town, Tala Town, Kenia

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## Introduction

Kenya has been characterized by inequitable patterns of land ownership, a high population growth rate, rural-urban migration, poorly planned urbanization, deforestation, low literacy level, low domestic product growth and high levels of unemployment. The country's economic performance was deteriorating, and the Gross Domestic Product (GDP) growth rate fell from 4.8 percent in 1995 to 1.8 percent in 1998. In 2001 Kenya's population was estimated at 32 million people, of whom 65 percent lived in the rural areas and the rest in urban centres. Over 60 percent of the urban population lived in unplanned (slum) settlements, lacking enough infrastructure to facilitate the delivery of water and sanitation services (WSS). Access to safe water was estimated to cover 70 percent of the population in urban centres and 48 percent in rural areas, whereas access to sanitation services in urban centres was estimated at 65 percent, as compared to 40 percent in rural areas. However, overall coverage had been declining in terms of quality, quantity, reliability and the nature of access (MWRMD, 2003).

The Government had adopted long, medium and short-term policies to reverse these trends. The long-term policy framework was formulated in the 1996 Sessional Paper No 2 (Government of Kenya, 1996b), which focused on Industrial Transformation targets for 2020, and in the National Poverty Eradication Plan (NPEP) 1999-2015 (Government of Kenya, 1999). The former attempted to lay the foundation for transforming Kenya into a Newly Industrialized Country (NIC) by the year 2020, while the latter provided a national policy and institutional framework for actions against poverty. The medium-term policy framework was contained in the Eighth National Development Plan 1997-2001 (Government of Kenya, 1996a). The Plan focused on raising economic growth and investment levels, promoting export-oriented industries, and restructuring the role of government to focus on providing an enabling environment for economic growth. Kenya's short-term policy framework was outlined in the Policy Framework Papers (PFP), and in the government's annual budget statements.

In relation to WSS, the national government has already recognized that the poor provision of WSS services has impacted negatively on the country's economic development and the wellbeing of the population. With support from international institutions like the World Bank, the government has been working on the implementation of reforms to improve the provision of WSS through the promotion of private sector participation (PSP) by introducing commercial approaches, including privatization. This article addresses the process of reform between the mid-1990s and 2002 and examines the prospects for future development. The first section discusses the process of reform, while the second and third sections present the results of two case studies: the introduction of PSP reforms in Nyeri Town and Tala Town. A fourth section discusses the main findings, and I close the article with brief Conclusions.

## **The privatization process of water and sanitation services in Kenya**

The Ministry of Water Resources Management and Development (MWRMD), formerly the Ministry of Environment and Natural Resources (MENR), is the trustee of all water resources in the country. The present key roles and functions of the MWRMD include water policy formulation, water resources management policy, apportionment of water resources and abstraction licensing, appointment of water undertakers, regulation, setting and approval of standards, approval of water tariffs, levies, rates and charges, development and operation and management of urban and rural water supply systems, wastewater treatment and control, water quality and pollution control, catchment area conservation, overseeing water conservation by the National Water Conservation and Pipeline Corporation (NWPC), irrigation and dam construction schemes, and flood control and land reclamation. The MWRMD's responsibilities include granting rights for "water undertakings", that is, the right to provide water and sanitation services (WSS), to public agencies or private entities (MWRMD, 2003a).

At present there are over 1549 water supply systems in Kenya managed by various agencies. The MWRMD, which is both the largest provider and the main regulator for WSS, the NWPC, a para-state company created in 1988 to take over from the Ministry WSS that could be run on a commercial basis<sup>3</sup>, the Ministry of Local Government (MOLG), and Local Authorities (LA) are the main actors in water service provision, covering 74 percent of the served population. The MWRMD runs over 600 rural water systems of which 200 systems are gazetted for revenue collection. The NWPC runs over 48 water systems, 45 of which are gazetted. Other actors include River Basin Authorities, Community-Based Organizations (CBOs) self-help groups, various institutes and non-governmental organizations (NGOs), which operate and maintain their own water supply systems. Local authorities provide sewerage services in municipalities and urban areas. Communities together with self-help groups and NGOs run more than 865 systems and LAs run eight systems. These systems together supply water services to a total of about 18.6 million people, which represents an average service coverage of 59 per cent of the estimated total population of 31.6 million people in 2003. Table No 1 provides a general overview of the country's main providers of WSS.

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<sup>3</sup> Note of the editor: as explained later in the report, at the time of the study the NWPC was not autonomous and was still operating as part of the MWRMD.

**Table N° 1:** Number of water supply systems in Kenya by service provider and population served.

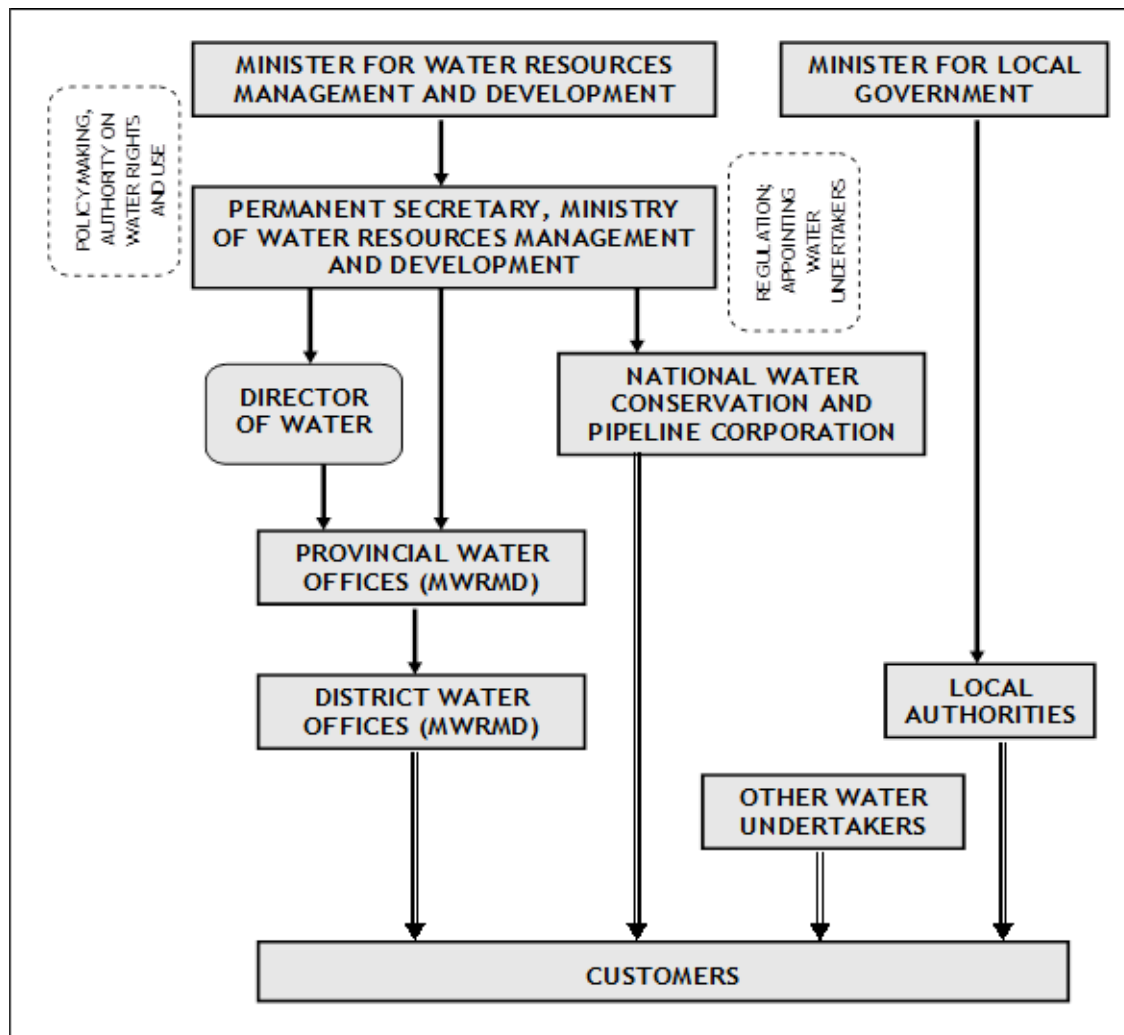
Service provider/producer	Number	Population served (millions)
Ministry of Water Resources Management and Development	628	6.1
National Water Conservation and Pipeline Corporation	48	3.7
Local authorities	8	3.9
Communities	356	4.9
Non-governmental organizations	266	
Self-help water supply systems	243	
<b>TOTAL</b>	<b>1549</b>	<b>18.6</b>

Source: World Bank, 2000 and MWRMD, 2003a.

Some of these actors are mainly concerned with policies, others with implementation, operation and maintenance while some have multiple roles, which have led to contradictions in the sector. Other actors indirectly involved in the water sector include the Ministry of Agriculture (MOA), the Ministry of Health (MOH), the Kerio Valley Development Authority (KVDA), the Tana River Development Authority (TARDA), the Lake Basin Development Authority (LBDA), the Kenya Wildlife Service (KWS), as well as some private companies. Figure No 1 and Table No 2 describe in more detail the present institutional framework for water services in Kenya.



Figure N° 1: Institutional framework for water services management in Kenya



Source: MWRMD, 2003a.

Table N° 2: Main providers of water and sanitation services in Kenya (c. 2000).

<b>MWRMD</b>	At the end of 2000, the Ministry operated 73 piped urban water supply systems serving 1.4 million people. In addition, it also operated 555 piped water supply systems in rural areas serving 4.7 million people.
<b>NWCPC</b>	Operates piped water systems in 21 urban centres serving a population of about 2.2 million, and 14 large piped water supply systems in rural areas serving 1.5 million people
<b>Local Authorities</b>	Ten gazetted major local authorities operate their own WSS systems covering a population of about 3.9 million people.
<b>Municipal Departments</b>	These departments, lacking financial autonomy, provide WSS in Nairobi, (160,000 connections serving 2.25 million people) and Kisumu (11,000 connections serving 345,000 people).
<b>Self-help groups</b>	These groups operate about 355 piped water supply systems in urban and rural areas serving about 2.3 million people. They also run about 10,000 water points serving 2.6 million people. Most are registered with the Ministry of Culture and Social services, but a few have established themselves as legal entities under the "Societies Act".
<b>Private Sector Participation</b>	
<b>Small Scale Independent Providers (SSIPs)</b>	SSIPs provide substitute WSS to all categories of customers. In Nairobi's formal settlements, SSIPs typically finance and operate boreholes equipped with mechanized pumps, small distribution networks, and water tankers. They obtain a water abstraction permit, but rarely a water-vending license. In informal settlements, SSIPs operate mostly water kiosks or vend small water quantities (20 to 25-litre jerrycans or 80 to 100-litre drums).
<b>Management contracts</b>	In Malindi, a management contract developed from a service contract, that is, an "Improvement in Billing and Revenue Collection" contract, that was funded from the Second Mombasa and Coastal Water Supply Project (financed by the World Bank), which ran from 1995 to December 1997.
<b>Privatization</b>	In towns such as Nyeri, Tala, and Eldoret, some aspects of water supply services have been transferred to private companies.
<b>Other private water companies</b>	Mae Properties, the owners of Runda Coffee Estates, developed the first 200 housing units between 1972 and 1974. The Nairobi City Council, the Ministry of Works and the Ministry of Local Government granted Mae Properties the authority to form a private water supply company namely: Runda Water Company Ltd, as the Nairobi City Council was unable to supply water to the new estate at that time. By 2001, the Company supplied water to over 500 residents of Runda Estate in the suburbs of the City of Nairobi.

Source: BG Associates, 2002.

From the above background, it can be concluded that the Government has constructed most of the public water supply systems in Kenya. Consequently, the management and operation of the waterworks has been organized as government departments, which means that a politically appointed head implements the general policy and ensures the day-to-day operation and management.

### Overview of WSS performance

The provision of water and sanitation services WSS in Kenya has suffered from mismanagement and general decline, leading to public outcry owing to the bad quality of the services. Therefore, the water sector is facing enormous challenges, and the Government has already recognized that the provision of WSS is poor, and that this has impacted negatively on the economic development of the country by affecting major sectors that include health, industry and commerce. A major problem is the fact that women and children dedicate much of their available time searching for water, leaving them with limited opportunities for learning and productive activities. These issues have contributed to increase poverty levels in the country (MWRMD, 2003).

The current role of the MWRMD as the primary service provider and principal regulator has undermined the performance of the sector. Implementing the proposed Reform will require large financial resources for capital investment and technical assistance. The Small Towns Water Supply and Sanitation study funded by the World Bank (BG Associates, 2002), found out that the services were of poor quality. Unreliable service is now recognized as a pattern for most piped systems in the country. Because of a limited focus on comprehensive water resources management (WRM), many water supply systems face uncertainty regarding the availability and quality of water, especially during drought years. Lack of investment in maintenance has resulted in the collapse of the WSS infrastructure, specially distribution networks, sewers, connections, and meters; hence, there is a need for massive rehabilitation everywhere. There is, therefore, a lack of “best practices” in WSS. Schemes managed by private firms report relatively good management in terms of revenue collection, and financial operation and maintenance management. However, the lack of adequate facilities, equipment, and skilled technical manpower, in practice means that PSP projects perform poorly in terms of staff productivity (BG Associates, 2002). WSS managed by the MWRMD and the NWCPC have the poorest records for operation and maintenance performance. Materials and spare parts for repair of WSS facilities are never availed in time. Reporting and documentation of Operation and Maintenance (O&M) and related activities is either improperly done or not done at all. WSS experience high unaccounted for water figures, and frequent bursts and leakages that take long before they are repaired. This may be attributed to the existence of large bureaucracies, and unavailability of resources. Revenue generated from the sale of water is never ploughed back into the systems. The employees of WSS are poorly remunerated and, therefore, lack working morale (BG Associates, 2002).

The National WSS strategy paper published by the MWRMD recognizes that one of the key serious weaknesses in the water sector has been the absence of demand management, which is related to a range of problems, including:

- centralized decision making
- political interference
- weak institutional framework leading to poor coordination between sector institutions, and unclear definition of roles often leading to conflicts
- lack of linkage between water supply and sanitation services
- wastage of resources and duplication of efforts
- low accountability of water-undertakers
- absence of transparency in financial management
- lack of regulation and enforcement
- overstaffing and wrong deployment of staff
- inadequate management and financial skills to operate WSS commercially
- low revenues and capital investment
- lack of monitoring and evaluation of the systems
- tariffs that do not encourage consumers to respond to increased water usage
- service levels that are not adapted to consumer needs
- poor design, operation, maintenance, and repair of facilities
- large quantities of unaccounted for water (UFW – over 50 percent), partly due to illegal connections, water theft, and leakage (MWRMD, 2003).

These and other problems inevitably result in an inability to diagnose faults, suggest how they may be corrected, or anticipate problems. For example, water demand already exceeds the capacity of most suppliers. The predominant thinking among water utilities tends to promote supply-side solutions such as extending or building new water infrastructure to provide additional capacity for meeting the rising demand. It is common sense that if the capacity to supply is decreasing then the time when a new construction is required will occur at an earlier date than originally planned. Also, water shortages affecting consumers caused by excessive leakage often result in intermittent supply, which in turn causes low or even negative pressures in parts of the distribution system. When these conditions occur, there is a danger of pollution being drawn into the system through defective pipes, joints and fittings. Under normal practice, a good management approach would ensure that positive mains pressures are maintained and that the system is kept in a sound condition to prevent or eliminate any chances of pollution. For

example, detecting illegal connections to the mains, often made by unskilled people, or otherwise tampering with the system, can result in pollution of the system and the loss of revenue. A good management practice is to track down illegal connections and take the necessary discouraging action so that pollution from this source does not recur, but this is not the case.

Water undertakings attempting to achieve financial self-sufficiency derive most of their income from the sale of water. When there is a reduction in their ability to meet demand, there will be a reduction in income. Furthermore, a water utility that cannot maintain the required output of water is unlikely to be effective in collecting revenues. A reduction in revenue may be acceptable if there is a corresponding reduction in expenditure. In order to achieve financial self-sufficiency, there must be a generation of revenue that will equal the total of the fixed and variable costs. This break-even point will occur at a pre-determined level of sales, but there will be deficit if the revenue is lower than the break-even level of sales. Long-term self-sufficiency requires a financial surplus whereby the revenue exceeds the break-even level, as this is needed to compensate for the periods of deficit while demand is growing, and to build up reserves to provide for future replacements (Franklin, 1983). However, this is unlikely to happen under the prevailing conditions of poor management.

The records of staff employed in the water sector also indicate the existence of serious problems. The MWRMD employs 7,200 people, the NWCPD 1,400 people, and Local Authorities and their autonomous WSS companies and additional 3,700 people. The average staffing ratio is 12.2 persons per thousand connections. Other African countries have an average of 8 persons per 1,000 connections, with the best performance

being at less than 4 persons per 1,000 connections for operations of similar size. WSS operations in large cities and the NWCPD and the MWRMD employ competent technical staff, many of them trained at the Kenya Water Institute (KEWI), under the MWRMD, however, this is not the case everywhere. Also, to some extent the poor performance recorded in the WSS sector results from its inability to attract competent financial managers with compensation packages that compare with that of the private sector.

Other indicators of poor management related to staff, which are common in most water utilities in the country, are:

- high accident rate
- rising sickness and absenteeism
- inadequate training of staff concerned with the management and operation of waterworks, leading to inefficient operation
- lack of evaluation of the effectiveness of the training provided (lack of evidence of improvements in performance resulting from staff training)
- staff standards of training tend to be overstated
- relevant and effective training is not always provided.

There are significant impacts derived from the problems identified with the training of staff and poor management, including:

- repair costs tend to increase when the utilities fail to run services properly
- preventive maintenance is neglected, or done badly, which is particularly important in the more expensive emergency breakdowns that also tend to adversely affect service delivery
- energy wastage, with the attendant costs.

Breakdowns, energy waste and similar problems can push up costs so that breaking even becomes unattainable. Breakdowns also reduce revenue, although there can be partial breakdowns which do not affect service quality or energy use. Basic data on WSS is always available from operators' record books. However, these records are seldom used by operators for situational analysis or forecasting. Such an exercise would help in forward planning by identifying problems and providing appropriate solutions when they can be anticipated.

#### *Tariff, billing and revenue collection*

The official tariffs for domestic water supply<sup>4</sup> range from KSh 20 to 100 (US\$ 0.26 to 1.30) per m<sup>3</sup>. The average tariff is KSh 30 (US\$ 0.4) per m<sup>3</sup>. The sewerage tariff is charged to metered water consumers and is based on the amount of water used. The rate is set at 50-100 percent of the water tariff rate. However, the sewerage tariff rates are not cost-based and, therefore, do not cover the whole costs of construction of facilities and operation and maintenance. The sewerage charge is normally added to the water supply bill, although this is not easy to implement where the suppliers of water and sewerage services are different utilities.

One of the problems identified in recent assessments is that the inefficient cross-subsidies among geographical areas have distorted consumption and encouraged wastage and hampered proper maintenance of facilities in the subsidized areas. Also, owing to the poor quality of piped WSS, customers must rely on costly substitutes. Thus, households spend about KSh 240 (US\$ 3.16) per m<sup>3</sup> when considering not only the bill for piped water but also the additional expenses they incur by buying water from kiosks or tankers for personal consumption, which is 2.3 times higher than the highest piped tariff for water supply. The situation is worse for those families that rely exclusively on water kiosks or other private vendors, as they pay, on average, KSh 380 (US\$ 5) per m<sup>3</sup> and KSh 845 (US\$ 11.1) per m<sup>3</sup>, respectively (BG Associates, 2002; Nippon Koei, 1998). That is, these users pay 3.8 times more, in the case of water kiosks, and 8.4 times more in the case of other vendors, than the highest tariff for piped water supply.

There is a range concerns about tariffs, billing and debt collection that have been identified, most of which are also related to the problems discussed above in relation to

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<sup>4</sup> These figures correspond approximately to the period 2002-2002. The exchange rate considered was 76 Kenyan Schillings (KShs) per 1 US\$.



the performance of WSS. These issues include inadequacies in customer registration and records, meter installation, repair, and reading, billing and revenue collection, and user connection, disconnection and reconnection. In addition to problems mentioned earlier, it is worth highlighting the following:

- tariffs that are too low (unmetered consumption; use of inadequate flat rates)
- inappropriate tariff structures
- failure to invoice customers
- inadequate debt recovery from the commercial and industrial sectors
- customers unwillingness to pay owing to their dissatisfaction with the quality of WSS.

### *Operation and Maintenance*

Over 57 percent of the water supply systems operated by the MWRMD and the NWCPD are affected by intermittence, and 90 percent run less than 12 hours a day. Among the key reasons identified for this situation are the deterioration and failure of infrastructure, lack of compliance by operation and maintenance staff, partial closure of operations to cut costs in the use of chemicals and electric power supply, and seasonal water shortages in the dry season (Nippon Koei, 1998). Proper recording of water distributed, and actual consumption is critical to ascertain the efficiency of WSS, including the identification of unaccounted for water (UFW). However, the flow control and metering systems used by the MWRMD and the NWCPD are very poor, resulting in low recovery of water charges and complaints from the consumers. Many bulk meters are malfunctioning due to poor maintenance. The Water Supply Sector Survey revealed that more than 20 percent of urban consumers and 40 percent in rural areas are unmetered (Nippon Koei, 1998). In addition, water quality control is rarely practiced, and there is no periodical water quality analysis in the sector. Major urban WSS have their own laboratories and test water quality to determine appropriate chemical dosing levels and monitor the treatment process, but there are very few pieces of equipment and these are mostly defective.

The situation of sanitation services is dire. According to the results of the household survey, about 50 percent of the people who receive piped water supply use pit latrines for excreta disposal. Also, almost 47 percent of the urban population use unimproved pit latrines that are considered unacceptable for hygienic reasons. Approximately 23 percent of the total urban population use water-borne toilet facilities connected to a septic tank or cesspit. Most septic tanks discharge effluent into a soak-away pit or drainage tiles located on the building plot. Generally septic tanks generally are not properly maintained which leads to clogging of the soak-away pits (Nippon Koei, 1998).

In relation to sewerage services, operation and maintenance of these systems has always been ignored and very little attention is given to effluent quality control. Some of the sewage treatment works are either neglected or abandoned, although sewage is still pumped into the plants (BG Associates, 2002). Sewers for domestic and industrial wastewater are separate from sewers for storm water drainage. Sewer management

authorities lack the basic sewer inspection programmes that are needed to collect data. The average per capita length of sewers installed in urban centres is 1.4 m, which is too low and indicates poor service coverage. This conclusion is supported by the relatively high number of persons per sewer connection (house lateral) recorded in the survey of 7 urban centres, which is over 30 persons per sewer connection. Newly constructed sewers are generally in good working order despite a general lack of preventive maintenance such as regular cleaning and inspection. Trunk sewers are usually oversized to provide spare capacity for future flows. Unfortunately, in many cases, projected wastewater flows have not materialized because of water rationing or the unwillingness of consumers to connect to sewers. As a result, flows are too low to provide self-cleansing velocities. Low flows lead to operating problems such as accumulation of sediments. Most sewers were constructed between the 1950s and 70s and have never been inspected. Local experience indicates that many of them are in poor structural condition. In several urban centres, the trunk sewers installed in central areas over twenty years ago are only 150 mm in diameter. Urban growth has exceeded the available hydraulic capacity of older sewers resulting in frequent blockages, overflows and surface flooding (Nippon Koei, 1998).

According to the same survey, these problems are also reflected in the situation of wastewater treatment and effluent disposal. The older wastewater treatment works, built in the 1980s, are overloaded owing to the pressures of population growth that went beyond the capacity originally designed, the reduction in treatment capacity due to sludge accumulation or mechanical failure, and ageing sewers resulting in more infiltration of ground and surface water. Wastewater stabilization ponds are used in 25 out of 38 facilities. Generally, these provide problem-free operation with the exception that most of the older ponds are filling with sludge and vegetation that generally reduce retention times and therefore, treatment efficiency. The remaining treatment works use conventional processes such as biological growth filters, oxidation ditches, or aerated lagoons. In general, most of the recently constructed sewage works are operating far below their intended design capacity. The low flow rates can be attributed to low rate of sewer connections and inadequate water supply systems resulting in low per capita water consumption. A sampling programme of existing 20 wastewater treatment plants showed that only two treatment works met the required National Effluent Standard of 20 mg/l BOD<sub>5</sub><sup>5</sup>. On average, the influent BOD<sub>5</sub> was strong at most treatment works indicating that individual water consumption was low. All treatment works met the National Effluent Standard of 5,000 faecal coliform counts per 100ml and only two treatment works exceeded the limit proposed in the study. COD<sup>6</sup> values ranged from medium to strong indicating that there was potentially a large component of untreated industrial liquid waste being discharged into public sewers. Effluent's COD in all cases exceed the national standards (Nippon Koei, 1998).

In Kenya, all wastewater treatment effluent is discharged into an inland stream or lake except for Mombasa, where uncontrolled and untreated sewage is discharged into the Indian ocean. Homa Bay and Kisumu urban centres discharge high BOD<sub>5</sub> and nutrient rich wastewater directly into Lake Victoria, and Nakuru and Naivasha discharge treated effluent into the sensitive ecosystems of lakes Nakuru and Naivasha respectively). A sampling study undertaken during the same survey in the receiving streams at 20

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5 Biological Oxygen Demand measured over 5 days.

6 Chemical Oxygen Demand.

wastewater treatment facilities provided insight into water quality issues. In 10 cases, the BOD5 of the receiving watercourse upstream of the treatment plant was higher than the effluent standard of 20 mg/l, indicating a significant contribution from other sources of pollution upstream. At 10 treatment works, the BOD5 downstream of the treatment plant was lower than the BOD5 upstream. This result appears to indicate that the effluent was diluted in the natural watercourse. In general, where public sewerage systems exist, industries usually discharge their effluents into the sewers. Enforcement of the National Trade Effluent Standards is the responsibility of the MWRMD, but the Ministry is severely crippled by lack of resources to inspect industries and monitor, collect and analyse data. The continued uncontrolled disposal of industrial wastewater has degraded the water environment around large urban centres and could seriously jeopardize the quality of drinking water supplies, making it difficult to treat and provide safe potable water (Nippon Koei, 1998).

The Operation and Maintenance practices of sewerage systems vary widely from one urban centre to the next, depending on the level of funding available, management and staffing. In several urban centres, sewerage systems are working below capacity due to water rationing and blocking of sewers. Sewers are not inspected or cleaned regularly and there appears to be no efforts to prevent conditions that will eventually lead to more serious and costly maintenance problems. Except for the newer facilities, most sewage treatment facilities have either fallen into serious disrepair or are non-operational and beyond repair (Nippon Koei, 1998). Maintenance requirements for waste stabilization ponds are very simple, but they are neglected. Although the treatment process is not immediately affected, the pond environment will suffer, leading to odours, flies and mosquitoes. There is a lack of control and monitoring at most wastewater treatment works, although these treatment plants require constant monitoring and process adjustments in order to provide the intended performance.

### **The reforms to promote commercialization and privatization**

The government has been under pressure to privatize WSS in major towns. Though this has not been fully implemented, there have been some steps taken towards this direction. The government indicated a willingness to commercialize/privatize the water and sanitation sector in 1986 through the Sessional Paper No.1 on "Economic Management for Renewed Growth" that recommended the commercialization of WSS by suggesting decentralization of these services from local authorities (Government of Kenya, 1986). At the same time local authorities were urged to revise the pricing of utilities and services to reflect the real cost of operation, maintenance, and long-term capital stock replacement. In 1987, the German Agency for Technical Co-operation (GTZ), which was supporting water and sanitation projects in Kenya in collaboration with the Ministry of Local Government, formed the Water and Sewerage Operation Unit (WSOU) with the overall goal of ensuring that WSS in selected municipalities were self-sustaining. The WSOU project had two preparatory phases (Phases I and II), which run from July 1987 to December 1993 in pilot municipalities, where a framework for financial management of WSS was developed. The third phase (1994-1996) of the project led to the creation of the Urban Water and Sanitation Management (UWASAM) initiative, aimed at assisting local authorities to achieve sustainability for their WSS through commercialization and privatization. It was recognized that if financial viability were to be attained, financial

autonomy from the municipal councils would be required. Nine municipalities, namely, Kisumu, Kericho, Kitale, Nyahururu, Nakuru, Eldoret, Thika, Nanyuki, and Nyeri Municipal Councils were identified as pilot towns for implementation of the process. A workshop was held in 1995 between the pilot towns, the Ministry of Land Reclamation, Regional and Water Development, and the GTZ to review the process of commercialization of WSS, and it was resolved that the pilot local authorities should form Water and Sewerage Companies as the next step in the commercialization process. Thus, UWASAM focused its interest on assisting local authorities to form fully fledged and autonomous Water and Sanitation Departments (WSD), which would have a general manager, a commercial manager, and a separate bank account. UWASAM supported the staff of the Ministry of Local Government by employing full-time financial consultants and an expatriate water manager.

Although the creation of the WSDs brought some improvements to WSS, it soon became apparent that certain problems were inherent within the local government structure and that the creation of separate departments within that structure could not provide a solution. It was realized that despite the measures put in place, the provision of WSS by local authorities was far from being self-sustaining, while services were severely affected by a range of problems, which we consider in more detail in the next section. As a result, in April 1996, the Ministry of Local Government accepted, in principle, the need for introducing a commercial approach to WSS. This decision was articulated during UWASAM's Phase IV (1997-1999), when several options were considered. The favoured choice was the adoption of a model combining public sector ownership with private operation and management. A decision was taken to implement the project on a pilot basis in four municipalities, which subsequently launched commercial WSS utilities: Nyeri Town in July 1998, Kitale and Eldoret in September 1999, and Nakuru in July 2000<sup>7</sup>. The new WSS utilities were fully owned by the municipalities, and were established under the Companies' Act, Chapter 486. A corporate management team ran these companies, comprising a Managing Director, a Commercial Manager, and a Technical Manager, who were all accountable to a Board of Directors. These WSS utilities were unique in Kenya, in that each has only one shareholder: their respective local authorities. Other institutions concerned with their operation became stakeholders. However, the duties and responsibilities of the directors of the utilities were like the duties and responsibilities of directors of commercial companies, requiring compliance with good Corporate Governance practices and the enhancement of productivity in the organizations. The Ministry of Local Government and GTZ, within the framework of the UWASAM project, provided technical and financial support. UWASAM's Phase V (January 2000-June 2003) continued with the creation of more pilot WSS utilities in Kericho, Kisumu, and Nyahururu in 2002, and the introduction of macro-level activities.

However, the UWASAM project experienced considerable implementation difficulties and had limited impact. Among other reasons, councillors and chief officers of local authorities, the Ministry of Local Government and the Ministry of Environment and Natural Resources all feared the implications of the changes introduced to promote the autonomy of WSS, which could lead to unpredictable situations, loss of jobs and other potentially negative outcomes (UWASAM, 2001). In fact, from the first group of four WSS utilities created between 1998 and 2000, only the Nyeri and Eldoret companies

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<sup>7</sup> Kericho, Nyeri and Eldoret Water and Sanitation Companies were registered in the Register of Companies between September and October 1997, but their operation started at later dates.

remained operational by the beginning of 2002. The Department of Water Development decided to take over the Kitale and Nakuru WSS operations due to the poor performance of the commercialized companies.

The lack of an integrated water policy in the country was in principle remedied when the new National Policy on Water Resources Management and Development was launched (Government of Kenya, 1999b). The policy included the commercialization of rural and urban water supply under the guiding principle of total cost recovery from users. Other aspects of government policy were more clearly articulated in the Poverty Reduction Strategy Paper (Government of Kenya, 1999a). However, this does not mean that the present policies are appropriate, comprehensive and consistent in all its intentions and proposed actions. The new water legislation and reform plans may also to some extent contradict the policy intentions. There are uncertainties over regulatory policy and separation from undue political influences (specific uncertainties are that of price setting and licensing issues). The National Water Policy clearly advocates for the decentralization of WSS. However, very limited decentralization has so far taken place. The MWRMD is still operating most WSS and when one considers that the NWCPD is still an arm of the MWRMD, most water supply systems are thus still run by state or quasi-state organizations.

Water sector legislation in Kenya has been fragmented and outdated but has recently been partly amended. The previous Water Act Cap 372 dating originally back to 1952 but amended in 1962 and 1972 was substantially revised and amended in 2002 (Government of Kenya, 2002). The Water Act 2002 still has its weaknesses, but a bigger problem than inadequate legislation and regulations is poor enforcement and compliance. If the Water Act 2002 ultimately provides the enabling environment for a simple and straightforward methodology for developing regulatory and institutional procedures, then many potential legal issues and hurdles could be resolved. The Water Act 2002 creates two statutory bodies, that is, the Water Resources Management Authority that is responsible for catchment management, water apportionment, pollution control and the enforcement of laws relating to water resources management; and the Water Services Regulatory Board (WSRB), which is the licensing body and economic regulator. Under the Act this regulatory board is an autonomous body with responsibility for regulating water and sewerage services in the country. The problem with the Water Act is that all the critical interventions in areas susceptible to monopoly power abuse appear to be totally emasculated. For instance, section 47 (g) of the Act only give the regulator the power “to develop guidelines for the fixing of tariffs for the provision of water services” whereas section 73(1) permits the WSBs to regulate themselves as “a licensee [that] shall make regulations for or with respect to conditions for the provision of water services and the tariffs applicable”. It should be made clear that a system of water and sewerage services that have public interest issues in respect to matters of safety, cost, access and availability cannot be permitted to regulate itself.

Tariffs or any other decisions of the WSBs are subject to approval by the WSRB, but there are no specific legal tests the Board can apply for to accept or reject a set of tariffs or regulations. Even if the WSRB were to develop guidelines for tariff setting, the guidelines would not have the force of law and could easily be contested or rejected by licensees (WSBs) or their agents, the water service providers (Mwangi and Gitau, 2003).

The upshot is that the Act fully exposes consumers to the rent seeking activities



of monopolists. At the very least, the Act ought to be amended such that the WSRB can apply specific criteria to make judgments on the level and reasonability of tariffs charged by WSBs (Mwangi and Gitau, 2003). Also, the WSRB has no independent source of funding. The Act only provides for the retention of revenues from license fees with the approval of the Minister and the Treasury. In effect, decisions of the Board that displease the Minister or the Treasury can result in denial of funding (Mwangi and Gitau, 2003). At the water utility level, there is no appropriate performance monitoring system in use, and appropriate standards and performance indicators have not been applied.

The 1986 Local Government Act (Cap 265) has been another important piece of legislation affecting water and sewerage services in the urban areas. Also, the 1999 Environmental Management and Co-ordination Act deals with water resources protection and wastewater disposal. However, there is no specific legislation dealing with issues of environmental sanitation. The proposed environmental regulator created under the Environmental Management and Co-ordination Act has not yet been established and therefore has no history of operation. In addition, the Standards and Enforcement Review Committee (also created by virtue of the Environmental Management and Co-ordination Act) is given the responsibility for establishing water quality and effluent standards, but such standards do not yet exist. The absence of existing environmental standards is likely to introduce some uncertainty, particularly among private service operators, and this is likely to have several impacts. In all available options for privatization, except a management and service contract, private operators may have difficulty pricing the contract and, if applicable, estimating the required investments in the absence of some certainty about the new environmental standards that are about to be developed. Notwithstanding the absence of existing environmental standards, there is a Penal Code provision for general “pollution offences”. Private operators may have to be given some level of protection against the Penal Code in cases where pollution events are beyond their control.

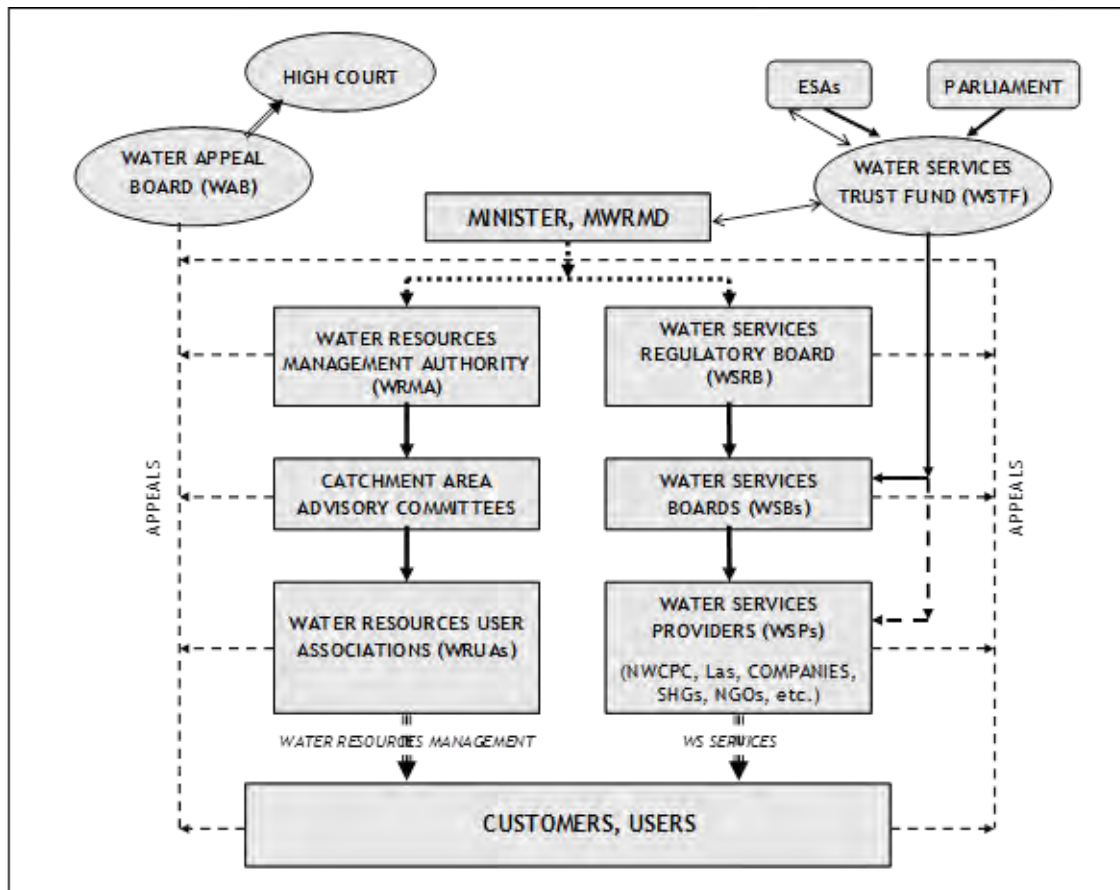
According to Mwangi and Gitau (2003), privatization is not a solution for the governance problems Kenya is facing and may even exacerbate abuses of monopoly power. They proposed that wherever possible, meaningful competition should be guaranteed in cases of privatization, and the regulatory institutions be strengthened in order to enhance competition or prevent anti-competitive behaviour. Where competition is unfeasible (for instance in the provision of water services), regulators must possess the means to prevent monopoly power abuses, to guarantee improvements in public welfare. The Minister should make appropriate amendments for the protection of the public interest and allow for strengthened regulation, capacity building and consistent decisions in the public utility sector. However, these authors noted that the single most important issue hindering the creation of strong regulatory agencies in Kenya is the near absence of the relevant capacity and resources.

The implementation of the reforms is outlined in the sector strategy documents that were further developed in 2002-2003: The National Water Services Strategy (MWRMD, 2003a) and National Water Resources Management Strategy (MWRMD, 2003b). A Water Sector Reform Secretariat (WSRS) was established in 2002 to coordinate the reform process, which is supervised by an inter-ministerial committee, the Water Sector Reforms Steering Committee (WSRSC). A Transition Plan for the implementation of the Water Act 2002 and a Route Map for the reform process were prepared by the WSRS and consultants. The plan outlines the implementation schedule of new institutional



arrangements (Figure No 2). The plan is dynamic, and some changes have already been realised.

Figure N° 2: New institutional arrangements proposed in the water sector reform process



Source: Modified from MWRMD, 2003a; Government of Kenya, 2002.

### Overall assessment and prospects for WSS in Kenya

A general assessment of the situation of WSS in the country has been part of the regional thematic activities of the World Bank's Water and Sanitation Program (WSP) for Africa (World Bank, 2003). Among other findings, the program highlighted that existing institutional arrangements in the sector are constrained by several factors. Sector policy development, operation, service delivery and sector regulation have not been adequately separated. CBOs who provide services to a third of the rural population lack an adequate legal basis. Local authorities play an important role in urban areas but there is a lack of incentives for improved performance and weak or non-existent monitoring. In several urban areas, efforts have been made to develop locally owned public utilities through donor-supported projects. However, the progress has been slow, with only two out of about ten LAs showing positive results. In some of the larger urban

areas PSP projects play an important role both in meeting the lack of services in informal settlements, and in helping businesses or the wealthy to cope with inadequate services. However, they often operate in the context of uncertainty and rent-seeking due to the lack of an appropriate legal and regulatory framework and tenure issues in the informal settlements.

Centralized public-service providers dominate the sector in terms of expenditure, though local authorities also appear to play an important role in urban areas, and CBOs in rural areas. Recurrent expenditures by the service providers largely match their coverage levels. However, the share in development expenditure is significantly higher for CBOs. It is likely that the coverage by CBOs has increased through these investments, though this has proved difficult to assess due to the lack of detailed information on coverage through community-based schemes. Within the existing institutional arrangements, service providers use several channels and sources of funds (Appendix 1). While the Government budget is the dominant channel for WSS sector finance in Kenya, local authorities and off-budget channels are also important. The five main channels of finance are: i) the Government budget mainly used by the WSD of the MWRMD and NWCPC, ii) local authority budgets, relevant for those LAs that provide water services, iii) off-budget routes through NGOs mainly for CBOs, iv) internal generation by service providers, mainly by the NWCPC, local utilities, CBOs and PSP, other direct expenditures by communities and households. The total sector finance is estimated to be close to US\$ 100 million or 0.7 percent of GDP. It appears that while allocation through the GOK budget is the largest contributor (29 percent), three other sources constitute about 20 percent each: LA budgets, off-budget contributions by NGOs, and internal generation by WSPs. A significant portion of WSS sector resources is mobilized through user charges and donor support, though user charges are neither always protected nor used in a timely manner for operations. Similarly, most donor resources flow outside the framework of government decision-making (World Bank, 2003). In this regard, some key findings from the programme include:

- There is a preference for off-budget routes by donors/NGOs. A large proportion of total donor resources (nearly 70 percent) is provided through off-budget support, mainly through several NGOs, and is devoted to development expenditures for new community-based schemes.
- Internal generation is important but is not contributing to development expenditure. WSPs such as NWCPC, local public utilities and PSP projects depend on internal generation. However, their expenditure on development expenditure from this source is either non-existent or very limited.
- Incentives for enhanced internal generation are weak. While internal generation emerges as an important source, most WSPs lack incentives and capacity to maximize it.
- Local authority expenditures seem to be largely from user charges. However, these are not always protected, and an estimated 20 percent of revenues mobilized through water charges is probably used to finance other sectors/activities.
- User charges for other public sector WSPs are generally protected but there may be cash flow and efficiency problems. The user charges flow upwards to the general account (for MWRMD and NWCPC to the national level and for the LAs

to the LA consolidated accounts) leading to two problems: i) cash-flow problems for operations, especially for regular maintenance, and ii) lack of incentives for the service provider to improve collection efficiency and service quality.

The need for reforms has been in principle addressed by the 2002 Water Act (Government of Kenya, 2002), which includes proposals and legal provisions for further reforms of the country's water sector. The proposed reforms include a separation of the key functions of policy formulation, water resources management, regulation, and service provision and production. One of the key features of the reform process is the separation of the responsibilities for water resource management and water service provision, as stated in the Water Act 2002. The Water Resources Management Authority (WRMA), and focal management bodies consisting of Catchment Area Advisory Committees (CAACs) and Water Users Associations (WUAs) will regulate water resources management issues. The water services sub-sector will be regulated through the Water Services Regulatory Board (WSRB). The proposed Water Services Boards (WSBs) will be responsible for water and sanitation services. Water and sewerage services production will be by Water Services Providers (WSPs), which will be designated by the WSBs.

The reform framework envisages a more streamlined sector finance with an emphasis on sustainable internal generation by service providers. The three main channels of finance in the emerging system would be: i) a Water Services Trust Fund (WSTF) for areas without adequate water services, ii) more streamlined GOK budget allocations, particularly through the new WSBs taking into account issues of equity, efficiency and coverage targets that may be set by the government, and iii) a greater reliance on internal generation by WSPs as a main basis for sector finance. In designing the WSTF, recent experiences with the WSS component in social investment funds and reforms needs to be taken into account, including aspects such as ensuring a demand-responsive approach, improved coordination with off-budget resources, exploring support for PSP projects, the role of local authorities in local planning and the use of output-based aid to ensure that community and private resources are not crowded out. While the WSTF is clearly positioned to receive and allocate grants, it is not clear how the WSBs will be financed through the GOK budget, and further how the WSBs will provide funds to the WSPs. A clearer understanding of whether this will be through debt or equity contributions, or simply as one-time grants needs to be developed. In developing this, the rather poor experience of the GOK loans in the past needs to be reviewed. Within this emerging scenario, there is a need to explore other potential sources of funds in the medium to long term including: i) market borrowing by WSBs and/or WSPs, ii) potential for micro-finance, especially for the community based schemes, and iii) the possibility of PSP, which is more likely for efficiency improvements rather than for providing direct finance in the initial period. To promote such resource leveraging, an appropriate sequencing of activities is critical. As a first step, the need is to identify the potential borrowers within the sector and their creditworthiness and to assess the interest and potential of the domestic financial sector and the micro-finance industry. It is likely that the initial focus must be placed on enhancing the creditworthiness of potential borrowers. For example, recent inquiries regarding the possibility of private sector investments in Nairobi Water Services suggest that initial investments need to be made through the public sector. However, with efficiency improvements, in the future the utility would be able to service

debt and finance development expenditure through internal generation (World Bank, 2003).

Considering the previous analysis, and in connection to the SWOT analysis presented in Table No 3, we suggest that the future development of WSS in Kenya requires several crucial steps:

1. Undertaking a sector-wide approach by linking access to WSS with health and wealth creation as a means of demonstrating the contribution of water to good health, livelihoods, and general wellbeing. Highlighting the benefits of reforms in WSS provision from successful experiences should be undertaken.
2. Improving policy implementation for the effective commercialization process to take off successfully. Advocacy approaches should be used to generate understanding and build support among policy makers across all government departments and related bodies for water sector reforms. A simply written policy briefing kit justifying the reforms and outlining their implementation process should be developed to support this effort. The kit should contain a simplified version of the Water Act and a description of the institutions established under the Act.
3. Implementing a comprehensive communication intervention with a wide reach across all audience segments should be developed to increase knowledge and close knowledge gaps among all sectors of the population on water sector reforms and to correct misinformation and address misconception about the reforms. Communication programmes should explain the rationale and problems that necessitate water sector reforms and that it is a government initiative aimed at improving the management and provision of water and not a donor driven initiative (Apex Communications Ltd, 2004b).
4. Establishing a strong network that would facilitate exchange of information and ensure effective implementation of the Water Act. Thus, consultation with various stakeholders is important to develop consensus and generate a sense of ownership amongst the population regarding the water sector reforms.
5. Ensuring that the WSBs is made up of members of society who are strong-minded and make no compromises to ensure an effective transition. Representatives from NGOs and civil society bodies championing the rights of the poor should be proactively engaged to increase their understanding and support of the reforms. WSBs should have performance targets. Top management level staff should be appointed based on professionalism and expertise for effective management of the water companies. Consumer representation at the board level is important to instil a sense of ownership amongst communities and consumers.
6. Helping organizations active in the water sector to include the water reform in their agenda by developing an ongoing platform through which they can participate in communication and mobilization activities (Apex Communications Ltd, 2004b).
7. Depoliticizing the water companies and give them the autonomy to run the companies as independent entities. If the autonomy is only claimed on paper, it will not be articulated on the ground. There is need to ring fence the established companies from political interference in order to successfully provide sustainable water services. Local authorities should understand that the water companies are

their own agents and therefore any negative attitude or publicity towards the latter would only be detrimental to both parties.

8. Commercialization of water is an expensive venture, as it requires capital investment to enable supply to catch up and then keep pace with demand. To sustain reliable supply, continuous system maintenance is inevitable to enable any WSP to regain and maintain consumer confidence and achieve high revenue efficiency targets.

9. Fully operationalizing the Water Act 2002 in order to enable the WSPs to operate optimally.

10. Introducing and maintaining a realistic cost-recovery tariff that provides WSPs with enough funds to operate and maintain the system in an optimum way. Working towards a realistic level of unaccounted for water. With the old distribution system in most water supply systems, achieving a figure of 25 percent in the short run is unrealistic.

**Table N° 3:** SWOT analysis of the water services in Kenya and the reform process

Strengths (S)	Weaknesses (W)
<ul style="list-style-type: none"> <li>• Institutional change: The need for water sector reform is strong due to the long period of poor sector performance and inadequacy of resources.</li> <li>• New WRM strategy emphasises conservation and equitable distribution and sustainable use of water resources.</li> <li>• New legal framework (Water Act 2002) intends to clarify roles and separation of policy making, WRM, and service provision and production.</li> <li>• Reform process creates trust and attracts external funding (strong external support from donors).</li> <li>• Success in some pilot projects (Nyeri, Eldoret) encourages others to restructure and improve. Reform facilitates improved service coverage and quality (also in sanitation).</li> <li>• New arrangements facilitate realistic tariffs, appropriate internal cross-subsidies, and efficiency in service provision.</li> <li>• Reform process is asset-based, focuses on specific areas and emphasises poverty alleviation.</li> <li>• Existing technical staff is trained, but the reform aims at better technical and managerial capacity.</li> </ul>	<ul style="list-style-type: none"> <li>• Reform process has started top-down from the national level, and it is also fairly donor- and consultant-driven.</li> <li>• Proposed and already legally enforced institutional arrangements do not fully eliminate the multiple roles of MWRMD.</li> <li>• Government intervention continues strong in areas that do not attract autonomous WSPs. Ownership of assets is still unclear.</li> <li>• Sustainable financing mechanisms not adequately addressed in new policies and strategies.</li> <li>• Present institutional arrangements are working poorly (deconcentrated, centralised, bureaucratic).</li> <li>• The future role of local authorities has not been adequately expressed in the reform plan.</li> <li>• Time schedule for reform process is unrealistic in relation to local capacities and resources.</li> <li>• Sanitation is not adequately addressed in the reform process (inadequate integration).</li> <li>• Low motivation among civil servants.</li> <li>• Inadequate engineering expertise and know-how.</li> <li>• Inadequate customer orientation and sensitivity.</li> </ul>



Opportunities (O)	Threats / Limitations (T/L)
<ul style="list-style-type: none"> <li>• New political culture (NARC) can provide better political commitment to reforms.</li> <li>• New water policy provides enabling environment for reform continuation. Water Act 2002 provides a solid basis for appropriate institutional arrangements.</li> <li>• Long-term sustainability and conservation of water resources through holistic catchment area thinking and demand management strategies. Improved ethnic harmony as a result of reduced water conflicts.</li> <li>• Reform provides opportunities for human resource development (training and redeployment).</li> <li>• New arrangements encourage applied research and innovative technologies.</li> <li>• Good economic and business opportunities for WSPs. Increased efficiency of operations and service delivery.</li> <li>• Increased involvement of various stakeholders.</li> <li>• Independent regulatory arrangements proposed, but regulation details and local capacity need more elaboration.</li> </ul>	<ul style="list-style-type: none"> <li>• Kenya has a critical scarcity of water resources. Resource allocation may pose conflicts.</li> <li>• Improved service provision leads to increased water use and thus increases pollution.</li> <li>• Political interference in establishing WSB boundaries. Politicians may have vested interests.</li> <li>• Strategies and plans may be too short-sighted.</li> <li>• Cost of the reform process: allocation of financial resources (and budgeting procedures) may not in practice facilitate implementation of reform.</li> <li>• Inadequate human resource capacity, especially at the lower levels (provincial, district, divisional).</li> <li>• Assets may be undervalued causing poor cost recovery.</li> <li>• Local commitment to reforms may be low or at least at risk. Resistance to change may arise from several reasons, e.g. from fear of losing jobs.</li> <li>• New policies and strategies may be recognised in principle, but old procedures (business-as-usual) may persistently continue. Informal institutions are difficult to change.</li> <li>• Dissemination of the policy and other reform components may not succeed as well as hoped in the field. Lack or overlapping of communication.</li> </ul>

## The privatization of WSS in Nyeri Town

Nyeri Municipal Council<sup>8</sup> is comprised of ten civic wards with the Central Business District covering a small area, the rest of the area being basically rural and peri-urban. The Municipal Council is located in the Nyeri district of the Central Province, within the Mount Kenya region. The Nyeri district has seven divisions, namely: Nyeri Municipality, Tetu, Mukurweini, Othaya, Mathira, Kieni East and Kieni West (Table No 4). The population of Nyeri Town was estimated to be 120,000 people in 2001.

<sup>8</sup> Note of the editor: after the study was finished, Nyeri Municipal Council was absorbed by the Nyeri County Council.

Table N° 4: Area of Nyeri District

Division	Area	Locations	Sub-locations
Nyeri Municipality	7	2	22
Tetu	384	6	37
Mukurweini	179	5	23
Othaya	170	4	28
Mathira	324	7	41
Kieni East	488	4	14
Kieni West	546	5	20

Source: Nyeri District Development Plan 1994-1996.

The Nyeri District is situated between longitude 360 and 380 East and between the equator and latitude 00 38' South. It is located 160 kilometres north of the capital City of Nairobi and covers an area of 208 km<sup>2</sup>. It is bordered by Laikipia District in the North, Kirinyaga District in the East, Murang'a District in the South, Nyandarua District in the West and Meru District in the North-East. It is an area of volcanic mountains including Mount Kenya and the Aberdare range, which strongly influence the climate and the agricultural potential of the district. The soils consist of red clays that are well drained and fertile. The pattern of rainfall is typically equatorial as the district is situated within the highland equatorial zone of Kenya. Rainfall varies from one place to another, ranging from 500mm in the Kieni plateau to 1500mm in the foothills of the Aberdare and Mount Kenya. There is monthly variability of rain. There are two rainfall seasons; that is, long rains that begin in March and end in early June, and the short rains that start in late September and continue to December.

The Nyeri Municipal Council took over the responsibilities for supplying water to the municipality in 1982. However, it was only gazetted as a water undertaker on 2 July 1999. The sources of water supply are the Chania and Nairobi rivers, and there are two independent treatment plants located at Kamakwa and Kiganjo, which supply water to Nyeri and Kiganjo. In the 1980s and early 1990s there were acute water shortages, and the Municipal Council approached the German Development Bank KfW for assistance to extend the water system.

### **The privatization process**

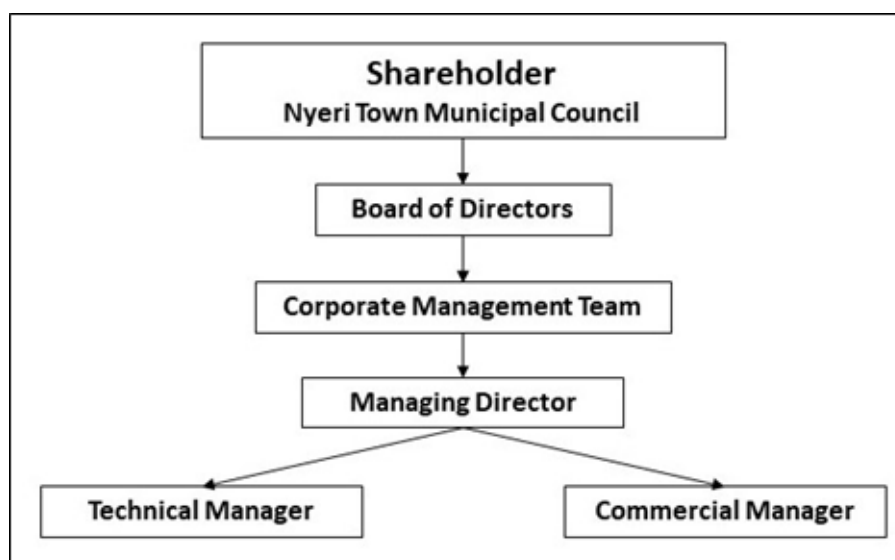
As explained before, Nyeri Town was selected as one of four pilot cases for the implementation of the commercialization/privatization of WSS projected under Phase IV of the UWASAM project (1997-1999), jointly implemented by the Ministry of Local Government and the GTZ. This led to the creation of the Nyeri Water and Sewerage Company (NYEWASCO), which was registered with the Register of Companies on 23 September 1997 and commenced its operation on 1 July 1998. NYEWASCO is an autonomous and independent company charged with the task of supplying WSS to Nyeri Town's estimated urban population of about 45,000 people. The company

signed an Agency Agreement contract with Nyeri Municipal Council to provide WSS for a period of 20 years. PriceWaterHouseCoopers, the management consultant, was commissioned to provide support to NYEWASCO in several areas, including determining its future strategy, organizational development, and developing a five-year corporate plan. The company established two main departments in order to reduce the red tape that previously existed in the municipal council.

### NYEWASCO's organizational and staff structures

The structure of NYEWASCO includes the Nyeri Municipal Council as the Shareholder, a Board of Directors, a Corporate Management Team (CMT), a Managing Director, a Technical Manager, and a Commercial Manager, in that order. This structure falls under option B of the World Bank categories of commercialization, where the facilities are publicly owned and privately operated (Figure No 3).

Figure N° 3: Organization structure of the Company



Source: Mukundi, 1999.

NYEWASCO adopted a leaner and flatter organization that facilitates fast communication and decision-making, thus enhancing efficiency. Grading and remuneration structures have been designed to support this structure, and to deliver the objectives of communication. Performance-related pay was put in place. This is achieved in the form of performance-related salary progression and performance-related bonuses. The establishment currently stands at 134 members of staff covering managerial as well as junior staff cadres. All the staff, except for the Technical Manager and the Commercial Manager, were former employees of Nyeri Municipal Council's WSD. The number and mix of staff hired was based on the activities that need to be performed. For positions where individuals are required to work in shifts (such as security guards), shift hours, rest



periods and all other pertinent factors were considered in arriving at the optimal number of employees. The CMT oversaw reviewing the needs, and on this basis determined that the number of employees required was 118, thus reducing the previous staff body of 160. The reduction in the staff number was attributed to changes in technology (computerization and other technologies). However, it should be noted that despite the reduction, NYEWASCO was under obligation (at least in the short term) to take over all the 160 members of staff as per the Agency Agreement signed between the Company and Nyeri Municipal Council. The CMT, therefore, treated 118 as the target number of employees to be achieved over time. It is also important to mention that the number does not include security staff, who were to be outsourced. It was also accepted that the number of employees could occasionally vary such as during times of emergency repairs when it becomes necessary to engage casual labourers. These numbers are based on the business as it is today, and as is the case with the organizational structure, the number may also change as the organization grows. For instance, as the company continues to embrace commercial principles it is expected that efficiency will increase. This, coupled with the anticipated increase in the use of modern technology, may lead to a decrease in the need for administrative staff. However, as the water production and connections grow, more technical staff may be needed.

The grading structure prior to the reform was based on the Local Authorities' code of practice, which stood at 20 grades from the bottom to the top. As part of the restructure, PricewaterhouseCoopers was required to develop a new grading and salary hierarchy/structure for NYEWASCO. In order to achieve this objective, it was necessary to carry out a job evaluation exercise involving a formal and systematic comparison of jobs in order to determine the relative worth of different jobs. The primary aims of job evaluation were:

- providing a rational basis for the design and maintenance of an equitable and defensible pay structure
- helping in the management of the relativities existing between jobs within the organization
- enabling consistent decisions to be made on grading and rates of pay, and
- establishing the extent to which there is comparable worth between jobs so that equal pay can be provided for work of equal value.

The consultant opted for a non-analytical job evaluation methodology due to time and financial constraints, and because the number of benchmark positions was small. The specific methodology chosen was the structured paired comparison. The technique required the comparison of each whole job separately with every other job. PriceWaterHouseCoopers and CMT jointly selected benchmark jobs to be evaluated, these jobs were then analysed and a job description for each job developed. Based on the results of the job evaluation, it was decided to create an 8-grade structure, including the CMT, as optimal given the number and variety of jobs in the organization (PriceWaterHouseCoopers, 1999).

Except for the CMT, pay for all other staff was based on the Local Authorities'

salary grades. The CMT pay was determined after their recruitment and was based on market rates and the salary expectations of the various candidates who applied for the positions. PriceWaterHouseCoopers were required to develop a remuneration structure based on the grading structure. Remuneration structures are the mechanisms that allow an organization to reward employees equitably, according to their contribution to the achievement of corporate goals. In this case, the consultant assumed that the remuneration structure should comprise some or all the following four elements:

- Base Rate – rewards for skills, knowledge and responsibility required from the employee to perform a job. It is normally determined by job evaluation;
- Performance Element – rewards the individual for the way he or she carries out his/her duties;
- Special Allowances – cover payment for those aspects that, if included in the base rate or performance elements, would distort them. They relate to a general condition that applies to a range of staff for all or part of the time, e.g. overtime, shift allowance, responsibility allowances, etc; and
- Benefits in Kind – including all the employment costs not paid to the individual in immediate cash, e.g. pension/provident funds, medical cover, insurance cover, leave, etc. (PriceWaterHouseCoopers, 1999).

NYEWASCO's prior remuneration structure comprised 3 of the above elements; namely; base rate, special allowances and benefits in kind. The special allowances were leave and house allowance (or owner-occupier allowance), while retirement and medical benefits comprised the benefits in kind. In developing the structure, PriceWaterHouseCoopers stipulated the minimum (entry point earnings) and maximum (highest possible earnings for the grade) remuneration for each grade. For an individual to be paid at the entry level of his/her grade, he/she must have met all the minimum requirements for the grade, as set out in the respective job descriptions. If this is not the case, the individual's pay will be below the grade minimum, until such a time that he/she has met the minimum requirements for the job. In determining the minimum and maximum levels for the various grades, PriceWaterHouseCoopers took several factors into account. Firstly, it considered the CMT's pay, which is already determined, as a basis to ensure that there was a logical relationship between their pay and that of the other staff members. This was aimed at achieving internal equity while at the same time ensuring that the compression ratio (gap between the top and bottom) is reasonable. Best practice advocates a compression ratio of about 14 percent. While comparing the CMT's pay to the rest of the staff, however, they considered the fact that the CMT members are on a 2-year-employment contract, unlike the other staff who are currently employed on a permanent basis. The "temporary" nature of the CMT's jobs dictates that the staff holding the jobs are paid a premium to compensate for risk/uncertainty associated with such short-term employment. Secondly, it addressed "internal equity", which refers to fairness in remuneration within an organization. Internal equity is said to exist if jobs of similar relative worth receive similar compensations. Internal equity is one of the basic characteristics of an effective compensation system. In order to achieve internal equity, there must be some logical relationships within grades (i.e. grade ranges) and between grades (i.e. overlaps and premiums), as appropriate.

Internal equity should, however, not be seen to imply that all jobs in a grade should draw equal pay. It simply means that whatever variations exist within and between grades should be perceived as fair by the staff concerned. Thirdly, it considered the utility's "ability to pay", on the principle that any remuneration-related recommendations or decisions must always address an organization's ability to pay. In determining NYEWASCO's remuneration structure therefore, the consultant considered the organization's projected revenue and how much of it could be taken by the payroll, given the company's other financial obligations. Fourthly, consideration was paid to the "commercial environment". The CMT considered strongly that salary changes were needed to improve on the previously existing (very low) Local Authorities' salary structure, in order to provide motivation to staff to perform in a more demanding commercial environment.

Several detailed discussions were held with the CMT to decide on the appropriate balance between the determining factors mentioned above and arrive to an agreed remuneration structure. The new structure is broad banded with no notches/steps. Traditional salary structures tended to include a series of steps/notches through which the individual progresses from bottom to top, by way of salary increments. Each notch usually represented a year at the grade. The number of notches was, therefore, an indication of how long an individual took to move within the grade. Salary increments under this structure tended to be uniform and automatic. Recently though, this approach to salary structuring has changed greatly. As organizations embrace performance-related pay, they are advocating an open grade range with a minimum, a midpoint and a maximum, but no notches. Salary increments are also no longer automatic and are pegged to performance. It was on this basis that the consultant did not recommend a notch (step based salary structure but a grade range (difference between minimum and maximum points in a grade) of 45 percent for grades 1-7, that is, those below the CMT. These ranges are considered adequate to allow the respective individuals to get increments that are motivational. It also considers NYEWASCO's ability to pay. It was also decided to establish a 17.5 percent grade overlap (the percentage difference between the maximum of each grade and the minimum of the next higher grade) for grades 1-7. Small overlaps discourage poor performers remaining in one grade and yet earning the same level of salary as better-performing new entrants on the next (higher grade). They also encourage staff to perform better and move to the next higher grade and earn more (subject to the availability of vacancies). Finally, it was decided to introduce a 5 percent premium between grades 3 and 4, as this is a significant transition point where an individual is moving from tasks that require little or no skills to tasks demanding a higher-level qualification. It was, therefore, expected that the job would change substantially with the demands and responsibilities becoming greater.

NYEWASCO had existing job descriptions and person profiles based on the Local Authority definitions. These definitions are generic and apply countrywide. The primary setback is that such job descriptions do not consider the unique characteristics or situation of the Local Authority in question. In addition, the job descriptions did not incorporate commercial principles as embraced by NYEWASCO. PriceWaterHouseCoopers facilitated a workshop to train the CMT on how to prepare job descriptions and person profiles. The workshop was also aimed at agreeing on a suitable format for preparing the job descriptions. The primary objective was to ensure that the job descriptions prepared would serve multiple purposes such as clarifying roles,

assisting in recruitment, selection and placement, assisting in salary administration and identification of training and development requirements. The CMT was then charged with the responsibility for documenting the requirements of each position, including the qualities of the persons to fill the respective positions. The company was using the terms and conditions of employment as laid down by Local Authorities. Like the job descriptions, these terms and conditions are generic and apply to Local Authorities countrywide and thus, not incorporating unique circumstances obtaining in a location. Such broadly determined conditions do not give the management in question much leeway at the implementation stage. A conspicuous omission from the terms of service was performance management, a central component for the company. PriceWaterHouseCoopers developed initial terms and conditions of service and draft contracts of employment based on its knowledge of the company, its experience with other companies, and the requirements of the Kenyan labour law. Key among the issues stipulated in the employment contracts is that an individual's progress in the company would be based on performance.

For this approach to work, however, NYEWASCO needed an operational performance management scheme, including a functional appraisal system. Performance management contracts already existed for the CMT, and these needed to be extended to other members of staff. Also, the CMT devised a plan to address the issue of excess staff in order to attain the target numbers in the shortest possible period. NYEWASCO opted for a relatively high initial ratio of payroll costs to revenue. Therefore, it was deemed important that overall payroll costs must be managed downwards by rationalizing staff numbers towards the stated target, and the revenue increases projected in the Strategic Plan are realized through high productivity gains from a smaller, more motivated staff. As mentioned before, the company had absorbed all the staff working at the WSD, 160 people against an expected figure of 118 employees. Therefore, the company embarked on a policy of retrenchment through natural attrition, and while writing this report the staff force stands at 134. However, the lack of a trade union to handle the relations between staff and employer, and the impact of the HIV/AIDS pandemic<sup>9</sup> have become the greatest challenges to human resource management in NYEWASCO.

#### NYEWASCO's corporate vision and plan

The company drafted a five-year corporate plan in 1999 with the assistance of PriceWaterHouseCoopers. This corporate plan set out the company's direction and detailed financial plans for the period. The company centred its strategic vision on the provision of high-quality water and sewerage services to residents of Nyeri municipality as efficiently as possible. To achieve this goal NYEWASCO intends to double the revenue by tapping the unfulfilled demand for its services. Among the company's main goals and objectives worth highlighting are:

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<sup>9</sup> Note of the editor: Kenya has been one of the worst affected countries by the HIV/AIDS pandemic started in the 1980s. Estimates published around the time of our study showed that by late 2000, nearly 2.2 million people were infected with HIV/AIDS, including 13.5 percent of the country's adult population, while about 1.5 million people had died of AIDS since the 1980s (National AIDS Control Council – NACC, 2001, cited in K'Oyugi and Muita, 2002, p. 2).

### *Economic/financial*

- achieving financial self-sustainability regarding operations, maintenance and development within 5 years (by 2004)
- increasing revenue by a minimum of 100 percent within 5 years (by 2004)
- improving revenue collection by 90 percent within 5 years (by 2004)
- keeping overall annual cost increases below inflation; and
- reinvesting net operating profits for future expansion and stability of tariffs.

### *Positioning*

- Doubling water production by 100 percent in 7 years (by 2006), i.e. from 7,500 to 15,000 m<sup>3</sup>/day
- increasing the number of water and sewerage connections by 56 percent in 6 years (by 2005)
- reducing the proportion of unaccounted for water from 50 percent to 25 percent
- adding 11 water kiosks to the existing 4 kiosks servicing low income areas
- reducing the proportion of water used by public institutions by about 40 to 20 percent
- raising the number of sewerage connections from the present 6,400 to 10,000 in 6 years (by 2005); and
- remaining the provider of both water and sewerage services.

### *Internal capabilities*

- Changing the internal culture to reflect the values of efficiency, honesty, competence, motivation, friendliness and sense of ownership
- improving core business processes in order to increase the efficient provision of services to the consumer
- controlling resources efficiently; and
- bringing well co-ordinated management through management information systems, effective communication systems, performance management and consumer care.

### NYEWASCO's reported achievements

According to the records available from NYEWASCO's self-assessment, the company made significant achievements in several areas (Table No 5).

Table N° 5: Performance achievements

Achievement	Description	
Increased water supply	From 6,000 to 9,000 m3 per day at Kamakwa water treatment works	
Improved water quality	No more complaints of high-water turbidity	
Reducing the use of chemicals in water treatment	Reduced Aluminium use by 42 percent by changing from lumps to powder form	
Power savings	Recirculation of wash water resulted in power savings of more than 30 percent	
Attendance to emergencies	Pipe bursts can now be attended even at night	
Improvements in the area of new connections and billing		
	December 1999	March 2003
Number of employees	160	134
Number of registered connections	6,586	8,318
Number of metered connections	5,271	6,721
Number of operational meters	4,729	5,661
Number of connections billed for sewerage	2,037	2,491

### Upgrading and expansion of facilities

#### *Nyeri water supply*

- Chania Intake: pumping capacity has been increased from 1,600m3/day to 5,000m3/day. The 1,600m3/day capacity pumps were replaced by two pumps with a 2500m3/day capacity each, and by a third standby pump of 5,000m3/day capacity.
- Kamakwa Water Treatment Works: three sedimentation tanks have been upgraded from 5,700m3/day capacity to 9,000 m3/day by installation of lamella plates. All wash water from sedimentation tanks and filters is recirculated back to the inlet works. This has reduced the power use at the high lift pumping station at Chania intake from 50,000 to 30,500 kwh.
- Kiganjo Water Supply: a new intake at Amboni River is on standby to be used during low flow in the Nairobi River.
- Kangemi Sewage Treatment Works: embankments have been built on three maturation ponds, which had been badly damaged.



- **Extension Services:** water services have been extended to new areas and in some old areas, services have been improved or expanded. The areas include Gitathi-ini, Chania-rwamba, Misha and Thunguma
- **Customers Care Services:** public opinion consumer surveys were conducted in early 2002 to evaluate the effectiveness of the commercialization
- **Social Responsibility:** The Company has regularly been undertaking social responsibilities, including:
  - \* contributing KSh 20,000 (US\$ 263) to each of the ten civic wards every year for improvement of water-related infrastructure;
  - \* subscribing a regular contribution to the Mayor's Christmas tree;
  - \* sending donations in the form of food and materials to Huruma Children's Home; and
  - \* supporting a handicapped girl at Joyton Primary School and contributing towards her education.
- There are five water kiosks serving low-income consumers in various areas. The Company is planning to provide more water kiosks. The water is sold at 3 KSh (US\$ 0.04) per 20-liter jerrycans at the water kiosks, while the company charges the kiosk operators KSh 15 (US\$ 0.2) per m3.

We come back to NYEWASCO's self-assessment and related details later but let us review now the results of a field survey that we carried out to gauge consumer perceptions about the company's performance.

## Research findings

Before presenting our findings and reflections, it is important to place this case in perspective, as even in 2002 NYEWASCO covered only 25 percent of the total population of Nyeri Municipal Council for water supply, and 10 percent for sewerage. As showed later, these figures include an increase of 10 percent in the number of connections achieved by company since its start in 1998.

We carried out a field survey to gather the perceived changes among users of WSS in the situation of WSS before and after the privatization of the services. Other specific objectives included gathering consumer views on the general management of the WSS by the Company in relation to reliability, quantity, quality, cost of water and convenience in accessing the service. The study utilized quantitative research methods for household interviews, key informant interviews, and discussions with NYEWASCO's CMT to collect data on service delivery, managerial/administrative aspects and operation and maintenance. A systematic simple random sampling procedure was adopted to select households/premises or institutions to participate in the interviews. A direct observation method was also used to confirm information gathered from the interviews, such as water leakages, existence of meters, and water use practices. In the field, the research team chose a convenient place to launch the sampling of households/institutions, working in partnership with two external researchers for peer support. Household heads or spouses were interviewed, and for institutions such as schools the principal/head



teacher or a senior equivalent was interviewed.

Within Nyeri Municipality, we chose Majengo Cluster (i.e. Majengo, Blue Valley, and Kangemi residential sites) purposely, because they represent the middle to low income population. The assumption was that this social classification could help to confirm or negate the prevailing argument that privatization of WSS hurt the poor and may lead to exclusion from water supply due to their inability to afford the cost of new supplies. The poor in Majengo Cluster comprise over 50 percent of the adult population, and they cope with poverty in various ways, including casual employment, doing without some basic items, purchasing of low-quality commodities, stealing, doing odd jobs, and depending on child work. Education status is low compared to other areas of the municipality, while the unemployment rate tends to be higher. This cluster was selected as an ideal study area for a variety of reasons. First, it had been identified by the Ministry of Planning in the National Participatory Poverty Assessment (PPA) study of 1996. Secondly, Majengo has similar characteristics to urban slums, and was selected for this study to provide data on urban poverty. Thirdly, the cluster is a low-income area with high housing density. The poverty assessment study showed that Majengo has the main features of urban poverty, according to indicators such as lack of necessities of life such as food, water, clothing, and shelter. The PPA gave the highest priority to indicators such as poor housing, insecurity, and lack of markets. In a second category of priorities, it considered other problems like unemployment, impact of school fees, problems of land grabbing, and the presence of street children. Other problems considered were water shortages, garbage disposal, the condition of roads, public street lighting, and sewerage.

Our survey applied a total of 100 questionnaires, in which 87 percent of the respondents represented household consumers, 10 percent businesses (i.e. one car wash, three hotels, four shops and one bar and restaurant), and 3 percent institutions (one school and two churches). At household level, the average household size was 4.3 persons and the mean number of years in current residence was 13 years.

### Consumer perceptions

The research found out that in the perception of the respondents, the current situation of WSS is satisfactory, compared with the previous period, as they credited the private company with efficient management. The study confirmed that the situation of WSS had been unsatisfactory before, in terms of quality, quantity, reliability and operation and maintenance of WSS. The management of the public operator had been inefficient in ensuring good quality water as related to turbidity. The water bills were often delayed and could take more than three months before being issued to consumers, while other consumers were not getting any bills, but still could be disconnected for non-payment. The billing system was in disarray since there were frequent cases of over-billing and breakdown of the billing systems. Leakage and other repairs used to take a long time. To get a rapid response and a quality service, people had to bribe the staff of the public company. Under the new conditions, billing is done every month and correctly, and a few cases of over-billing were rectified when reported. Leakages were promptly attended, the water supply is now more reliable, and the quality of water has improved.

However, respondents complained that water is now more expensive than it was before privatization. They felt that this was expected because previously the public

company was subsidizing the cost of the water. Also, the general feeling among the respondents was that they were not involved in the privatization process, as they only came to learn about it through letters issued from the Municipal Council. Nevertheless, 85 percent of the respondents were aware that WSS are now managed by NYEWASCO, while 13 percent still think that the services are run by Nyeri Municipal Council (2 percent did not know who manages the water supply). All respondents from institutions and commercial enterprises were aware that water and sanitation services had been privatized to NYEWASCO. Some consumers felt that there is a need for involving the public in ownership and management of WSS through share flotation by the company. This would enhance acceptance and reduce the feeling that the consumers are being exploited.

### *Access to water and service quality*

The survey examined four main types of access to water service available to the consumers: private connection, yard connection, water kiosk, and water vendors, assessing the situation before and after privatization (Table No 6). However, it must be noted that the four kiosks covered in the study were owned and operated by individuals as private operations, not by NYEWASCO. These water kiosks were private businesses lacking a formal and regular business timetable, and water availability depended on the range of time the kiosk was open. Most of the water kiosks in the study area were open for between 6 and 15 hours (normally sometime between 6am to 9pm), keeping the same mode of operation than before the creation of NYEWASCO. Considering that 33 percent of the households and two of the three commercial operations surveyed currently rely on water kiosks, the figures in the following discussion must be taken with caution, as 31 respondents, 31 percent of the total, are not served by NYEWASCO.

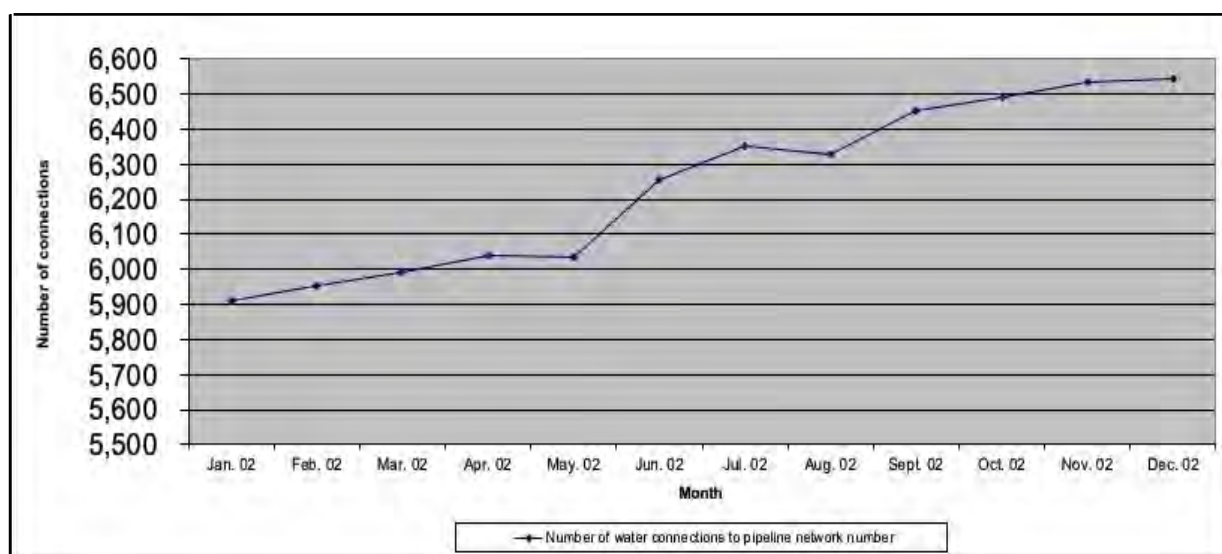
**Table N° 6:** Type of access to water supply before and after privatization, by consumer category, in % and absolute numbers (N)

Consumer category	Private connection		Yard tap		Kiosk		Vendors		Total
	Before	After	Before	After	Before	After	Before	After	
<b>Household</b>	38% (33)	39% (34)	31% (27)	25% (22)	29% (25)	33% (29)	2% (2)	2% (2)	100 (87)
<b>Commercial</b>	50% (5)	50% (5)	40% (4)	30% (3)	10% (1)	20% (2)	-	-	100 (10)
<b>Institution</b>	100% (3)	100% (3)	-	-	-	-	-	-	100 (3)

Out of the total number of household users surveyed (87), before privatization 38 percent had private connections, 31 percent used yard taps, 29 percent used water kiosks and 2 per cent relied on water vendors. The changes after privatization were small, with

a decrease in the use of yard taps, compensated with a higher number of users relying on water kiosks, which are privately owned by individuals and not by NYEWASCO. The small number of users in the other categories does not allow to perceive significant changes, and the table shows a similar situation for commercial users (10 respondents), and there were no changes in the situation of the three participating institutions. Even though Table No 6 shows no significant changes in the type of access to water supply, it must be noted that, according to its self-assessment, the company managed to increase coverage by 10 percent between 1998 and 2002 (Chart No 1).

Chart N° 1: Number of new consumer connections in 2002



Source: NYEWASCO.

Regarding water quality, our survey only assessed consumer perceptions in relation to water colour, smell, and taste before and after the reform. The results, as Table No 7 suggests, show that consumers perceive that there is a tendency towards improved water quality now than when it was under public management, although the figures are not conclusive. Out of the 100 respondents, 54 percent indicated that water quality was good when the company was fully public, a figure that increased to 66 percent under private management. Also, 23 percent responded that water quality was fair before privatization, a figure that increased to 30 percent after privatization. Finally, 23 percent indicated that water was of poor quality when it was under public management, while only 4 percent believed that it remained so after privatization. Some respondents complained that before privatization water used to be muddy during the wet season, and they doubted if it was treated at all.

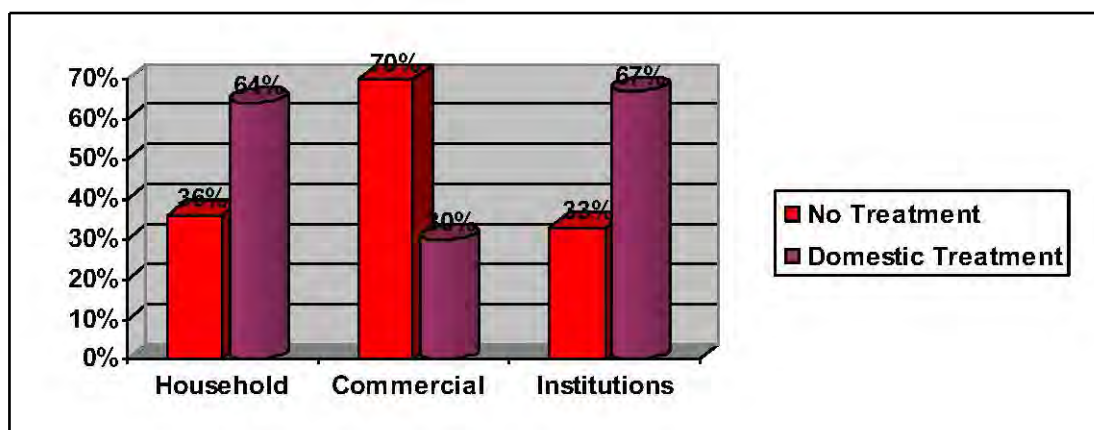
Table N° 7: Consumer perception of water quality, in % and absolute numbers (N)

Consumer category	Before privatization			After privatization			Total
	Poor	Fair	Good	Poor	Fair	Good	
Household	24% (21)	21% (18)	55% (48)	31% (27)	30% (26)	67% (58)	100 (87)
Commercial	20% (2)	30% (3)	50% (5)	10% (1)	30% (3)	60% (6)	100 (10)
Institutions	-	67% (2)	33% (1)	-	33% (1)	67% (2)	100 (3)

Looking at the level of consumer categories, 48 percent of household consumers (87) were satisfied with the quality of water before privatization, but the number increased to 67 percent under private management. The trend was the same with commercial consumers (10), where 50 percent of the respondents indicated that the quality of water was good under public management, a figure that increased to 60 percent. In the case of institutional consumers, the number is very low to have meaningful percentages, but 2 of these users believe that the quality of water is higher under private management while only 1 thought that it was good before privatization. Overall, after privatization the percentage of consumers feeling that water quality is poor has declined.

To confirm their perception about the quality of water from primary sources, respondents were requested to indicate whether they undertook domestic treatment of water to improve the quality. Despite that 66 percent of household respondents believe that the quality of water was good after privatization, 64 percent still boiled drinking water to ensure its safety, and institutional and commercial users were also divided about water safety. The high number of consumers practicing their own treatment of drinking water showed that even after privatization, many consumers have doubts about the quality of water supplied (Chart No 2).

Chart N° 2: Consumers practices on the treatment of drinking water after privatization



In our survey we also examined the perception among users about the reliability of the water supply by assessing the daily number of hours that water was available in the various service levels (that is, private connections, yard taps and water kiosks). The results showed that most consumers with private connections had experienced an improvement in their water supply reliability: the number of users with 24-hour supply had increased from 66.7 percent before privatization to 95 percent at the time of the survey. In the case of users relying on yard taps, the figure increased from 79.2 percent before privatization to 88 percent. As noted earlier, the four kiosks covered in the study are owned and operated by individuals on a commercial basis, not by NYEWASCO, and their service was limited to between 6 and 15 hours daily. The 31 respondents using kiosks obtained water from four different water kiosks and indicated that water was available in a variable time range, which was like the situation before the creation of NYEWASCO.

We also gauged users about their use of alternative water sources in case of failure of the normal supply. When there was an interruption of piped water supply, consumers depended on alternative water sources that ranged from neighbours in adjacent estates, water kiosks, vendors and the nearby Chania River (Table No 8).

**Table N° 8:** Alternative sources used in cases of failure, by type of main water supply, in % and absolute numbers (N)

Type of main supply	Alternative sources used										Total N	
	Kiosk		Vendors		Neighbours		River		Stored water			
	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After
Private connection	4.9% (2)	4.8% (3)	12.2% (5)	11.9% (10)	12.2% (5)	11.9% (12)	56.1% (23)	57.1% (15)	14.6% (6)	14.3% (2)	41	42
Yard tap	8% (3)	8% (2)	24% (7)	24% (6)	28% (9)	28% (7)	36% (11)	36% (9)	4% (1)	4% (1)	31	25
Kiosk	7.7% (2)	9.7% (3)	-	-	15.4% (4)	22.6% (7)	76.9% (20)	67.7% (21)	-	-	42	31
Total	7	8	12	16	18	26	54	45	7	3	98	98

One of the main findings reflected in Table No 8 is that the Chania River remains as the main alternative water source for a majority of the Majengo Cluster population covered in the survey. Muthuri (1995) found out that bacteriological analysis of the surface waters that included the Chania River that the Majengo Cluster depended on, were contaminated with bacteria of faecal origin. The untreated water of the Chania River, therefore, is unsatisfactory for drinking purposes. It was also noted that in case of system failure, those consumers using water kiosks moved to the next nearby water kiosk for water, hence they used kiosks as both primary and alternative water sources.

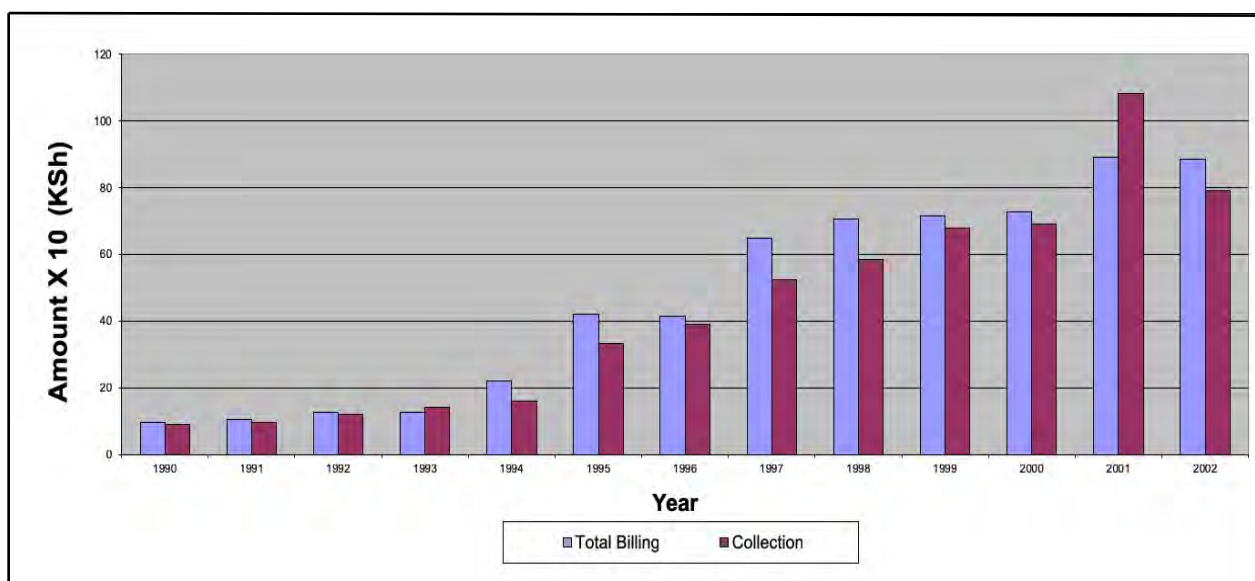


### *Water supply, billing, revenue, and UFW*

Another aspect considered in the survey concerned perceived changes in operation and maintenance of WSS among those respondents served by NYEWASCO. These issues included the time taken by the company to respond to breakdowns of water infrastructure, that is the time consumers stay without water due to operation and maintenance-related issues. From the responses received, the perception is that before privatization to repair a pipe burst took days, weeks or even months, and that this has changed as under the new management it takes from hours to a maximum of one week to complete the repairs. This could be attributed to the fact that the company knows that its profit levels are related to the reduction of un-accounted for water in the system. It was reported that NYEWASCO officers check the main pipes regularly, and that consumers are informed in advance if there will be an interruption of the water supply to enable them storing water. The perceptions of the surveyed also suggest that there have been improvements in the efficiency of the billing system. We arrived at this conclusion because according to the survey, before privatization 53 percent of the consumers with private connections complained of problems in their water bills, while 41 percent of the grievances concerned over billing. The situation was similar for consumers using yard tap connections, whereby before privatization, 44 percent experienced cases of overcharging, compared to 27 percent after privatization.

These comments must be seen in perspective, as Chart No 3 suggests that billing and revenue collection had been improving since 1995, and the introduction of commercial management in 1998 helped to speed up this process. It must be noted, however, that one of the factors that used to contribute to the dismal performance of the Municipal Council's management of WSS was the issue of revenue collection, as opposed to water billed.

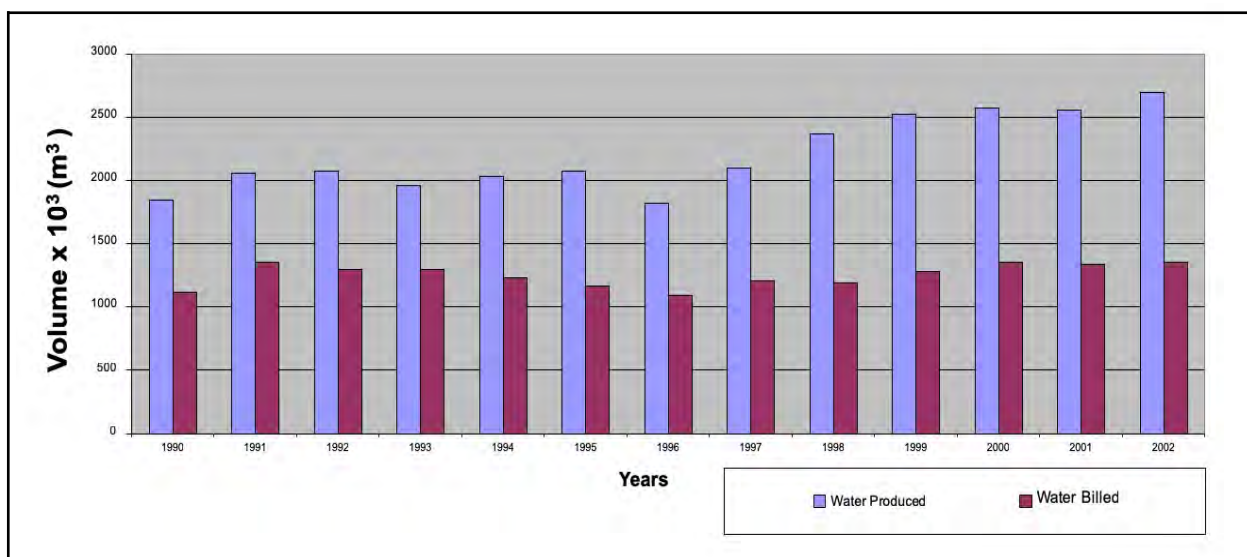
Chart N° 3: Trends in billing and revenue collection



Source: NYEWASCO, 2003a.

The improvements could be attributed to the expansion of metered connections, increases in tariffs, higher efficiency and accuracy in the preparation of the bills (i.e. the effective conversion of meter readings to bills), and possibly some reduction in unaccounted for water. In relation, to this, in many cities, especially in developing countries, over half of the water supply is unaccounted for. This refers to water that is produced but cannot be reflected on the bills. Charts No 4 and 5 show a comparison of the annual amounts of water produced and billed for the period 1990 to 2002 by the two main distribution networks, namely the Nyeri Water Supply that serves the main town area, and the Kiganjo Water Supply.

Chart N° 4: Nyeri water supply production against water billed

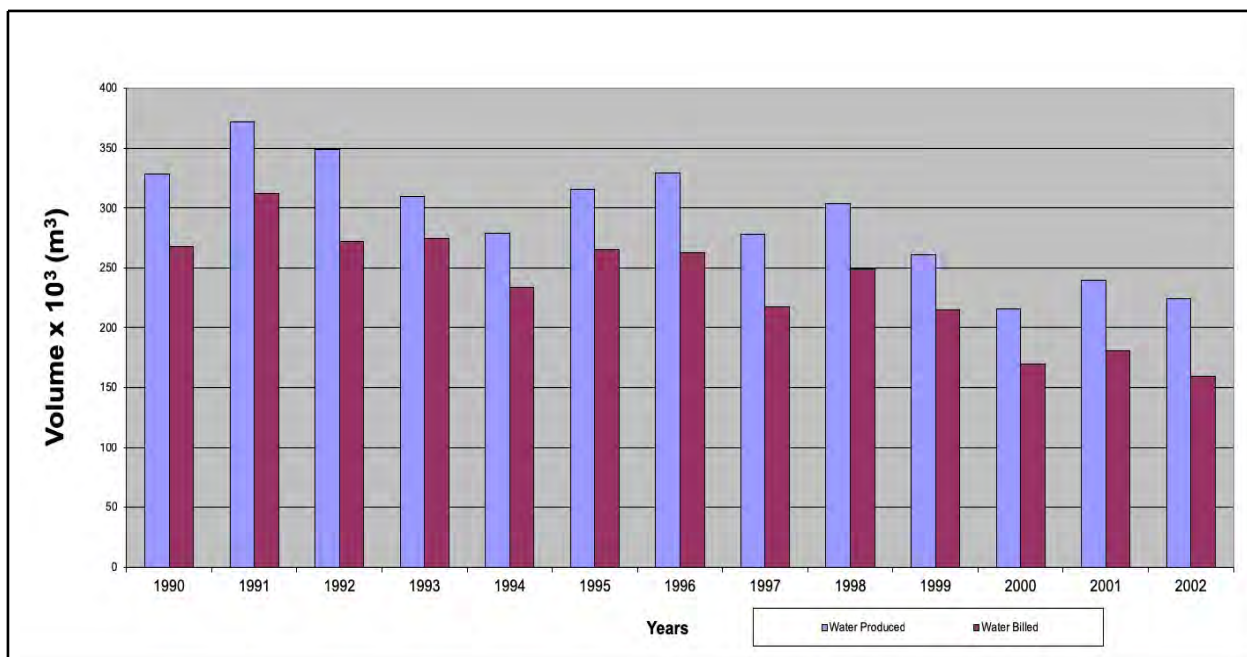


Source: NYEWASCO, 2003a.

As Chart No 4 shows, the amount of water produced has been increasing steadily but, contrary to expectations, the percentage of unaccounted for water (UFW) in Nyeri's water supply network remains high, despite privatization. The amount of water produced by the Kiganjo network has been reduced gradually over the years, but the efficiency in billing has remained very high, due to a more effective control of UFW. This could be related to the fact that the Kiganjo network produces five times less water than the Nyeri network.



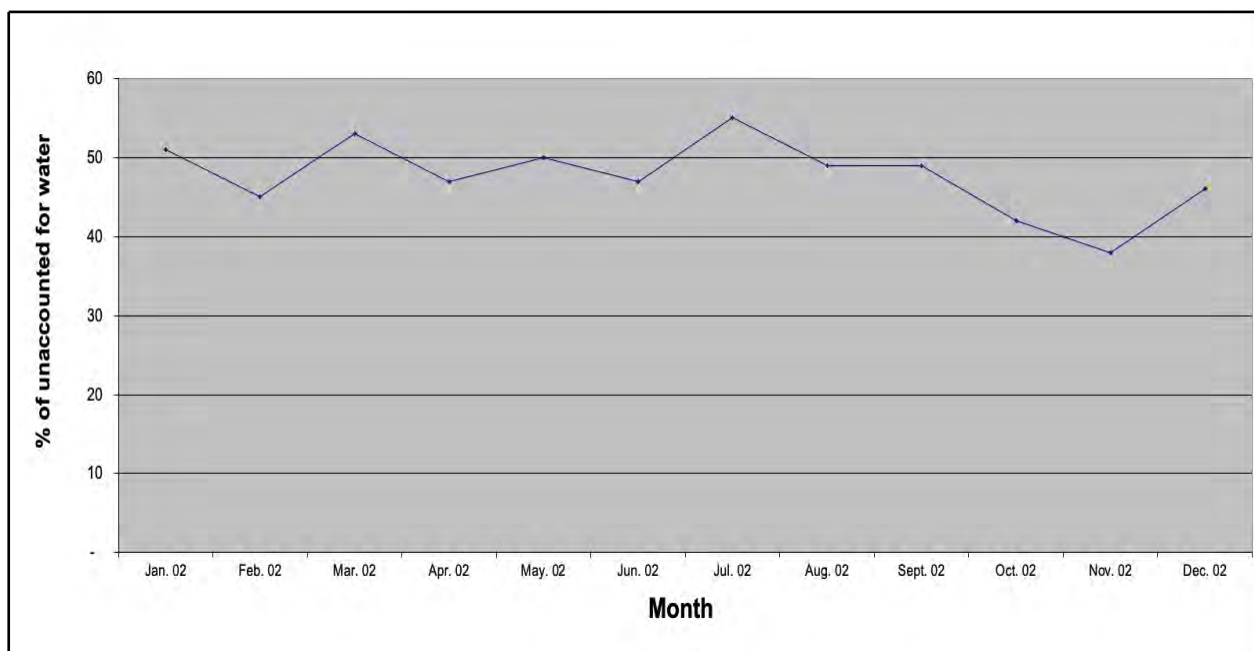
Chart N° 5: Kiganjo water supply production against water billed



Source: NYEWASCO, 2003a.

According to NYEWASCO, some of the reasons that explain the persistence of high levels of UFW include the ageing infrastructure, most of which has already surpassed their design life resulting in massive subsurface leakages. Also, the Nyeri Supply network serves a high-density cosmopolitan area, as opposed to the Kiganjo network. The operation of the Nyeri network requires high operational pressures, which increase UFW. The large population served by the Nyeri network, measured by the number of consumer connections, increases the chances of water theft. According to the company, old members of staff, especially those working in the meter reading and billing sections, may have been colluding with consumers to cover up water theft for many years, and such habits die-hard. The new management has tried to implement strategies to reduce UFW that have resulted in the elimination of water rationing within the service areas, an increase in the number of active consumer connections, and the extension of supply to some areas neighbouring the original service area. Nevertheless, as showed in Chart No 6, NYEWASCO has reduced the percentage of UFW to 38 percent by December 2002, down from a figure of 49 percent in 1998.

Chart N° 6: Overall unaccounted for water during 2002



Source: NYEWASCO, 2003a.

### Water use

The main water uses in Nyeri Municipal Council are domestic (drinking and cooking), hygiene (bathing, washing dishes and clothes, and general cleaning), and amenity (washing cars). The consumers expressed willingness to use water for income-generating activities, such as growing vegetables for sale, but they are restricted by its cost. The only income-generating activities based on water recorded in the survey were the sale of water to neighbours, and car washing services.

Regarding household water use, respondents with private water connections (34 respondents) did not report changes in their daily water consumption after privatization. The average consumption reported before and after privatization of the water supply remained at 100 litres per day, with a minimum consumption of 20 litres per day and, a maximum of 333 litres. Households sharing a yard tap (27 respondents) reported an increase in water consumption per day from an average of 84 litres before privatization to 87 litres. These households reported no changes in the minimum and maximum consumption levels, which remained at 20 litres and 500 litres per day respectively. There was an increase in the level of water use reported by households getting water from kiosks (29 respondents), up from an average of 75 litres per day to 83 litres. There was no change reported for their daily minimum and maximum consumption levels, which were 20 and 200 litres respectively. Water vendors were not commonly used in Nyeri and out of the total 100 consumers interviewed only 2 were found getting water

from vendors. The average consumption for the two households was 30 litres per day per household.

Commercial enterprises with private connections reported an increase in daily water consumption from an average of 572 litres per day to 960 litres per day after privatization. The minimum daily consumption increased from 100 litres to 200 litres in hotels and bars. The maximum level of water consumption was reported by car washing businesses, 2,000 litres per day, and it had remained unchanged after privatization. There was a decline reported in daily water use by commercial enterprises (shops) using yard taps as primary water source, down from 33 litres per day to 30 litres. There was no change in average minimum consumption for these users, which was 20 litres per day, while maximum consumption decreased from 50 litres to 40 litres per day. A similar trend was reported by enterprises getting water from kiosks (a hotel and a shop), where average water use per day declined from 45 litres to 20 litres, the minimum daily consumption from 30 litres to 10 litres, and the maximum daily water use from 60 litres to 30 litres. The respondents indicated that the decline in water use was due to the high cost of water after privatization.

All institutions interviewed had private connections and water use per day had increased after privatization from an average of 186 litres to 252 litres. There was no change reported in minimum daily consumption levels, which was 70 litres per day (reported by a church), while maximum daily consumption was found in a school that had increased water use from 300 litres to 500 litres per day. The increase was due to the reliability of the system as there was no rationing and there was good maintenance of the facilities.

In the case of consumers getting water from shared yard taps, there was greater disparity. Consumers sharing the water bill consumed on average 58 litres per day, with a minimum consumption of 20 litres and a maximum consumption of 160 litres per day. However, for those users whose water bill was incorporated in the house rent, the average water consumption per day was 110 litres, with a minimum consumption of 20 litres and a maximum consumption of 500 litres per day. This suggests that when the cost of water is hidden in a single bill that includes other items (the rent), users tend to have a higher water consumption or even wastage of water, as they may not identify the actual cost of the water they use.

In general, there has been a marked increase in water use per day by most categories of consumers, except for commercial units using water from yard taps and kiosks.

#### *Per capita water use*

We analysed per capita water use for household consumers by dividing the total daily water consumption by the total number of persons in the household. Just as there was an increase in average daily water consumption, also there was an increase in water consumption per capita per day. For households with private connections, the average per capita daily water use increased from 21 litres per day to 23 litres. This figure is much lower than the 40 litres per capita per day suggested by the World Bank, and the 47.4 litres estimated by the authors of Drawers of Water II (Thompson et. al., 2001). It is however within the World Health Organization (WHO)'s minimum recommendation

of 20 litres per capita per day to ensure basic survival. Among households with yard tap connections, the average daily per capita water use of 29 litres did not change after privatization. The same trend was found in households using kiosks whereby water consumption changed slightly from an average of 22 litres to 23 litres per day per person.

Consumers were requested to indicate whether the water they got from their sources was enough to meet their domestic needs both during the time when water was under public management and after privatization. Table No 9 presents the results of our survey on this topic.

Table N° 9: Consumers' perception of the adequacy of water supply, in % and absolute numbers (N)

Type of main supply	Before privatization			After privatization		
	Enough	Not enough	Total	Enough	Not enough	Total
<b>Private connection</b>	97% (40)	3% (1)	100% (41)	97% (41)	3% (1)	100% (42)
<b>Yard tap</b>	96% (30)	4% (1)	100% (31)	96% (24)	4% (1)	100% (25)
<b>Kiosk</b>	85% (22)	15% (4)	100% (26)	87% (27)	13% (4)	100% (31)
<b>Vendors</b>	-	100% (2)	100% (2)	-	100% (2)	100% (2)
<b>Total</b>	<b>82</b>	<b>8</b>	<b>100</b>	<b>92</b>	<b>8</b>	<b>100</b>

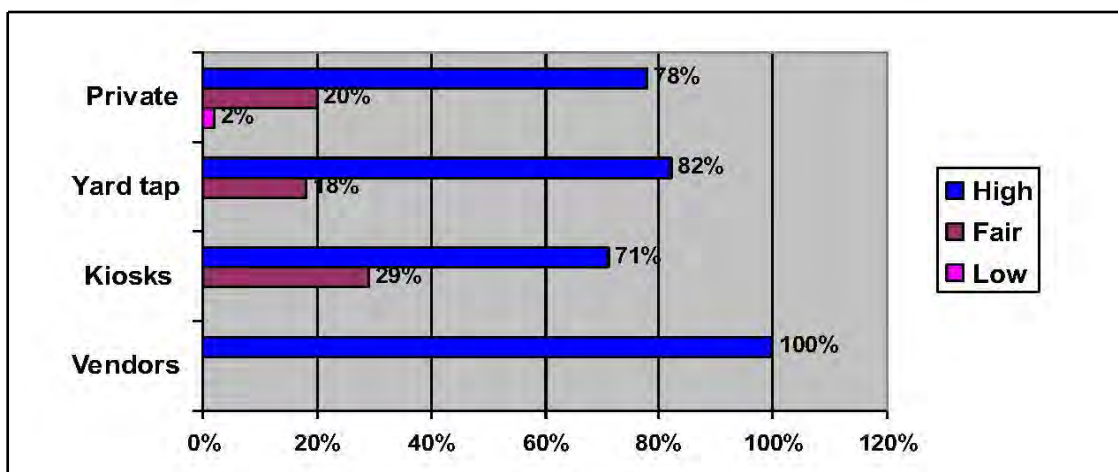
As showed by Table No 9, most consumers reported that the quantity of water was enough to meet all domestic uses. Among the consumers with private connections, 97 percent reported that were satisfied with the quantity of water supplied both before and after privatization, while 3 percent reported that the supply was not enough and that they had to fetch extra water from the Chania River for washing only. The reason given for inadequate water supply in these cases was low pressure in the network causing intermittence in the water supply. A similar trend was reported by consumers using yard taps both before and after privatization, where 96 percent of these consumers felt that the water supplied was enough for their needs. Among respondents getting water from kiosks, there was a slight increase from 85 to 87 percent reporting satisfaction with the quantity of water received after privatization. All households served by water vendors expressed that the quantity was not enough, and that they had to get additional water from kiosks or directly from the river.

### *The cost of water*

The design of water utility tariffs plays a central role in the implementation of the objectives of the organization. The price of WSS not only makes it possible to steer demand, both as regards the quantitative aspects of demand and the question of access to water to the services for the poorer sections of the population. It is worth noting that when the tariff is high, cases of water theft may increase, in addition to the increasing use of untreated, freely acquired alternative sources. When designing tariffs, special attention should be paid not only to the charge made for consumption, but also to the “condition of access” to water supplies and sanitation for poor groups of the population. NYEWASCO has different rates for household and commercial consumers, and the cost of water for these users depends on the amount of water consumed. The company has metered all piped, private connections. For yard taps connections, some households share the bill among households and in other cases the landlord incorporates the water charges in the rent. Nevertheless, the payment to the company is based on metered consumption. The kiosk operators were found charging KSh 3 (US\$ 0.04) per 20-liter jerrycans, whereas NYEWASCO charges the kiosk operator KSh 15 (US\$ 0.2) per cubic meter. The charges for water supplied by vendors ranged from KSh 3 (US\$ 0.04) to KSh 5 (0.07) per 20-liter jerrycan.

Chart No 7 provides a synthesis of consumer perceptions on the cost of water, showing that most respondents said that water was cheaper under public management and that the cost of water after privatization was too high.

Chart N° 7: Respondents view on the cost of water after privatization by consumer category, in %



The chart shows that only in the case of household respondents with a private connection, a small number (2 percent) indicated that the cost of water is low under private management. Some respondents said that the cost is fair, but most consumers in all categories said that the cost was high or too high.

Among consumers with private connections, before privatization 30.3 percent felt that the cost of water was high, a figure that raised to 78 percent after privatization. 42.4 percent thought that the cost was fair before, but the figure dropped to 19.5 percent for the cost of water after privatization. 27.3 percent said that the cost of water was low under public management, but only 2.5 percent said that it was low after privatization. As for those consumers depending on yard tap connections, 55.6 percent thought that before privatization the cost of water was high, but the figure raised to 81.8 percent after privatization. 44.4 percent said that the cost was fair under public management, but only 18.2 percent thought it was fair under private management. Most respondents getting water from kiosks and vendors also indicated that the cost of water was higher after privatization. Table No 10 shows the results in more detail, by category of consumer and type of main supply.

Table N° 10: Respondents' perception of the cost of water after privatization by consumer category and type of main supply, in % and absolute numbers (N)

Type of main supply	Perception of cost	Consumer category			
		Households	Commercial	Institutions	Total number
Private connection	Low	3% (1)	-	-	1
	Fair	18% (6)	40% (2)	-	8
	High	79% (27)	60% (3)	100% (3)	33
Yard taps	Low	-	-	-	-
	Fair	22% (5)	-	-	5
	High	78% (17)	100% (3)	-	20
Kiosks	Low	-	-	-	-
	Fair	28% (8)	50% (1)	-	9
	High	72% (21)	50% (1)		22
Vendors	Low	-	-	-	
	Fair	-	-	-	
	High	100% (2)	-	-	2
Total number		87	10	3	100

The survey did not produce detailed information about non-payment of water bills, but we gathered some general comments. Under both public and private management, the penalty for failure to pay water bills has been disconnection, if the user fails to



respond to company's request for payment. For tenants sharing a yard tap water bill, failure to pay leads to banning the defaulters from using the yard tap, and in serious circumstances to their eviction.

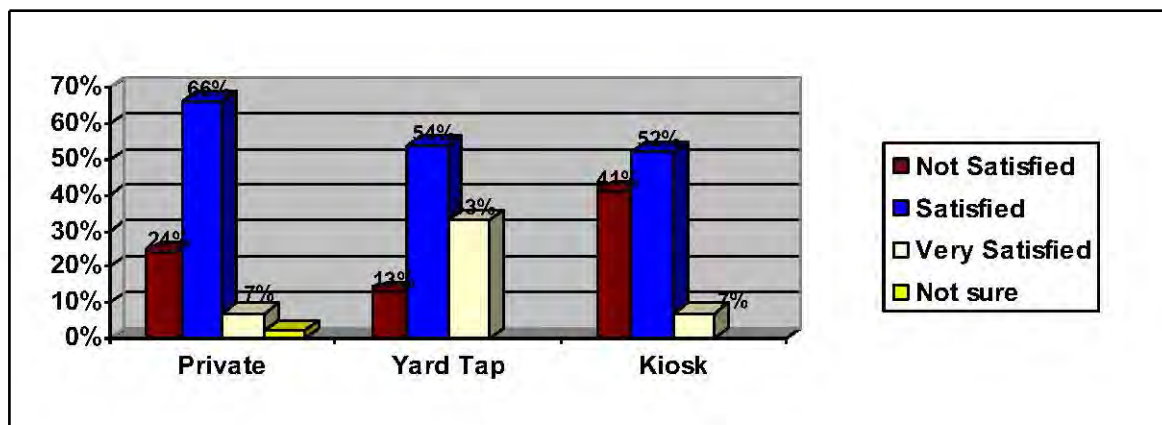
### *Overall consumer perspective*

Most respondents indicated satisfaction with the water supply service and credited the private company for its efficient management. However, they complained about several issues:

- the high cost of water since privatization, and particularly the very high cost charged by kiosks because kiosk owners hiked the cost to cater for the increased price of water
- low pressure in the networks in some areas making the supply unreliable
- poor drainage leading to contamination of water in the event of pipe breakage
- lack of consultation before privatization, and absence of opportunity for consumers to participate in the process.

Chart No 8 summarizes the overall perception about respondents' overall satisfaction with the current situation.

Chart N° 8: Consumer responses on the overall satisfaction with the services



Despite complaints on the high cost of water and other issues already mentioned, most consumers were generally satisfied with the quality, quantity and reliability of water supply. The largest proportion of consumers not satisfied was recorded among those relying on water kiosks, and to a lesser extent those with private water connections.

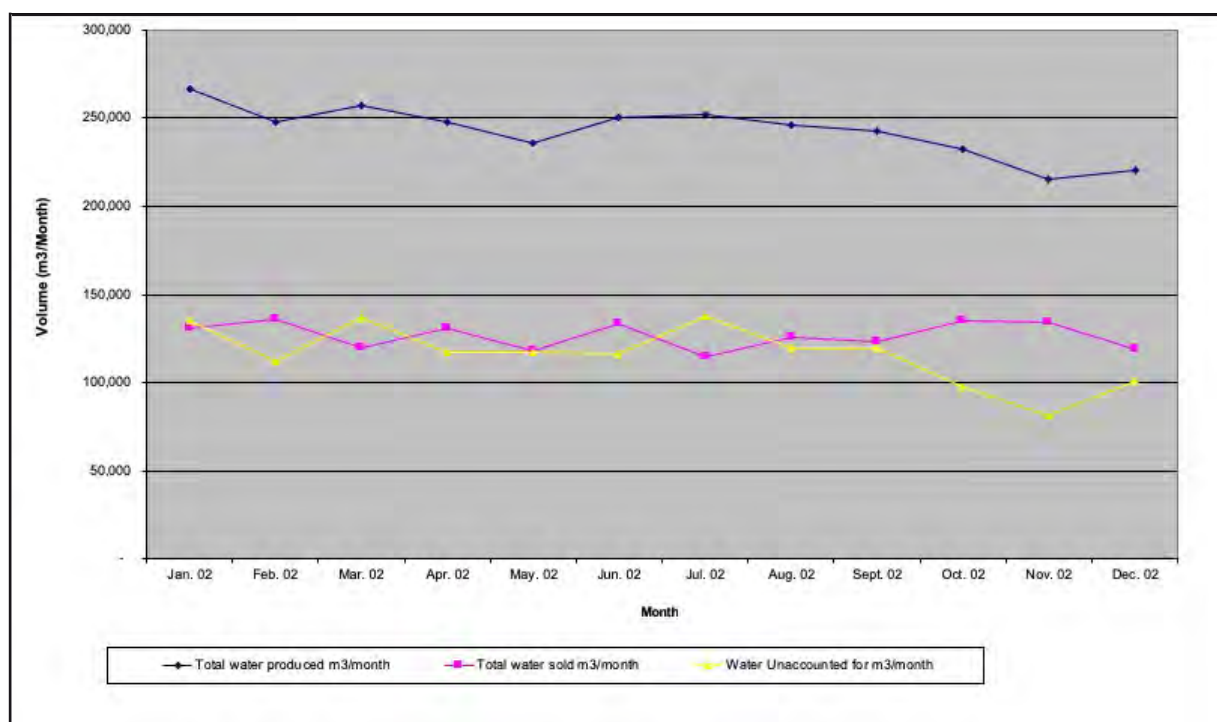


### *Additional details about NYEWASCO's assessment*

The management of the company was credited with changes in attitude and behaviour of the field staff, who were now said to be polite and helpful in seeking solutions together with consumers. To remain abreast with the situation on the ground, the management has developed a checklist of questionnaires that are administered to the consumers on a regular basis in which information is sought on aspects that may affect the quality of service. Consumers are encouraged to give suggestions on how the company can serve them better, and this information is analysed and shared with the relevant management units for action.

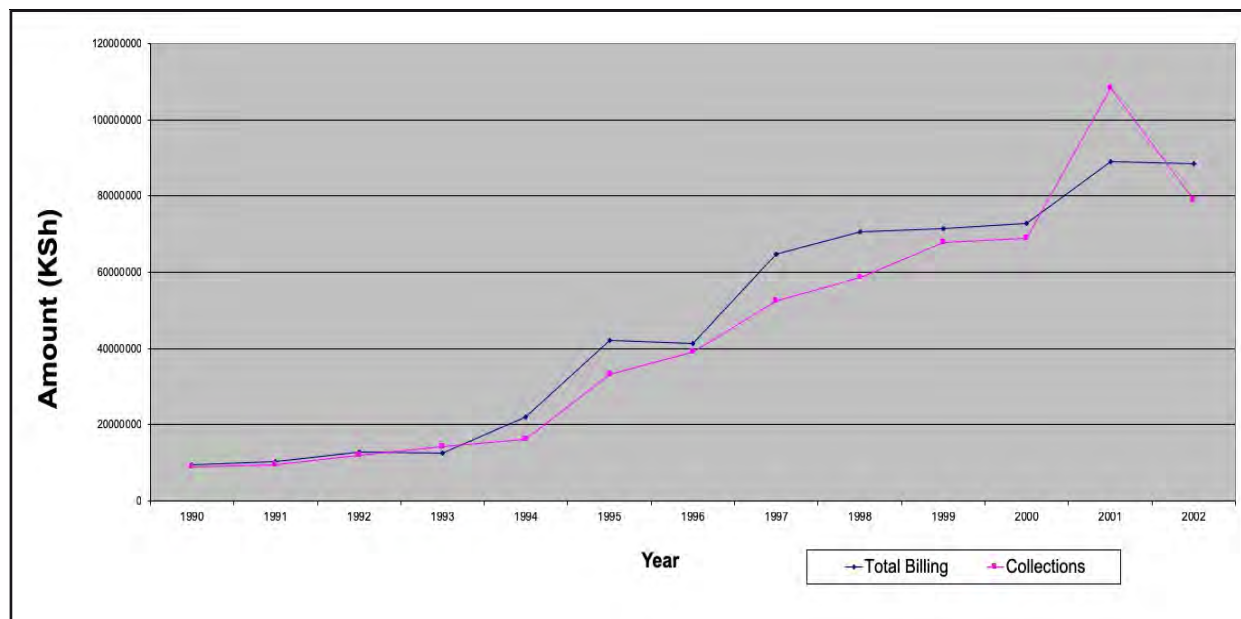
The amount of water produced has increased over time owing to efficiency gains and an increase in the capacity of the treatment works. However, as discussed earlier, the relationship between water sold and unaccounted for water has remained similar, as shown in Charts No 9 and 10.

Chart N° 9: Trends in water production, sales and unaccounted for water in 2002



Source: NYEWASCO, 2003a.

Chart N° 10: Trends in total water billing and revenue collection<sup>10</sup>



Source: NYEWASCO, 2003a.

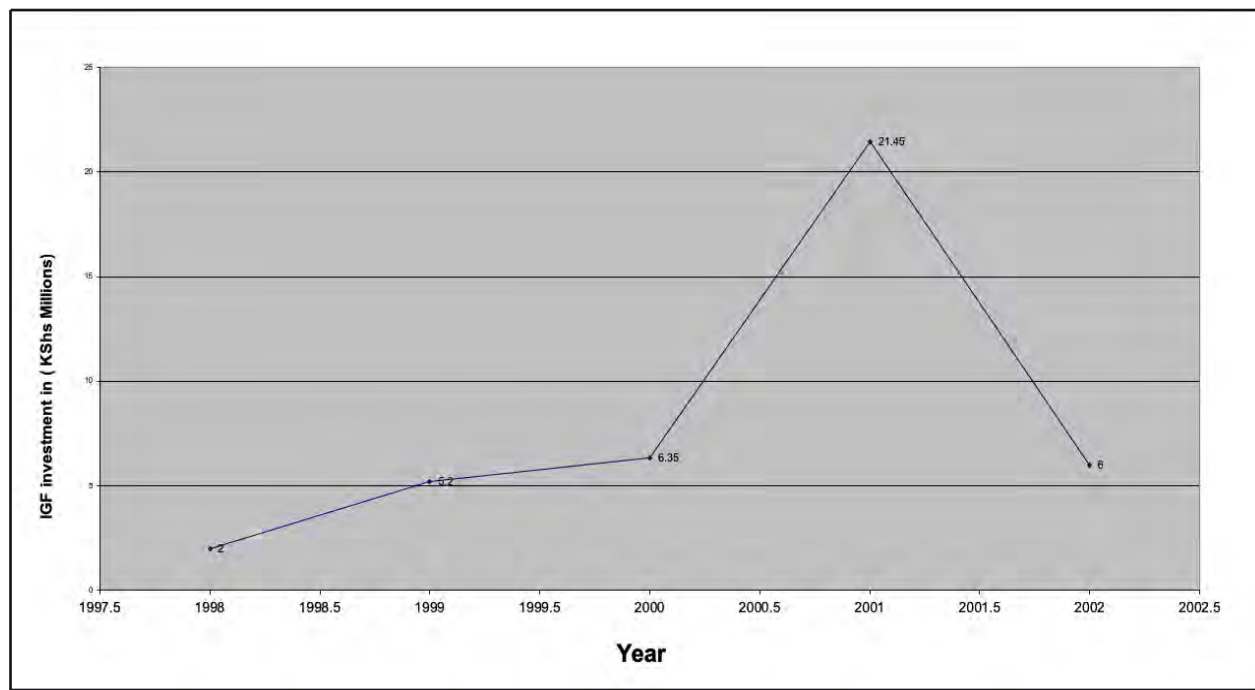
As showed in Chart No 10, since the establishment of the independent Water and Sewerage Department in 1995, tariffs have considerably been revised upwards to reflect the cost of providing services. Prior to this period, the tariffs were fixed arbitrarily without considering the cost of production and distribution of the services. Currently, the tariff covers operation and maintenance costs and part of the capital asset renewal costs (Mukundi, 1999). Taking the social dimension into consideration, NYEWASCO applies a progressive block-tariff aimed at cross-subsidising the cost of WSS. A comparative analysis with the tariffs applied by other service providers showed that NYEWASCO is charging a higher tariff, except for Kisumu municipality. This has been justified as needed to achieve financial autonomy and conserve water resources.

A major bottleneck was caused by problems with large water consumers such as government departments and institutions, which were not used to pay their water bills promptly and never got disconnected before, as it was felt that disconnecting these customers from the water supply could raise difficulties to the local authorities. NYEWASCO embarked on disconnecting the institutions due to non-payment, even though these users issued threats to the company. The institutions eventually paid and accepted that they must pay for water. Also, municipal councils were asked to refrain from influencing the decisions of the privatized utilities, as this would hamper the adoption of the commercial approach to WSS.

<sup>10</sup> The range in "Amount" (Y axis) in the Chart goes from 0 to 120 million KSh. 120 million KSh is equivalent to about 1.6 million US dollars. The exchange rate considered was 76 Kenyan Schillings (KSh) per 1 US\$.

Regarding investment in infrastructure, since the start of operations in 1998 NYEWASCO has made investments using internally generated funds (IGF) as shown in Chart No 11.

Chart N° 11: Internally generated investment funds<sup>11</sup>



Source: NYEWASCO, 2003a.

Another important aspect is that NYEWASCO offers regular development opportunities to staff either through in-house training and/or short courses lasting up to a year with the Kenya Water Institute (KEWI) with support from the Urban Water and Sanitation Management Project (MWRMD-GTZ, 2002). These activities include computing, technical skills from basic plumbing to meter reading and advanced water operations, and commercial aspects including accounting, and store management. Moreover, staff training has also involved issues of public policy, including consideration of the overriding national values and ethics and the national priorities underlining the “Licence to Operator” granted by the Government to WSS utilities. This involves issues of national legislation, regulation, and business behaviour. Training was also targeted at inducing members of staff to adopt a commercially and service-oriented approach.

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<sup>11</sup> The range in “IGF investment” (Y axis) in the Chart goes from 0 to 25 million KSh. 25 million KSh is equivalent to about 329 million US dollars. The exchange rate considered was 76 Kenyan Schillings (KSh) per 1 US\$.

## Summing up findings from Nyeri Town's privatization

Kenya adopted the privatization of water and sewerage services to enhance efficiency and effectiveness. Although much has been achieved by NYEWASCO, there are several grey areas that still need attention as discussed hereafter.

Regarding the cost of services, privatization schemes throughout the world have a track record of skyrocketing prices, water quality problems, deteriorating service, and a loss of local control. Privatization advocates argue –usually without any supporting evidence– that switching from publicly owned and operated utilities to private sector firms will lead to greater economic efficiency, stabilized rates, reduced public debt, and improved budgetary management. A consumer survey conducted by Mukundi (1999) showed that 78 per cent of respondents with private connections indicated that the cost of water was high. This has also been reflected by a survey made by the company in 2002, which showed that over 58 percent of the 404 respondents were not satisfied with the water charges. The results of our own study have revealed that 78 percent of the consumers in the Majengo Cluster having individual connections complained that the cost of water was high. These results tally with comparative analysis of NYEWASCO's tariffs with those of other private water companies and municipal councils, which showed that NYEWASCO had a higher water tariff than the other companies. This means that the concern of those opposed to privatization is justified because the main aim of private water companies is to make profit and, hence, they increase tariffs to achieve this aim. This can hurt low-income groups in the absence of government intervention to ensure that the poor can satisfy their water needs at an affordable price. It is also clear that water delivered by private vendors and kiosks is sold at a very high price, meaning that the under privileged are exploited because the operators charge KSh 3 to 5 (US\$ 0.04 to 0.07) per 20-litre containers, whereas NYEWASCO charges vendors and kiosks KSh 15 (US\$ 0.2) per m<sup>3</sup> for the water that they sell to families and other users.

There is also a false perception that, when water services are privatized, the financial burden will shift from the public to the private sector, which would save taxpayer money as the private utility would take responsibility for the costs of repairing, upgrading and maintaining infrastructure. However, in fact consumers end up paying for these projects through their monthly bills. Tax-free public financing translates into lower-cost projects, while taxable private financing results in higher interest rates. As a result, the higher costs are passed to the consumers, who are forced to pay more for the water they use. From the achievements made by NYEWASCO between 1998- and 2002, it is evident that the company has invested in infrastructure through internally generated funds. The company has also invested in social activities like donations to children's homes and sponsoring disabled students, among other issues. This is unlikely to happen with international water companies.

In relation to billing and revenue collection activities, our analysis showed some improvement over the years, with greatest gains achieved since privatization in 1998. The bills are now delivered on time, and the consumer survey showed that 76.8 per cent of people interviewed acknowledged that the bills they receive are correct. The opinion pool survey also showed that between 70 and 92 percent of the respondents, depending on their category, believe that customer care had improved since privatization. Further,

the survey showed that 58 percent of the respondents believe that NYEWASCO is free of suspicions of corruption, although a large number seem to think otherwise.

There are several challenges ahead and aspects requiring attention. Issues like prompt attendance to pipe bursts, disconnection and reconnections, corruption, and provision of sewerage services are still yet to be improved. Also, there is much to do to increase the quality of service. Some problems identified by the company as obstacles for improvement are the fact that they had to keep 100 percent of the staff “inherited” from the public utility, which makes it difficult to inculcate the new values required to perform in a commercialized company. For example, some employees found hard to adapt to new duties, such as undertaking emergency operations on a 24-hour basis. Also, the increase in production of treated water has not translated into increased sales due to leakages and water theft.

### **The privatization of WSS in Tala Town**

Tala Town is under the jurisdiction of Kangundo Town Council, which is one of the five Local Authorities of the Machakos district, Eastern Province. It is located at 67 kilometres from Nairobi City. According to the 1999 census, it has a population of 22,375 people. The administrative boundary encloses an area of 33.7 km<sup>2</sup>. The area receives an average annual rainfall of 900mm, and the main economic activity is subsistence farming, though there are also coffee factories and public and private service and commercial employers. The town has a range of public and private services, including electricity, telephone services (both private and public), private and public transport, a market, private and public schools, a commercial bank, and several government departments. The average household size is 4.52 persons with an average of 1.59 members in full employment. Estimates have suggested that on average households are expending substantially more than their reported income: the combined average household expenditure is estimated at KSh 9,651 (US\$ 127) whereas the reported average income is only about KSh 8,614 (US\$ 113). Water and sanitation services are estimated to take about 5-9 percent of total household expenditure (BG Associates, 2002).

Tala Town gets its water from a borehole with a tested yield of 105 m<sup>3</sup> per hour, which was drilled around 1946. The borehole is about 1.5 km from the town centre and serves a supply area of 4 km<sup>2</sup>. It is equipped with an electrical submersible pump whose pumping rate is estimated at 45 m<sup>3</sup> per hour and which has a tripod gantry protruding above an open roof. The 152 mm diameter plain steel-finishing casing is below the concrete floor slab of the borehole house on the ground level. The borehole is not capped to protect foreign objects from falling into it. Water is released from the storage reservoir into the distribution system by gravity and the flows are very low. The types of service supply include private piped connections, shared yard taps, and four water kiosks serving those without connections. Two of the kiosks are built of iron-sheets with a single draw point, whereas the other two have a stand post with a short length hosepipe for filling water jerrycans. All the water kiosks are metered. Water is pumped 24-hour round without a standby pump. The average daily production is 100 m<sup>3</sup> against an estimated water demand of 750 m<sup>3</sup> per day. The town does not



have a public sewerage system, and residents depend on pit latrines (92%) and septic tanks (BG Associates, 2001).

### **The privatization process**

Until July 1999, the management of the water supply services was in the hands of the Kangundo Town Council. The system experienced many operational problems and hence its performance was dismal. Some of these problems included poor operational and maintenance practices, difficulties to purchase materials for operation and maintenance repairs, lack of resources to settle electricity bills, a high level of illegal connections, inadequate water supply to meet the growing demand, and weak revenue collection. In general, due to the council's inability to fund the maintenance of the system, it had fallen into disrepair with blocked and broken pipes as well as a poor reticulation system. The council workers had low moral due to the lack of a regular salary, and therefore they were not responding to consumers' grievances on time. Simple repairs could go unattended for days. All these problems resulted in acute shortage of water, and people supplemented their water needs from other sources such as wells, a dam, and private boreholes or relied on water vendors. As a result of the poor management, in 1996 operations stalled for three years without any water supply in the township.

According to the records, in 2001 the Town Clerk of Kangundo Municipal Council reported that the provision of water supply services in Tala Town was a liability to the Municipal Council, owing to its many financial difficulties. In 1998, Tala Town owed Kenya Power and Lighting Company a total of KSh 900,000 (about US\$ 11,800). As a result of these problems, it was decided to privatise Tala Water Supply by entering into a 30-year lease contract with the private company Romane Agencies Ltd. to run the water supply system starting in 1999. Romane Agencies Ltd. was given a 3-year grace period to service the inherited debts from the public utility, which was eventually paid in the year 2000. According to the contract, after the fourth year, the company was to start paying 10 percent of the total revenue collected to the Kangundo Municipal Council, with a proviso that the percentage could be reviewed upwards with time. The contract is renewable, and the company is responsible for repair and maintenance of the water facilities and runs the system at its own risks. Its remuneration is based on user charges and fees from new connections.

The population of Tala Town when the contract was signed was over 22,000 people and is projected to be 120,000 by 2020. The daily water supply by is 100 m<sup>3</sup> against a demand of about 750 m<sup>3</sup>. By 2020 and with a projected population of 120,000, the daily water demand would be over 3,000 m<sup>3</sup>. Therefore, the supply will need to be increased 30 times to meet the projected demand. To make sure that tariff increases would be affordable, the Tala Water Supply lease contract includes an innovative cost-sharing arrangement between the Town Council and Romane Agencies Ltd., whereby the tariff will be adjusted gradually until reaching a point of full-cost recovery expected to be around the tenth year of the lease.

Romane Agencies Ltd. contracted Davis and Shirtliff, an international consulting firm, to do a survey of how to improve the short-term delivery of water, and to develop a long-term plan for the improvement of services. The goal is to make an impact as a provider of private WSS to prove that the privatization of these services is the



solution to the poor-quality WSS characterizing local authorities in Kenya. The general objectives of the company are:

- supplying (through rehabilitation and development) clean water in the Kangundo Urban Council, in the Eastern Province, and eventually expanding to other parts of the country within the next 5-10 years
- achieving technical competence in the provision of quality water supply within the next 5 years
- improving sanitation services over the 30-year life of the project, with emphasis on environmentally acceptable options, and extending coverage to other needy areas.

To ensure the efficient supply of safe water to meet the demands of all users, Romane Agencies has also laid down specific objectives and plans:

- a. supplying with enough clean water half of the potential number of consumers who do not have access to water supply, sanitation, and hygienic practices for handling water, by the year 2015, and to provide 100 percent coverage for water supply by the year 2025
- b. metering water use by large consumers, and billing low-use consumers with a fixed monthly rate. The estimated cost to install water meters for the 100 large water users identified is KSh 400,000 (about US\$ 5,300)
- c. expanding water supply coverage up to a 15-kilometre radius of Tala Town
- d. educating consumers to appreciate the worth of paying for improved water services
- e. drilling new boreholes. So far geological surveys carried out by government geologists from the Machakos District Water office have identified ten target sites. Three of these sites showed potential for yielding enough water for the projected needs. The required government permits have been paid for and work started in September 2002 for the first borehole. The second and third sites were to be commissioned before the end of March 2003
- f. exploiting other available water sources such as protected springs and agreeing with community groups to manage these sources. The plan is that Romane Agencies Ltd. will buy their water to increase availability for the Tala Water Supply, and the communities in return will use the funds to manage the project. The company has also approached individuals with private boreholes and offered to buy water from them for distribution in Tala Town.

#### *Self-assessment by Romane Agencies Ltd.*

The company records show that by the year 2000 they had paid the outstanding debts inherited from the public utility. Also, the company completed the rehabilitation

of the water supply system that had stalled in 1996 and constructed a new water tank with a capacity of 50 m<sup>3</sup> to improve water pressure. Moreover, Romane Agencies Ltd. improved the reticulation by unblocking old pipes and replacing old uPVC pipes with galvanized iron (GI) pipes. The company also bought two water pumps for installation at the existing borehole, and a new electric panel for the pumping station. The company set up a management office, bought computers, and assembled a management team. There is also a customer service unit to ensure customer care. One of the first tasks completed was to identify and disconnect all the illegal connections. Also, the company opened four water kiosks to serve unconnected consumers, who are scattered around the supply area. They also identified high water consumers like schools and hotels and installed water meters in these cases. The mode of charging for water has not changed after privatization, as the private company is using the same billing system used before by the Municipal Council. This consists in a flat rate (fixed amount) for unmetered piped connections, a proportional rate for metered connections, and the charges per 20-litre jerrycans by water kiosks. The latter is also used by private vendors. There has been improvement in the billing system, which has been computerized. Records are updated daily and there is a comprehensive list of all consumers, while bills are now released promptly. The meters are read once every month and water bills for metered and non-metered connections and consumers are given 15 days to pay their bills. As before privatization, the penalty for failing to pay water bills is disconnection, in the case of private piped connections. For tenants sharing the bill of a yard-tap connection, failure to pay results in the household being barred from using the yard tap, and in serious circumstances, they are evicted.

### Research findings

Romane Agencies Ltd. has interests in several business activities, including a petrol station, a medical clinic, and a school. This study did not explore in detail how these businesses were linked and focused on the management and performance of water services. The company was not required to hire employees from the water department at privatization and has five members of staff plus the kiosk operators. An Executive Director controls and directs the general operations, while management and administrative functions are handled by an accountant who operates from the school. Daily operations are the responsibility of three members of staff, a cashier, a plumber/line patroller, and an administrator, who are based in the town. In addition, there are four kiosk operators, of which two are women. It appeared that the daily running of the water supply had not been entrusted to professionals with training in water supply, and some employees have dual roles in the different businesses run by the company. The privatised Tala Water Supply is run like a retail business outlet selling water at the kiosks and collecting payments from connected customers. It is significant, as a report by BG Associates indicated, that after privatization the cost of water services in Tala Town takes about 5-9 percent of total household expenses (BG Associates (2002). About 80 percent of Tala Town residents buy water from other sources, mainly from springs and storm water collection dams. Out of the 401 consumers (water connections) inherited, only about 110 are active, and the rest (72.6 percent) have been disconnected owing to non-payment. Only 12 connections are metered, while the rest are charged on a

flat rate. The responsibility for providing water meters was not addressed in the contract, and there has been no decision yet over whether the company or the consumers themselves should be responsible for the meters. Due to the high number of unmetered connections, water losses resulting from uncontrolled usage and illegal consumption are high, although it cannot be accurately quantified since there is no data available on water production and consumption. Also, there is no record of operation and maintenance activities, which could be attributed to the fact that the staff hired by the company are incompetent and unskilled in terms of water management, and that they are also tasked with other responsibilities by the company (BG Associates, 2001).

We also found that before the Municipal Council stopped operations around 1996, the central part of the town's market that comprises most of the business premises were served by the piped network. After privatization, this area, despite being the more likely to pay for water consumed, has not been connected. While Romane Agencies Ltd. argues that this problem is due to lack of pressure in the network, this is hardly convincing. Even though a new borehole was drilled near the market centre, many of the interviewed believe that the borehole is for some private activity and is unrelated to much needed improvements in the water service. In fact, the company has concentrated on supplying consumers located near the borehole that is the source of supply, which caused much frustration. During discussions with the residents, it emerged that the company had concentrated its operations in a small area, where the cost of supply was perceived to be more profitable, and that the company does not seem to be interested in increasing coverage or recruiting new consumers. This is supported by the fact that the number of connections has remained largely unchanged after privatization. This problem is perceived to go against the principle of equitable access to water. As the company has not discussed these matters with the community, people feel that it is not interested in improving the service.

### Customer perceptions

We carried out a survey in February 2003 to assess consumers' perception about water supply services in Tala Town before and after privatization. We focused on three types of consumers: individual households, commercial enterprises (two shops, two hotels, four bars, one car wash and a slaughter house), and institutions (a nursery school and a church). There was a total of 41 respondents, of whom 29 (71 percent) were household consumers, with an average household size of 5.7 persons. There were 10 commercial enterprises (29.3 percent), and 2 institutions (4.9 percent).

### *General aspects*

The respondents confirmed the difficult situation of water supply services and indicated that the Kangundo Municipal Council had mismanaged the system. There was a problem as the demand for water had outstripped the supply, and poor revenue collection was a major factor that led to poor service delivery and eventually to the collapse of the system in 1996. Since the start of the contract with Romane Agencies Ltd. in 1999, respondents reported slight improvements. For instance, operation and

maintenance problems such as leakages and breakdowns are quickly repaired, and the workers respond promptly to complaints. Water bills are issued on time and consumers enjoy a good relationship with the company employees. The company is drilling another borehole to increase its supply and manages water kiosks in the township where water is sold at KSh 3 (US\$ 0.04) per 20-litre jerrycans. Those customers with private and yard tap connections are charged a flat rate of KSh 465 (US\$ 6.2) per month. This tariff is slightly higher than the rates applied by the public company before privatization, where water kiosks were charging KSh 1 (US\$ 0.013) per 20-litre jerrycans, and a monthly flat rate of KSh 400 (US\$ 5.3) for piped connections.

### *The privatization process*

Respondents complained that the tendering procedure to privatize the water supply system was biased, and all respondents but one stated that they were not consulted before privatization. Some consumers suspected that there was a foul play between the Municipal Council and the owner of the private company, since the company has already acquired all water assets from the council while supposedly the contract had been a lease agreement. Others expressed fears that the council had been tricked into signing the contract and would eventually lose all the water infrastructure to the private company. Some stated that the move to privatize was a short-sighted decision to salvage the financial situation of the council. In summary, respondents expressed dissatisfaction with the way the privatization process was carried out, and the general feeling was that they should have been consulted. There was a strong perception that corrupt arrangements may have been the sole motive of privatization, and not the improvement of the water supply service. In responding to the question of who currently manages the water supply services, 95 percent of the respondents knew that the water supply system is currently privatized, and only 5 percent think that it is still run by Kangundo Municipal Council. This 5 percent unaware of the privatization process was found in household consumers, as all commercial enterprises and institutions were aware of the change.

### *Type of main water supply*

The survey assessed the situation before and after privatization looking at four commonly used types of water supply: private connections, yard tap connections, water kiosks, and water vendors, though some respondents were also found getting water from their neighbours and from community water points. Table No 11 shows the distribution of respondents by type of main supply before and after privatization.

**Table N° 11:** Respondents' by type of main supply, in % and absolute numbers (N)

Type of main supply	Respondents	
	Before privatization	After privatization
Private connection	35.9% (14)	36.6% (15)
Yard tap	46.2% (18)	34.2% (14)
Water kiosks	7.7% (3)	26.8% (11)
Water vendors	5.1 (2)	(2.4) (1)
Neighbours	2.6% (1)	-
Community water points	2.6% (1)	-
Total	100% (39)	100% (41)

The following must be read with caution, as the number of respondents was relatively small for some categories of users. Nevertheless, it was established from the responses that consumers used different types of access to water sources before and after privatization. Table No 12 shows that, according to the respondents, before privatization household consumers used all the available types of access. All commercial enterprises and institutions had a private piped supply connection. After privatization, the percentage of household consumers with a private piped connection raised from 21 to 28 percent, while those using shared yard taps dropped from 57 to 45 percent. The number of households using water kiosks jumped from 11 to 24 percent after privatization, while 3 percent continued to get water through handcart vendors. Those who before relied on neighbours or water from a dam, after privatization moved to other forms of supply, most likely water kiosks. Among the commercial enterprises, there was slight decrease in private piped connections from 67 to 60 percent, and there was also a drop from 22 to 10 percent in the use of yard taps, as there is a jump from 0 to 30 percent in the use of water kiosks. There was a similar change in the case of the two institutions included in the sample, as both had private connections before privatization, and after one of them resorted to get water from a kiosk.

**Table N° 12:** Type of access to water supply before and after privatization, by consumer category, in % and absolute numbers (N)

Consumer category	Private connection		Yard tap		Kiosk		Vendors		Neighbour		Dam		Total	
	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After
Household	21% (5)	28% (8)	57% (16)	45% (13)	11% (3)	24% (7)	3% (1)	3% (1)	3% (1)	-	4% (1)	-	100 (27)	100 (29)
Commercial	67% (7)	60% (6)	22% (2)	10% (1)	-	30% (3)	11% (1)	-	-	-	-	-	100 (10)	100 (10)
Institution	100% (2)	50% (1)	-	-	-	50% (1)	-	-	-	-	-	-	100 (2)	100 (2)
Total	14	(1)	18	14	3	11	2	1	1	0	1	0	39	41

### *Water quality*

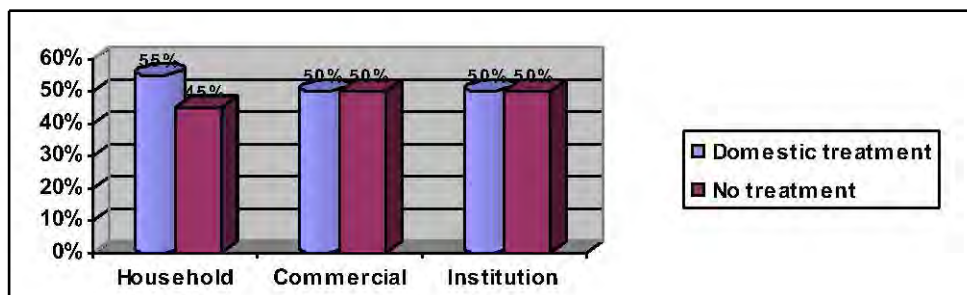
Previous studies on households' responses to the deficient water supply run by the public utility in Tala Town and neighbouring areas had revealed that nearly all households depended on multiple sources of water, including house taps, wells, boreholes, public kiosks, streams, dams, and street vendors. Poorer households bore a disproportionate share of the burden of water deficiency and spent a larger portion of their income to supplement inadequate water supply than did the wealthier households. This included time spent looking for water and money spent on trying to dig water holes. Other costs included money for treating water-borne diseases due to the consumption of unsafe water from streams and dams. Women bore the largest burden in water provision. Privatization was deemed to provide a solution to these and other problems.

To assess consumers' perceptions on the quality of water supply, the respondents were requested to indicate how they felt about the quality of water from primary water sources before and after privatization, and whether they stored water. Consumers acknowledged that the company makes efforts to treat the water but noted that at times it had small suspended particles. The analysis showed that there was a positive trend in the perception of users, as those believing that water quality was poor dropped from 33.3 to 14.6 after privatization, while the numbers that thought that water quality was fair increased from 48.7 to 65.9 percent, and those who stated that water was good also increased from 17.9 to 19.5 percent, suggesting that there has been improvement in water quality after privatization. Looking at the responses by type of consumer, we found that among households with private connections the number that thought that water quality was poor dropped from 39 to 17 percent, while those stating that water was fair or good increased from 38 and 23 percent to 59 and 24 percent respectively. Among commercial consumers, the number that felt that water quality was poor dropped from 22 to 10 percent, those suggesting that it was fair increased from 67 to 80 percent, and the numbers that believe that water was good dropped slightly from 11 to 10 percent. The two institutions indicated that water quality was fair before and remained the same. However, these figures must be



considered against the fact that 55 percent of household and 50 percent of commercial and institutional respondents think that water is unsafe to drink and therefore practice domestic treatment, consisting in boiling the water used for drinking (Chart No 12).

Chart N° 12: Percentage of respondents boiling water after privatization



### *Reliability of the water supply service*

From the responses received, it emerges that the privatization of Tala Water Supply did not introduce significant change in the reliability of the service. The same system of rationing applied before privatization is still being practiced, and the water supply is provided for a daily average of around 14 hours, whereas the average weekly reliability was 4.7 days. This situation is worsened by interruptions of the power supply or major breakdowns (BG Associates, 2001). Confirming the serious unreliability of the service, all respondents indicated that they had stored water before and continue to do so after privatization. The main reason for storing water was to ensure that there was always water even during rationing or when there was power failure, pipe bursts or breakdown of the pumping equipment.

Respondents tend to believe that after privatization there is more efficiency in responding to consumer demand, especially in case of pipe bursts, although there was disagreement in the estimation of how long it used to take before breakdowns were rectified. In this regard, among consumers with private connections the figure that believe that it took up to one day to repair pipe bursts raised from 7.7 to 53 percent after privatization. The number that thought that repairs usually took between two and four days dropped from 38.5 to 33.3 percent, and those believing that repairs could take up to one week dropped slightly from 15 to 13.3 percent. Also, 30.8 percent indicated that before privatization repairs could take several weeks or even months, and 7.7 percent did not know how long it took. Among consumers using yard taps, the number believing that it took up to one day to repair bursts increased from 7.7 to 42.9 percent, those who indicated that it could take between two and four days raised from 7.7 to 28.6 percent, while the figure of yard-tap users estimating that it took up to one week to repair bursts dropped from 38.5 to 21.4 percent. The figure of those who believe that repairs could take several weeks also dropped, from 30.7 to 7.1 percent, and 15.4 percent did not respond. Concerning users of water kiosks, 67 percent indicated that it took the municipal company several weeks to repair pipe bursts, while 33 percent of the respondents did not know.

With or without piped water supply, water must be available for life to continue,

and therefore when there are interruptions consumers look for alternative sources. Regarding household respondents with private connections, 25 percent indicated that they got supplement water from vendors, 38 percent borrowed water from neighbours (who had private boreholes), while a further 37 percent relied on storage tanks. Among commercial users with private connections, 33 percent bought water from vendors during interruptions of the supply, 50 percent got water from individuals with private boreholes, and 17 percent from community water points (a communal borehole and a dam), while the two institutions relied on neighbours' boreholes as alternative sources. In the case of household consumers using yard taps, 8 percent bought water from vendors, 62 percent got water from neighbours with private boreholes, and 30 percent had stored water. Commercial enterprises got water from neighbours when there was no water in the yard taps. Among household consumers using water kiosks, in times of service interruption 14 percent got water from vendors, 72 percent from neighbours, and 14 percent from a dam. For commercial users relying on water kiosks, 67 percent solved the problem buying from water vendors and 33 percent from neighbours. Institutional consumers used vendors as an alternative source when there was no water in the kiosks. It was reported that there were households with private boreholes who supplied water to their neighbours either free of charge or for a fee when the water supply was not functioning. According to a report from BG Associates (2001), about 50 percent of the households were not relying on the piped system as their primary source of water. Due to frequent water shortages, it was reported that water vendors have taken advantage and sell water for as much as KSh 20 (US\$ 0.26) for a 20-litre jerrycan during the dry season. The sources from which these vendors fetch water are dubious and often the water is dirty and contaminated. As a result, cases of diarrhoea, typhoid, and bilharzias are on the increase.

### *Water use*

Water use in Tala Town is restricted to domestic uses such as drinking and cooking, hygiene (bathing, washing dishes and clothes, and general cleaning), amenity (washing cars, and gardening) and production (consumption by livestock). This study did not explore the amount of water used for each of these uses; however, an attempt was made to estimate the amount of water used generally by consumers when using different sources. Daily consumption by institutions was not affected by privatization as consumption in the school remained at 40 litres per day, while in the church it remained at 60 litres per day. However, there was a general increase of water usage by households with private connections, rising from a daily average of 110 litres to 131 litres per household after privatization. The minimum consumption rose from 60 litres to 80 litres, and the maximum from 200 litres to 250 litres after privatization. There was also an increase in the mean daily water consumption among household consumers relying on yard taps, but there was a decline among consumers getting water from the kiosks (Table No 13).

**Table N° 13:** Average household daily water consumption (litres)

Type of access	Minimum		Maximum		Mean		Total number of respondents	
	Before	After	Before	After	Before	After	Before	After
Private Connection	60	80	200	250	110	131	5	8
Yard tap	40	40	100	160	70	95	16	13
Kiosk	40	60	100	100	71	66	3	7
Vendors	20	20	20	20	20	20	1	1

As showed in Table No 13, the highest daily water consumption was found among households with private connections, and the lowest among consumers served by vendors. The cost may not be a factor determining the level of water consumption, because household customers with a private piped supply pay a flat rate per month. The cost of water bought from vendors was high, at KSh 7 (US\$ 0.09) per 20-litre container, and this could be the reason behind the low consumption in this category.

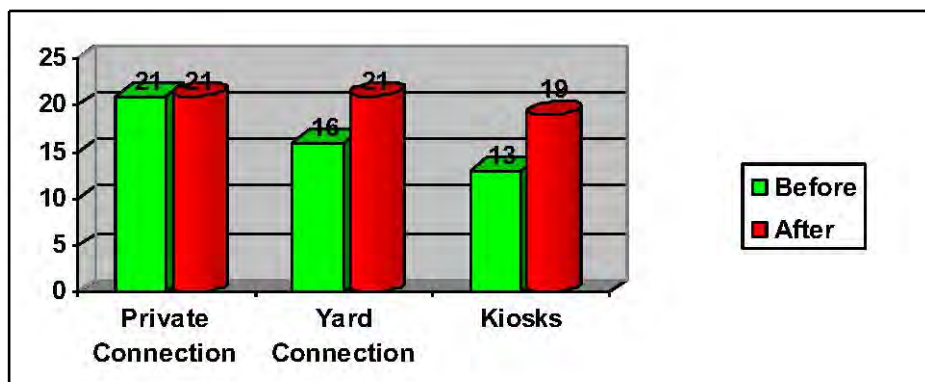
Commercial enterprises with private connections recorded an increase in their average daily water consumption of 47 litres from 480 litres to 527 after privatization, with a minimum water use of 20 litres per day, and a maximum use of 1,400 litres and 2,000 litres before and after privatization respectively. Mean water use for consumers with yard taps was constant at 20 litres per day (Table No 14).

**Table N° 14:** Average commercial daily water consumption (litres)

Type of access	Minimum		Maximum		Mean		Total number of respondents	
	Before	After	Before	After	Before	After	Before	After
Private Connection	20	20	1,400	2,000	480	527	7	6
Yard tap	20	20	20	20	20	20	2	1

Per capita water consumption was analysed for household consumers by computing the total amount of reported daily water consumption divided by the average household size. As showed in Chart No 13, there was no change in households with private connections, where per capita water consumption remained at 21 litres per day. There was a change in per capita water consumption for households using yard taps, as it increased from 16.1 litres to 20.9 litres after privatization. Likewise, per capita consumption from water kiosks increased from 13 litres to 19.4 litres after privatization. The average per capita water consumption for households buying water from vendors remained at 20 litres per day.

Chart N° 13: Per capita household water consumption (litres)



### *Water quantity*

The quantity of water used was assessed to establish whether the water provided by the company was enough to meet all user needs. As earlier mentioned, water was available for about 12-14 hours a day (daytime only); at night, the supply was closed to allow pumping to the storage tank. It was observed that those with connections near the water source had a reliable supply. Water shortage was acute during the dry season. 67 percent of household consumers with private connections conceded that water provided by the council was enough for all their water needs, a figure that increased to 87 percent after privatization, while 13 percent indicated that it was not enough for their daily needs. 83 percent of commercial consumers with private connections were satisfied with the amount of water they got. The two institutions indicated that the water supply was enough to meet all their needs before and after privatization. The same trend was observed in households with yard taps where there was an increase from 58 percent to 85 percent of respondents indicating that the water supply was enough. The respondents of households buying water from kiosks felt that water was enough for their daily needs having increased from 33 to 71 percent after privatization. The reason for the increased satisfaction of the consumers who indicated that they got enough water from the company could be possibly due to improved efficiency in operation and maintenance. Those who argued that the water supplied by the company was not enough got additional supplies from neighbours, community water points (boreholes) or a dam. Table No 15 shows the general consumer perceptions about the adequacy of the water supply.

Table N° 15: Consumers' perception of the adequacy of water supply, in % and absolute numbers (N)

Type of main supply	Before privatization			After privatization		
	Enough	Not enough	Total respondents	Enough	Not enough	Total respondents
<b>Private connection</b>	77% (10)	23% (3)	100% (13)	87% (13)	13% (2)	100% (15)
<b>Yard tap</b>	62% (8)	38% (5)	100% (13)	86% (12)	14% (2)	100% (14)
<b>Kiosk</b>	33% (1)	67% (2)	100% (3)	82% (9)	18% (2)	100% (11)
<b>Total</b>	19	10	29	34	6	40

### *The cost of water services*

The study established that the consumers could not remember with precision the amount of the flat rate before privatization. They gave conflicting figures, some indicating it was KSh 200 (US\$ 2.6), others KSh 400 (US\$ 5.3), and even others KSh 465 (US\$ 6.12). However, Romane Agencies Ltd. confirmed that flat rate charges were KSh 400 (US\$ 5.3) before privatization and that the new flat rate was KSh 465 (US\$ 6.12). Most household consumers complained over the cost of water, especially the monthly flat rate of KSh 465 (US\$ 6.12). Among respondents from households with private connections, eight in total, 63 percent complained that the cost was high, 25 percent felt that the cost was fair, while 12 percent indicated that the cost was low. Among the ten commercial consumers with private connections, 33 percent complained that the cost of water was high, and the remaining 67 percent indicated that the cost was fair. The two institutions interviewed reported that the cost of water was high. The situation was different for respondents from households using yard connections, 13 in total, where the landlord included the charges in the house rent. These respondents did not care about the cost of water. However, most of the landlords renting these properties indicated that the cost was fair, a small number said it was high, and one said it was low. The seven respondents dependent on water kiosks were charged a fixed rate for 20-litre jerrycans, and they could not remember with precision the cost before privatization: 80 percent of these respondents indicated that the cost was less than KSh 1 (US\$ 0.013) while 20 percent said that the cost was KSh 3 (US\$ 0.04). After privatization, the cost was KSh 3 per 20-litre jerrycan (US\$ 0.04). 43 percent of these respondents dependent on water kiosks reported that the price was fair, 29 percent indicated that it was high, and 28 percent thought that it was low. These respondents were comparing the cost at water kiosks with the cost charged by vendors, who were their alternative source in cases of shortage, and charged KSh 7 (US\$ 0.09) per 20-litre jerrycan.

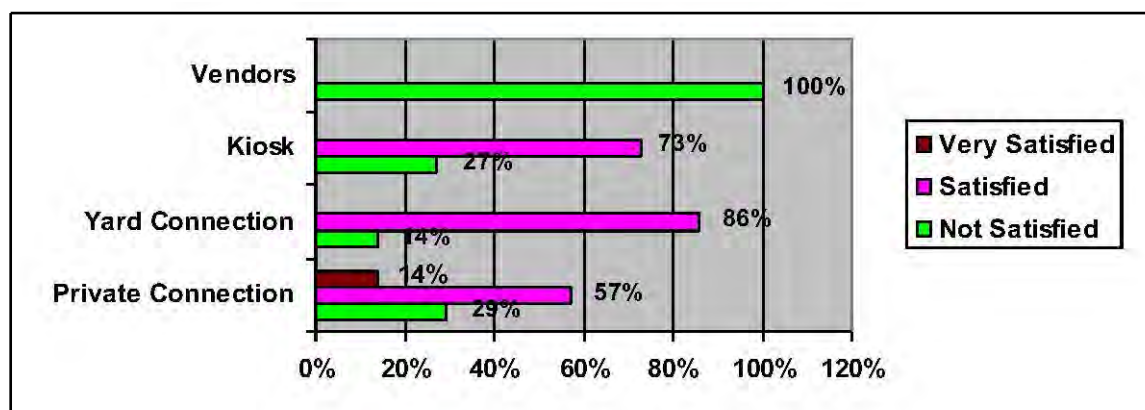
### *Overall level of satisfaction*

Summing up, Chart No 14 presents an overall perspective of the respondents' level



of satisfaction with the privatized water services. Among those users with private connections, 57 percent expressed satisfaction with the current services, 14 percent were very satisfied, and 29 percent were not satisfied. Among those depending on yard tap connections, 86 percent expressed satisfaction while 14 percent were not satisfied. About 73 percent of consumers relying on water kiosks expressed satisfaction, while 27 percent were not satisfied.

Chart N° 14: Consumers' overall satisfaction with the privatized water service



The respondents of the survey also made several complaints, which we summarize below. Most of these complaints also concur with findings presented in a recent report (BG Associates, 2001).

- The private company would have failed to fulfill its promises to provide an adequate water supply 24-hour round and were dissatisfied with the rationing system that supplies water only during day time. Some respondents also complained about the low pressure in the network, resulting in water shortage and requiring them to spend time and energy in collecting water from other sources.
- Many respondents think that the cost of water in the kiosks is too high; hence, people only buy drinking water in the kiosks and supplement it with water from a nearby dam for washing clothes and bathing. They also complained that the water supplied was salty, which forced them to buy spring water for drinking from vendors who sold it at KSh 7 (US\$ 0.09) per 20-litre container.
- Respondents with piped connections were not satisfied with the monthly flat rate of KSh 465 (US\$ 6.12). They consider that the flat rate is unfair, as it does not reflect the actual amount of water consumed by the households, and it is prohibitive. Therefore, they claim that there is a need to introduce a proportional rate of payments to reduce the cost and reflect the actual consumption.
- Due to water shortages coupled with the need to transport water from long distances to the water points, water was very expensive in the area and hence many families had to do with only one or two 20-litre jerrycans per day, an amount that was inadequate. They felt that if the Health Department was to be strict on sanitation issues, many small hotels could have been closed since they cannot



afford to buy enough water for their daily use.

- Also due to water shortages, people go to the extent of fetching water from stagnant water points, resulting in an increase of water-related diseases including bilharzias, typhoid, and diarrhoea.
- The respondents observed that the area has abundant water resources and that only proper co-ordination and leadership was needed to make these resources available to the population. They observed the lack of continuity in the privatization project, pointing at the fact that in the early days the company drilled several boreholes that were neglected soon after. They also observed that the community lacks the courage to undertake and manage their own water supply system, but with proper training and preparation they could become capable of managing it themselves.
- Another significant problem highlighted by the respondents was the lack of sewerage services, which is even more important given that Tala Town was rapidly expanding.

### **Summing up findings from Tala Town's privatization**

The management of Tala Water Supply was leased for 30 years in 1999 to Romane Agencies Ltd., a private company that has other business interests including a petrol station, a medical clinic, and a school. In effect, some of its employees have dual roles in several of these activities. The company did not inherit any workers from the Municipal Council water department and did not recruit workers with training in water supply. It seems that the daily running of the water supply has not been entrusted to professionals, and the service is run mainly as a commercial operation. It was not surprising, therefore, to find that there have not been significant changes after the privatization, if we consider the needs of Tala Town and not just the situation of the small number of consumers served by the company, which has not been increased since privatization. As pointed out before, the company seems to have concentrated provision in a small area where it is profitable to deliver the services and has not showed interest in expanding the network.

However, we also found that the company cannot possibly make a profit with the current tariffs and the very low customer base. The monthly flat rate of KSh 465 (US \$ 6.12) applied to most consumers is open to abuse and is not representative of the amounts of water used. There are users, including households sharing yard taps and businesses, which have a higher water consumption than an average family but pay the same rate. For example, a huge commercial building in the town with restaurants, saloons, offices, a bar, a bank, and a Technical College pays a monthly flat rate of KSh 1,500 (US\$ 19.7), which is far too low for the amount of water used by these activities. Another interesting example relates to the petrol station owned by Romane Agencies Ltd., which is charged a monthly flat fee of KSh 1,000 (US\$ 13.2). This subsidised rate may make sense, since the petrol station provides the water company free diesel for pumping water in case of electricity failure, but it must be presumed

that the balancing of expenses between the two companies does not harm the water operation. The above examples demonstrate that there is much need for improvement, and a billing arrangement based on the actual amount of water used by each business would be required.

The role of water vendors was commendable. There were 10 regular water vendors delivering a daily average of 80 to 100 20-litre jerrycans (1,600-2,000 litres) to about 10 percent of the population, which means that they supply a share of Tala Town population equivalent to that served by Romane Agencies Ltd. However, water vendors collect water from unprotected sources, paying a fee and transportation costs. Some of the consumers that received water from vendors were also served by Romane Agencies Ltd., because they preferred to buy spring water from vendors as it was sweet for drinking. Most people supplied by water vendors, though, are unserved by the private company. The cost of water supplied by the vendors was higher (KSh 7 [US\$ 0.09] per 20-litre container) than the cost at the water kiosks. However, the rate of KSh 3 (US\$ 0.04) per 20-litre jerrycan charged by the company at water kiosks, was higher than the price normally charged by vendors in Nairobi, which is KSh 2 (US\$ 0.03) per 20-litre jerrycan. It is important to notice that most of the customers buying from water vendors are in the central part of the market area, where the old piped network still exist but has not been repaired by the private company. The fact that water vendors have an equal market share than the privatized company represents a challenge to Romane Agencies Ltd. to improve its service coverage. Whether the company is ready to take up this challenge remains to be seen.

BG Associates (2001) found out that consumers attributed water shortages to poor management, lack of maintenance, and political interference. They indicated that there are several boreholes that are not utilized, and that despite the many studies and proposals carried out over recent years, there has not been any practical implementation of solutions. Some consumers thought that the Municipal Council should take responsibility and rehabilitate the existing boreholes before sinking new ones. Some also argued that the handing over of Tala Water Supply to a private company was a short-sighted decision designed to salvage the Municipal Council from financial difficulties. They observed that water shortages in Tala Town had worsened since the private company took over. They lamented that the council was likely to lose public assets to the private company and cautioned that handing over the town's water system should have been done with more care and wide consultation.

Consumers consulted in our research showed awareness of the fact that the water supply is insufficient to satisfy demand, and that the result has been water rationing. Several suggestions were made by respondents regarding improvements of the current situation to ensure that the service is available 24-hour round:

- There is a need to build adequate and large capacity storage reservoirs to ensure constant supply even in times of power failure.
- The distribution tank should be raised to ensure a better water flow with enough pressure to reach every customer.
- There is need for another borehole to increase the volume of water supply needed to cover the whole population of the town.

- The company should sink a new borehole in a different zone where underground water is not hard (salty).
- The company should install more powerful pumping machines to increase water production to cover the entire population of the town.
- More water kiosks should be constructed throughout the town and the cost of water per 20-litre jerrycan should be reduced to KSh 2 (US\$ 0.03).
- All connections should be metered so that consumers pay only for what they consume.
- There is a need to create a Consumers Committee to articulate the interests of the consumers in their dealings with the private company.
- Water charges that are currently prohibitive to many users should be reviewed and conformed to the income of the different groups in the community.
- The private company should hold regular meetings with the community to respond to emerging needs and issues.

## Conclusions

Improving water and sanitation provision is a very long-term activity. Major changes require a similarly long-term view. There are many social actors to consider, such as the poor, industry, and essential water-based services whose interests need to be specifically targeted before success can be claimed. The evidence emerging from the two cases provide several lessons and warnings in this regard, which we summarize here.

1. User participation. Both in Nyeri Town and Tala Town, consumers were not involved in the privatization process. The establishment of NYEWASCO in Nyeri Town, and the lease contract signed with Romane Agencies Ltd. in Tala Town happened in the absence of consultation or any other form of involvement with the community. In both cases, respondents to our surveys demanded the involvement of all relevant stakeholders.
2. Investment. Both companies have invested in the expansion of services and other operational activities.
  - a. In Nyeri Town, NYEWASCO has been investing in the expansion and other operations within the water and sanitation system through the use of internally generated funds. The Company has recently awarded a US\$ 10 million contract for the expansion of the existing water supply system from 6,580 to 25,536 m<sup>3</sup>/day through a loan from KfW.
  - b. Romane Agencies inherited an accumulated unpaid electricity bill of about US\$ 12,000 that has already been cleared. The company has also completed the drilling and equipping of a new borehole, connecting the new system to the existing distribution lines and built some communal water points. The company

has improved the reticulation by unblocking old pipes and replacing old uPVC pipes with GI pipes.

3. Workforce. The experiences of Nyeri and Tala towns were very different in terms of their handling of employees at privatization.
  - a. In Nyeri, NYEWASCO, absorbed all 160 staff members who were working in the municipal company, with a target to reduce the number to 118 employees. The company embarked on retrenchment through natural attrition and, by early 2003, the number stood at 134.
  - b. In Tala Town, Romane Agencies Ltd., despite lacking management experience in water services, did not inherit any employees from the municipal company and did not recruit staff with relevant expertise. The services therefore were run by unexperienced staff.
4. Insufficiency and unreliability of services. Consumers in both towns reported that they were still dependent on alternative, often unsafe water sources (i.e. private water vendors, neighbours, dams, or directly from adjacent rivers), because of the unreliability or insufficiency of services. Raw river water was mainly used for washing clothes and bathing. The response from the private operators to these problems was dissimilar.
  - a. NYEWASCO made improvements to the reliability of the services. In Nyeri Town, the percentage of consumers who depended on water kiosks and other alternative sources was reduced from 76.9 to 67.7 percent.
  - b. Romane Agencies Ltd. did not make significant improvements, and water rationing continued. In Tala Town, the percentage of consumers who depended on water kiosks increased from 7.7 to 26.8 percent after privatization.
  - c. However, both companies improved their response to operation and maintenance problems.
5. Customer care, billing and revenue collection. Respondents to our surveys acknowledged that billing and revenue collection improvements were attained by the private companies, as they received correct bills regularly.
6. Daily water consumption. The average per capita daily water consumption in both towns increased after privatization, although it remained low or even below international standards. The amount for Nyeri Town was slightly above the WHO minimum recommendation of 20 litres per capita per day (22 to 23 litres), whereas for Tala Town the consumption was below the minimum quantity (13 to 19 litres).
7. Cost of water for consumers. Consumers indicated that the cost of water increased after privatization in both case studies. The tariff applied by water vendors and kiosks was much higher than the tariff available for piped household connections. Many respondents complained about the high cost of water, which according to reports from other studies would represent between 5-9 percent of total household expenditure.

8. Overall customer satisfaction. Despite complaints on the high cost of water for both case studies, consumers were generally satisfied with the quality, quantity and reliability of water supply provided by the companies.

The privatization of water services has a track record of skyrocketing prices, water quality problems, deteriorating service, and a loss of control. Privatization advocates argue that switching from publicly-owned and operated utilities to private sector firms will lead to greater economic efficiency, stabilized rates, reduced public debt and improved budgetary management. However, water has been regarded as a social good, and it is part of the political culture that the provision of WSS is a State obligation. Citizens, administrators and politicians regard water utilities as naturally existing to fulfill that social role. Moreover, water utilities are significant employers and instruments of political patronage. The social costs of transitional reform from subsidized public enterprises to privatization could be considerable, especially for users who were previously protected. Under public sector management the government subsidizes the prices of consumables, but this support is lost when the utilities are privatized. There is no doubt that privatization leads to job losses in the short run. However, the heavy social cost incurred in the process is not only a matter of job losses, but also an issue involving higher prices to be paid as a result of subsidy removals or reductions, the ending of privileged access to the supply of consumables and loss of income. In the former centrally planned economies of Eastern Europe, it has been possible to lessen such difficulties by the creation of social safety-nets, at least for the unemployed and other vulnerable groups, and this has helped maintain some public support for the reforms. There is less scope for such provisions in Kenya, however, because of past and present economic deterioration, structural poverty, and the narrowness of the tax base. The difficulty of compensating losers could erode public support and credibility. The public sector maintains the responsibility for the consultation of stakeholders and the protection of consumers. There are a variety of ways to ensure that consumers are protected but it seems clear that the responsibility for this protection consistently rests with the State. The public sector may discharge this responsibility through the monitoring of customer contracts, the facilitation of customer stakeholder groups and customer consultation, and/or specific regulatory protection for consumer rights.

Nevertheless, we have already noted that privatization cause short-and medium-term costs and these increased costs often provoke explosive political opposition. For example, the resistance to increased food prices has been especially marked in urban areas of Kenya, where large numbers of the urban poor are disproportionately affected. This group of urban dwellers resist food price increases, not simply because they cannot afford the price increases but also because they object the escalation of prices leading them to spend a higher proportion of their income in food than more affluent groups. The real incomes of the poor are severely reduced by these price hikes and they are pushed further into malnutrition and increased urban poverty. The indication emerging from our case studies that PSP of essential water services has increased prices to the point that the water bill can take between 5 and 9 percent of household incomes is a clear warning in this regard.

## Acronyms

AIDS	Acquired Immune Deficiency Syndrome
BOD	Biological Oxygen Demand
BOD5	BOD measured over 5 days
CAACs	Catchment Area Advisory Committees
CBOs	Community Based Organizations
CBWs	Community Based Water Supplies
CMT	Corporate Management Team
COD	Chemical Oxygen Demand
GDP	Gross Domestic Product
GI	Galvanized iron
GOK	Government of Kenya
GTZ	German Agency for Technical Co-operation
HIV	Human Immunodeficiency Virus
IGF	Internally generated funds
ICPSK	Institute of Certified Public Secretaries of Kenya
IIED	International Institute for Environment and Development
KEWI	Kenya Water Institute
KfW	German Development Bank
KSh	Kenya Shilling
KVDA	Kerio Valley Development Authority
KWS	Kenya Wildlife Service
LBDA	Lake Basin Development Authority
MDGs	Millennium Development Goals
M&E	Monitoring and Evaluation
MENR	Ministry of Environment and Natural Resources



MOA	Ministry of Agriculture
MOH	Ministry of Health
MOLG	Ministry of Local Government
MWRMD	Ministry of Water Resources Management and Development
NACC	National AIDS Control Council
NARC	National Rainbow Coalition
NGO	Non-Governmental Organization
NIC	Newly Industrialized Country
NPEP	National Poverty Eradication Plan
NYEWASCO	Nyeri Water and Sewerage Company
NWCPC	National Water Conservation and Pipeline Corporation
NWSS	National Water Services Strategy
LA	Local Authorities
O&M	Operation and Maintenance
PFP	Policy Framework Papers
PPP	Public-private partnership
PRINWASS	Project “Barriers to and conditions for the involvement of private capital and enterprise in water supply and sanitation in Latin America and Africa: Seeking economic, social and environmental sustainability”
PSP	Private Sector Participation
SSIP	Small Scale Independent Providers
SWOT	Strengths – Weaknesses – Opportunities – Threats
TARDA	Tana River Development Authority
UFW	Unaccounted for water
uPVC	Polyelectrolyte Vinyl Chloride
US\$	United States Dollars
UWASAM	Urban Water and Sanitation Management Program

WHO	World Health Organization
WRMA	Water Resources Management Authority
WRM	Water Resources Management
WSBs	Water Services Boards
WSDs	Water and Sanitation Departments
WSPs	Water Services Providers
WSRB	Water Services Regulatory Board
WSRS	Water Sector Reform Secretariat
WSRSC	Water Sector Reforms Steering Committee
WSOU	Water and Sewerage Operation Unit
WSS	Water Supply and Sanitation
WSTF	Water Services Trust Fund
WUAs	Water Users Associations
WWAP	World Water Assessment Programme

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**Appendix 1: WSS Resource Flows Matrix, Expenditures in 2000-01 (million US\$)**

Channels of Finance	Public Service Providers				Other Providers		Total
	MENR	NW-CPC	Local Auth.	Local Utilities	CBOs/SHGs	PSPs	
<b>Government of Kenya – budget</b>	28.5	4.0	2.7		0.9		36.0
Recurrent	16.2	0.0	0.0		0.0		16.2
Development	12.3	4.0	2.7		0.9		19.8
<b>Local authority budget</b>			16.8				16.8
Recurrent			15.7				15.7
Development			1.0				1.0
<b>Off-budget donors / NGOs</b>					18.1		18.1
Recurrent					4.5		4.5
Development					13.6		13.6
<b>Internal Generation by WSPs</b>		11.2		3.4	1.5	2.5	18.6
Recurrent		11.2		2.9	1.3	2.3	17.8
Development		0.0		0.5	0.2	0.2	0.9
<b>Communities/ Households</b>					6.9		6.9
Recurrent					na		na
Development					6.9		6.9
<b>Total Resources</b>	28.5	15.2	19.4	3.4	27.4	2.5	96.4
Recurrent	16.2	11.2	15.7	2.9	5.8	2.3	54.2
Development	12.3	4.0	3.7	0.5	21.6	0.2	42.2





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