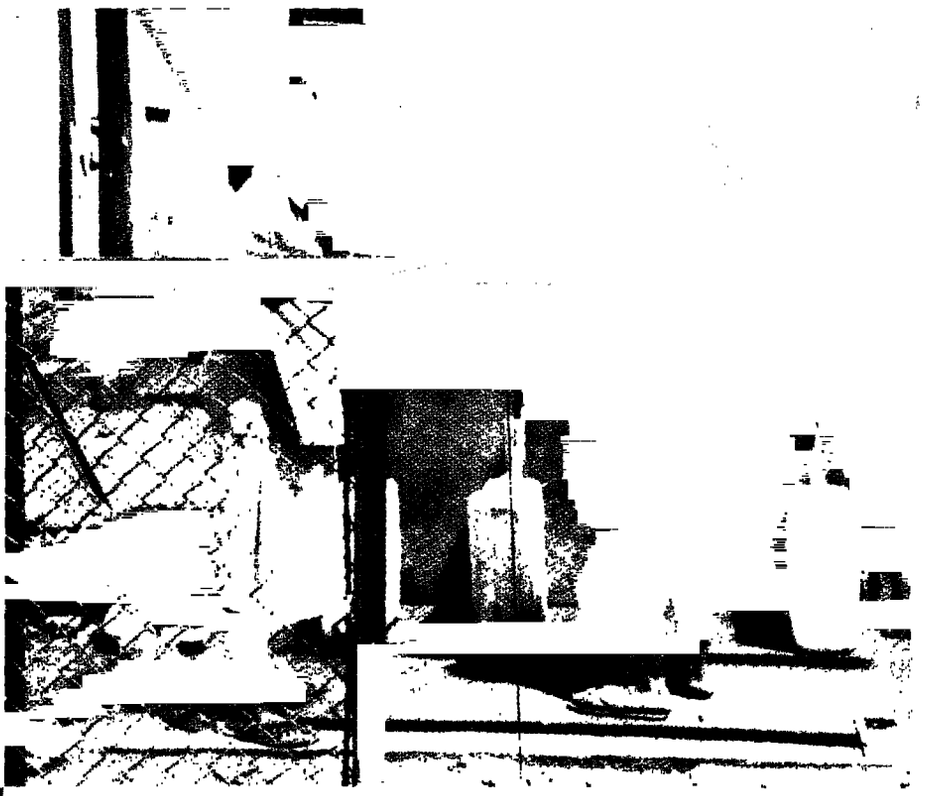
Water and Sanitation Program

An international partnership to help the poor gain sustained access to improved water supply and sanitation services

Water and Sanitation Services to the Urban Poor



Small Service Providers Make a Big Difference In East Africa

IRC

International Water And Sanitation Centre

Water and Sanitation Services to the Urban Poor

Small Service Providers Make
a Big Difference in East Africa

Abbreviations and Acronyms

CBOs	Community-Based Organizations
DAWASA	Dar es Salaam Water and Sanitation Authority
DSSD	Dar es Salaam Sewerage and Sanitation Department
DWD	Directorate of Water Development
IRC	International Research Center (International Water and Sanitation Centre)
KCC	Kampala City Council
NCC	Nairobi City Council
NGOs	Non-Governmental Organizations
NWSC	National Water and Sewerage Corporation
SSiPs	Small Scale independent Providers
UEB	Uganda Electricity Board
UES	Urban Environmental Sanitation
WSP-ESA	Water and Sanitation Program – East and Southern Africa

This report synthesizes the findings of four case studies on small scale independent providers (SSiPs) of environmental sanitation and water services to the poor people of the East African cities of Dar es Salaam (Tanzania), Kampala (Uganda), Nairobi and Mombasa (Kenya).

The studies were sponsored by IRC and WSP-ESA and conducted by Adam Sykes, Bill Wandera, Farid Mohamed and Bernard Njoroge in the respective cities. This report was edited by Bernard Njoroge and Elizabeth Obel-Lawson. It was reviewed by Ato Brown, Tore Lium and Japheth Mbuvi.

Design, Layout and Printing by Newtec Concepts • P.O. BOX 14180 • NAIROBI, KENYA

Preface

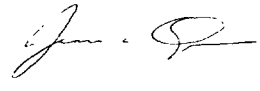
The urban poor constitute the segment of the population that is the most affected by the lack of access to safe water supply and sanitation. Living in overcrowded areas, the urban poor pays the most for water and sanitation services and suffers the greatest in terms of impaired health and lost economic opportunities. Most of the urban poor live in peri-urban and informal settlements that are not served by water and sanitation utilities. Small-scale private operators provide whatever services available to them.

The constraints and incentives under which these Small Scale independent Providers (SSiPs) operate are poorly understood. Often considered part of the problem, they are increasingly recognized as part of the solution.

This report summarizes the findings of four case studies conducted in Kampala, Uganda; Dar-es-Salaam, Tanzania; and Nairobi and Mombasa, Kenya. The Regional Office for East and Southern Africa of the Water and Sanitation Program (WSP-ESA) with the support of the International Research Center in the Netherlands commissioned local consultants to carry out the studies.

The main purpose was to investigate the potential of SSiPs to improve, expand and sustain urban environmental sanitation (UES) services at affordable cost. The studies have helped create a better understanding of the SSiPs. Their diverse types, scale of operations and comparative advantages that enable them to serve up to 90% of the urban poor population in many cities in sub-Saharan Africa is much clearer and well demonstrated.

The studies have documented the institutional and legal context under which the SSiPs operate and identified their strengths and weaknesses. Although the studies were undertaken primarily as fact-finding exercises, they have also suggested ways and means through which the operations of the SSiPs could be enhanced. It is clear that programs to improve services to urban poor will have to recognize them as key actors and potential partners. The study has also shown the need for planners and policy makers to base their work on understanding of the markets for water and sanitation at the level of cities and settlements.



Jean H. Doyen
Regional Manager
WSP-ESA

Executive Summary

Introduction

This report synthesizes the findings of four case studies on small scale independent providers (SSiPs) of environmental sanitation and water supply services to the urban poor of the East African cities of Dar es Salaam (Tanzania), Kampala (Uganda), Nairobi and Mombasa (Kenya). The studies were conducted by the Water and Sanitation Program –East and Southern Africa (WSP-ESA) between December 1998 and January 1999 with funding from the Dutch Trust Fund. Management of the case studies was carried out by International Research Center, the Netherlands.

The main purpose of the studies was to investigate the potential of SSiPs to improve, expand and sustain urban environmental services (UES) at affordable costs. The SSiPs studies are part of a wider regional project being piloted in seven African cities. These included Bamako, Mali; Conakry, Guinea; Dakar, Senegal; and Cotonou, Benin. The studies are to provide

- greater understanding of the types of service providers and the scale of their operations,
- assessment of the comparative advantage of SSiPs and incentives that make the poor turn to them, and
- understanding of the institutional and legal context in which SSiPs operate.

They are also to identify bottlenecks that hinder the development of SSiPs and recommend ways and means through which they can be overcome.

Study Methodology

The studies were carried out through review of relevant documents from public institutions (both governmental and non-governmental) and donor organizations. This was followed by questionnaire interviews with key informants, household users, providers and operators, using the transect walk method. Focus group discussions were then held with operators. Finally, follow-up workshops helped to synthesize the findings and recommendations, and chart out the way forward.

Main Findings

In Dar es Salaam, Kampala and Mombasa, the provision of water and sewerage services is a monopoly of state corporations and the respective city/municipal authorities. In Nairobi, the provision of services is under a department of the City Council.

In Uganda, Tanzania and Mombasa, new policies that encourage private sector participation in service delivery have been formulated. However, the legal provisions in the various Acts, Statutes and By-laws mandate the respective municipalities to provide services and do not accommodate SSiPs operations. In Mombasa and Nairobi, there is unclear land tenure policy. Informal settlements are considered illegal, hence investors are unwilling to support the provision and improvement of basic social services and infrastructure in these low-income areas.

The operation and profitability of SSiPs depend largely on the policies, regulations, tariffs and other conditions imposed by the public utilities. For instance, in Kampala, a recent imposition of US$ 15 dumping charge per trip by the public utility on all private cesspit emptier operators has greatly slowed down the operations of SSiPs and in effect increased the service cost of emptying.

Characteristics of SSiP Operations

Two main categories of SSiPs are identifiable – *Secondary* and *Independent Primary* operators. The Secondary SSiPs serve mainly as vendors and are mostly dependent on municipal or utility primary services and serve mainly medium to low income areas which do not receive regular water supplies. Two main types of service offered are *static service,* which commonly rely on supplies from water kiosks and standpipes and *area-mobile service,* which employ water tankers and handcarts. An operator could offer both services or in many instances *area-mobile* service operators depend on point sources e.g. handcart operators collect and sell water from private

wells/boreholes (Mombasa town). Earnings from SSiP operations are mainly for subsistence support and so self-employment and family-based enterprise, which depend on moderate to low level of investment, are key features.

Independent Primary operators provide individual operations such as from boreholes, wells, and also operate as small water companies (Kampala City). They are independent of municipal or utility primary services, have higher-level management skills, moderate to high level of investment and serve high to medium income and urban poor communities

Success Factors: The key factors that contribute to the success of SSiPs include their responsiveness and flexibility to market demands, captured a special 'niche' – densely populated peri-urban areas (market segment) and operate as purely commercial private enterprises motivated by profit. Their ability to diversify and operate other types of businesses enable them to spread their financial risks and overhead costs.

Constraints: Constraints that hinder the expansion of small-scale providers of urban environmental sanitation services are mainly *external* factors. They include poor infrastructure, poverty, and low literacy levels among the urban poor, sub-standard construction standards, weak law enforcement and inadequate legal framework. Other are slow reform and liberalization process, unfavorable taxation system, poor access to credit, monopolistic impositions by public utilities, restrictive policies, and institutional and regulatory framework.

Internal factors of constraint include: individualistic business approach and lack of a strong lobby group, poor marketing strategies, lack of management and financial training and weak financial base

The Way Forward

The main strategic issues for scaling-up and sustaining water supply and sanitation services offered by SSiPs include

- Review of the Country Private Sector Support Programs with a focus on possibilities for SSiPs support in order to identify opportunities for investment schemes. This could provide technical assistance for streamlining management practices and better tracking of equipment maintenance.
- Accelerate the liberalization of water and sanitation sub-sectors in order to level the playing field between all UES providers. This would create an atmosphere of fair and equal opportunities in provision of UES services.
- Technical assistance and supportive regulations are needed to increase efficiency in operations and service coverage. Closer cooperation between legal and regulatory institutions and SSiPs would ensure safe and sustainable delivery of urban water supply and sanitation services to low income areas. For instance, prospective water kiosk owners should be able to both register and learn the proper mechanisms of delivering services at a 'one stop' office.
- Ensure growth of the formal private sector. It is important to define and monitor service standards and provide opportunities for technical and operational skills development. This includes access to finance as well as management training.

Table of Content

LIST OF TABLES

Background to the Studies

Context

Kenya, Tanzania and Uganda gained independence from British colonial rule in the early 60s, and have had similar histories of state owned institutions dominating the provision of urban water and sanitation services. Lack of investment in the institutions and infrastructure (built in the late 50s and early 60s), poor management, and weak enforcement of urban planning regulations have led to low performance by public utilities, especially in delivering UES services to the urban poor. In the last ten years, SSiPs have played an increasingly vital role in the provision of UES services, thus filling the gaps left by the public sector.

The water and sanitation sector has yet to be fully reformed and liberalized in East Africa. SSiPs are typically informal entrepreneurs; community based organizations (CBOs) and NGOs, largely operate outside the law and where they are legalized, their operations and profitability are still subject to the old policies, regulations, and tariffs imposed by the public utilities. Legislation is scattered in various Acts, Decrees, By-laws and Statutes.

Only about 30 percent of all four cities' populations have direct access to piped water. The rest depend on point water sources such as shallow wells, protected and unprotected springs and on SSiPs services. The predominant mode of water access by SSiPs servicing the urban poor are the secondary operators who obtain water from the primary distribution networks of public utilities.

Between 75 and 90 percent of the inhabitants rely on on-site sanitation facilities, mainly the pit latrines and a few septic tanks and cesspit systems. Emptying and cleaning of pit latrines, septic tanks and cesspit systems are done by cesspit emptiers, manual emptiers and latrine diggers. Among the problems experienced in on-site sanitation in poor neighborhoods are inadequate pit emptying services, hazardous practices for pit emptying, poor accessibility due to appalling infrastructure, and pollution of ground water, leading to chronic water-borne diseases.

Kampala and Nairobi have a few public flush toilets managed by a private entrepreneur and the community, respectively.

Purpose of the Study

SSiPs provide a significant link in the provision of UES services, however, most sector practitioners and decision-makers know very little about the nature and scale of SSiP operations. For most they are bad news, charge prohibitive prices thus parasitically making money off the public utility and compromising quality in the products or services they render. Unfortunately for most urban poor, there is absolutely no choice except depend on SSiPs for their services.

The purpose of this study, therefore, is to begin to understand a little more about the strengths, weaknesses, opportunities and threats to SSiP operations and how it impacts the urban poor. Specifically, the study aimed at

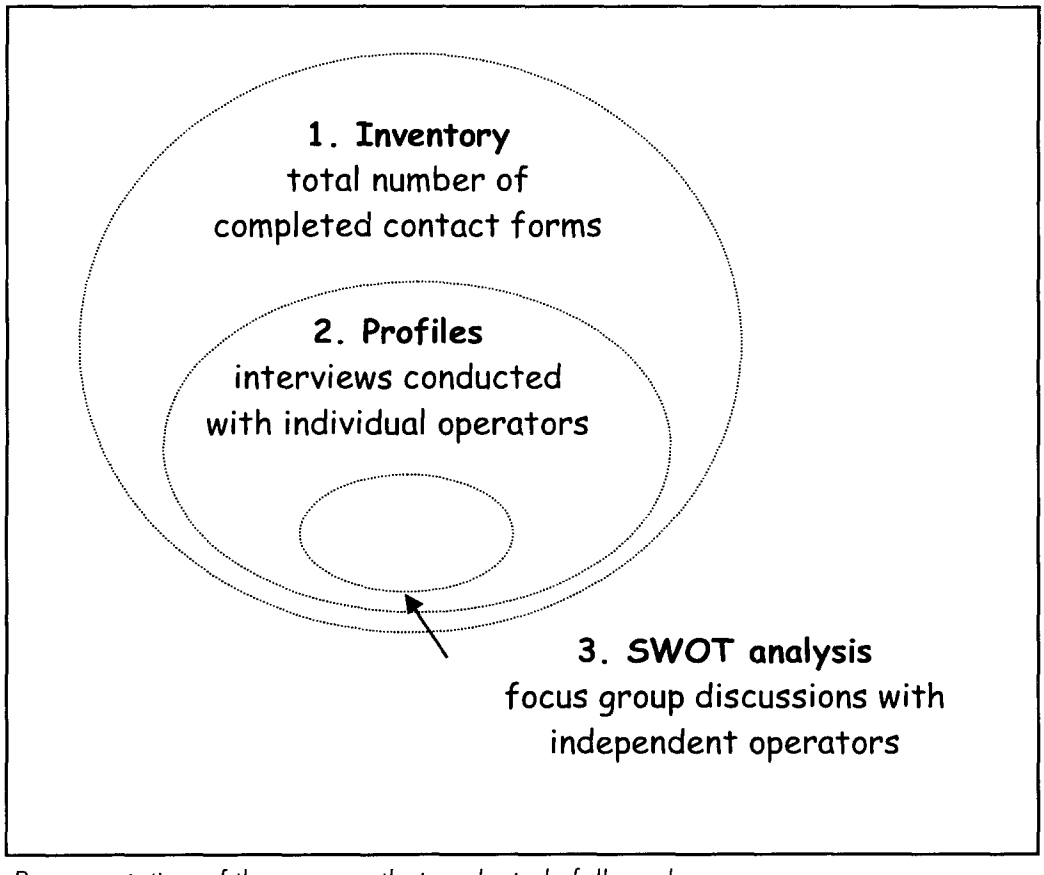
- greater understanding of the type of services providers and the scale of their operations ;
- assessment of the comparative advantages of independent services providers and why poor people turn to them for service provision ;
- understand the institutional and legal context in which they operate ; and
- identify their strengths and weakness to evaluate the potential for further developing their activities.

Study Methodology

The research protocol includes a number of methods to collect data including: (i) desk research and interviews with key informants, (ii) household interviews with users, (iii) in-depth interviews with operators and (iv) focus group discussion with operators.

Four independent researcher/consultants were hired to carry out the fieldwork in the four cities (Bill Wandera, Kampala; Bernard Njoroge, Mombasa; Farid Mohamed, Nairobi; and Adam Sykes, Dar es Salaam). A workshop was organized in Mid October 1998 in Nairobi to ensure consistency in methodology and ap-

proach to the fieldwork. An iterative process was instituted to ensure the consultants working in different cities could react constructively to each other's work. The second synthesis workshop is scheduled to take place at IRC in the Netherlands for the consultants to present their findings and finalize their report.



Representation of the process that each study followed

City Profiles

Mombasa

Mombasa the second largest town in Kenya is the gateway to Kenya and the hinterland on the Indian Ocean coastline. Because of its vast world class beaches, Mombasa is also a major holiday destination for both local and foreign tourists. The population - currently estimated as 700,000 people - has outstripped the capacity of the Municipal Council of Mombasa (MCM) to provide UES services. The water situation is particularly bad and severe water shortages are experienced quite often. On-site facilities are the most commonly used sanitation option but is also in a pathetic condition.

The informal settlements with an estimated 27 percent of Mombasa's population receive water from the National Water Conservation and Pipeline Corporation (NWCPC) through water kiosks and standpipes. The kiosks and standpipes operators also distribute water to areas directly connected to the NWCPC service lines during the frequent shortages. Because of the inability of MCM and NWCPC to provide adequate UES services, SSiPs have entered into UES service delivery and have been in operation for some time now. The SSiPs play a crucial role in the provision of UES services, particularly, to the urban poor, who make up between 30 and 40 percent of Mombasa's population.

- **Water supply sub-sector**

The NWCPC was established by an act of Parliament, in 1988, with the mandate to manage and operate on commercial basis, on behalf of the Ministry of Water Resources, water supply schemes previously operated by the ministry. The total water supplied by NWCPC is about 60.4 million litres per day. This is only about 42 percent of the total water requirements for the Mombasa District.

Bulk water distribution to the four water districts is as follows

- the South Coast water supply, which receives 5.32million litres per day;
- the North Coast Water Supply, which receives 20.3 million litres per day;
- the Mombasa Island Water Supply, which receives 18.4 million litres per day; and
- the West Coast Water Supply which receives 16.12 million litres.

The NWCPC water supply is supplemented by water from individual boreholes and wells. However, this water is contaminated by pit latrines and septic tanks and from the intrusion of salty water from the ocean, rendering water useful only for cleaning and washing. Water supplied from boreholes and wells is estimated to be between 20 and 30 percent of the water consumed in the district.

The water situation in the urban poor and other congested areas is much worse than in the rest of the municipality. The provision of water in those areas is by individually operated water kiosks and standpipes. To date there are a total of 330 licensed water kiosks and standpipes in Mombasa. The water kiosks and standpipes are found throughout the municipality, but they are mainly concentrated in the urban poor and other congested areas.

- **Sanitation sub-sector**

Conventional sewerage serves only an estimated 10 percent of Mombasa's population. The conventional sewerage network covers the old section in the Island, parts of the West Mainland- Changamwe, Chaani, Miritini, Mikindani, Port Reitz Estates and Mombasa Airport.

Under the Phase II of the Kipevu Sewerage Project, a conventional sewerage network is planned for the whole of West Mainland. After the full implementation of the Kipevu Sewerage Project the conventional sewerage coverage will increase to between 20 and 25 percent. There is, currently, no single functional wastewater treatment plant in Mombasa town and raw sewage is discharged into the ocean. A small treatment plant situated along the Mama Ngina Drive partially used to treat the waste from "old town" before it is discharged into the sea. The treatment plant, however, is presently non-functional. An oxidation ditch at Kipevu in West Mainland was used to handle

the waste from the area. This too has been decommissioned.

The septic tank/soak pit serves approximately 16 percent of the population. These are found mainly in the middle and high-class residential areas. Seventy-four (74) percent of the Mombasa population rely on pit latrines. In most places pit latrines are the deep Swahili types whose depths are generally 20 meters. However, in areas with high water tables shallower pits (2 meters) are used. Ground water drawn from wells and boreholes could be grossly polluted - coliform counts as many as 60,000 MPN /100 ml have been confirmed in such waters.

Nairobi

Nairobi was established at the beginning of the last century and has evolved to become the administrative and vibrant capital city of Kenya. It currently has an estimated population of just over 2 million people, more than a half of who reside in informal settlements. The population within these settlements is estimated to be increasing at a rate of 7-12 percent, annually, compared to the less than 3 percent per annum national growth for Kenya.

For almost 20 years after independence (in 1963), official government policy was to demolish all informal settlements within Nairobi and other urban centers. The Water and Sewerage Department of the Nairobi City Council (WSD, NCC) refused to provide basic services to informal settlements for fear of legitimizing them. From 1988, however, the government has advocated upgrading the settlements as part of its housing policy but practical upgrading schemes are yet to be implemented. The land tenure rules under which informal settlements are constructed affect the level of service provided by the NCC and landowners.

- **Water supply sub-sector**

The estimated daily water production for Nairobi, is 440 million litres a day. This represents between 93.3 and 96.9 percent of the bulk of water consumed within the city. This comes directly from the NCC water supply. Only a few consumers, almost exclusively in the Karen and Langata areas, have private water boreholes. Water losses through mainly leakage reduces the bulk availability by at least 50 percent and thus, the NCC is unable to meet the demand for clean safe drinking water. The majority of Nairobi's residents, primarily those living in the informal settlements, do not have direct water connections to the NCC service lines. These consumers obtain water from privately operated water kiosks and standpipes.

A handcart pusher delivering water in jerrycans

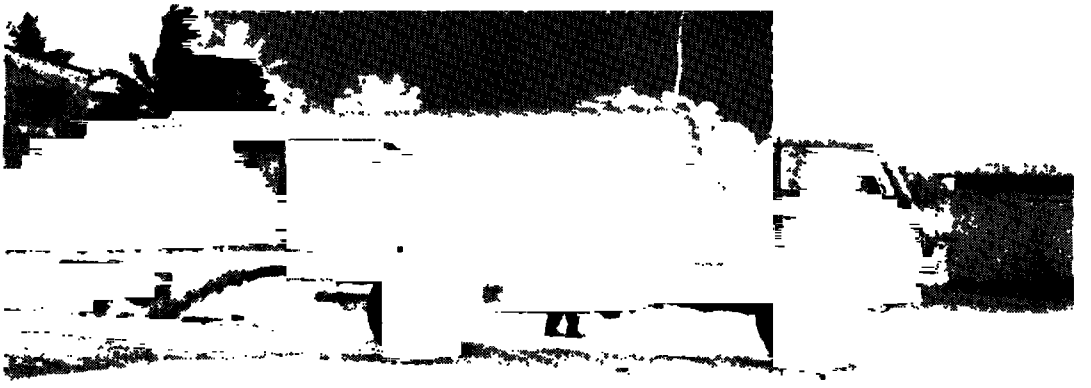
- **Sanitation sub-sector**

The NCC also develops and maintains water borne sewerage in the city. Most areas within Nairobi's informal settlements, however, are not connected to the system. Almost 100 percent of the population in the urban poor areas rely on pit latrines as the only sanitation facility. In some urban poor areas, communities with the assistance of donor funds have put up toilet facilities owned and managed by the communities. The toilet facilities are usually used at a monthly fee per house or at a fee per visit. The NCC and independent operators provide latrine-emptying services. However, in most urban poor areas most pit latrines are not emptied because of lack of accessibility by the exhauster vehicles.

Kampala

Kampala is the capital city of Uganda, has a population of about one million people (1991 census), which is growing at an annual rate of 6 percent as compared with the overall population growth rate for Uganda of about 4.5 percent. The city's topography - comprising 21 hills and valleys located at an altitude of 1,250 meters above sea level - poses serious challenges to planners when designing Kampala's social infrastructure expansion programs.

For about 20 years following Uganda's civil strife and political instability of the 1970s, there was weak enforcement of urban planning regulations and procedures, followed by a breakdown in the delivery of UES services. The result is a proliferation of informal settlements throughout Kampala at a rate that has outstripped the capacity of the municipal authorities to provide the necessary social services. Formal settlements represent only about 10-15 percent of the total built-up area.



An exhauster truck emptying sludge in a man-hole

- **Water supply sub-sector**

The Ministry of Water, Lands and Environment is primarily responsible for the water supply and sewerage sector through the Directorate of Water Development (DWD) and the National Water and Sewerage Corporation (NWSC). The main source of water is Lake Victoria. The water sector is heavily funded by foreign aid and often the city's priority water needs have not been appropriately addressed. Water and sewerage services are concentrated in the core urban center, leaving the peri-urban high density, low-income settlements largely without service

Over the past decade, the NWSC has invested about US$ 120 million in water and sewage, with approximately US$ 80 million of this amount invested in Kampala water service area alone. The practical water production capacity of the city is now 100 million litres per day. This production represents a theoretical capacity to satisfy a demand of one million people who are served through approximately 40,000 water connections.

NWSC operations has been beset with low performance efficiencies: high levels of unmetered premises (averaged consumption rates) reaching almost 49 percent; low bills collection efficiency levels of around 70 percent and overstaffing in the range of 40 staff per 1,000 water connections. The situation has affected the ability of NWSC to finance both minor and major capital works, and extend the service to peri-urban Kampala. The scope for private sector involvement in water operations in Kampala is limited to distribution of supplies made available by the NWSC. The SSiPs therefore concentrate their efforts in the high-density population, low-income areas that have difficulties in accessing social services.

- **Sanitation sub-sector**

The institutional responsibility for sanitation is fragmented between several government ministries and agencies with differing and overlapping roles. For instance, in large urban areas NWSC is responsible for on-site sanitation services. The Kampala City Council (KCC) is responsible for on-site sanitation management activities of Kampala city while the Ministry of Health - working through the Ministry of Local Government - is responsible for the "co-ordination" of rural sanitation. Legislation is also scattered in various acts and decrees. The current situation does not place front-line responsibility on any government ministries nor hold any agency directly accountable for sanitation in Uganda.

Although there has been significant improvement in capacity of urban authorities to provide environmental sanitation services, the urban poor are yet to derive practical improvements. This is due to the backlog of social needs and the low incentive for public institutions to operate commercially; especially such institutions are the sole or major providers of a particular service.

The sewerage network serves only nine percent of Kampala's population located mainly in the "old town", which includes Old Kampala, Nakasero, Kololo, the central commercial districts, Mbuyu and Naguru. Septic tanks and other on-site sanitation technologies, especially pit latrines serve the rest of the city's residents.

Pit latrines - of which 12 percent are private and 67 percent shared - serve about 79 percent of the city's population. In the more sparsely populated suburban area, they are in generally good condition but in the densely populated areas the latrines are heavily loaded and poorly maintained. In locations where the

water table is high, the pits are rarely more than two meters and pits are therefore raised to create the popular "upstairs" toilet found in most low-lying areas of the city.

Dar es Salaam

Dar es Salaam, the capital city of Tanzania has a population of about three million people (1998 census) that is rapidly growing at an annual rate of 8 percent. Seventy (70) percent of the city is unplanned and inadequately serviced with UES services. Since independence in 1961 these services have been provided by state-owned utility institutions free or at low tariffs, but lack of investment in the institutions for about two decades has resulted in dilapidated infrastructure, poor management and increasing financial constraints. Consequently, government-provided water and sanitation services are now unreliable, unsafe and too expensive for users in low -income areas.

- **Water supply sub-sector**

Water and sanitation services in Dar es Salaam are the sole preserve of the Dar es Salaam Water and Sanitation Authority (DAWASA). Private sector participation in urban environmental services is a fairly new initiative under a World Bank institutional reforms program launched 12 years ago. Private suppliers range from entrepreneurs with their own system for water extraction, through those with DAWASA connections, to the highly lucrative water tankers servicing the high income areas, and the water vendors selling 20-litre containers in poor neighborhoods.

DAWASA has a total of 88,442 registered connections and water points. However, the projected revenue potential is lost due to low tariffs, inaccurate billing and inefficient revenue collection. The total water demand per day of 410 million litres is twice that of treated water produced (204 million litres) and almost half of this quantity is lost through leakage. Secondary sources of water are shallow wells, constructed in the dry season, as well as boreholes. The wells numbering a total of 133 are highly polluted from pit latrines through ingress of faecal matter through permeable soils. The wells add another 39.1 million litres of water per day.

- **Sanitation sub-sector**

The Dar es Salaam Sewerage and Sanitation Department (DSSD), a government parastatal, operating under the auspices of DAWASA, is the authority responsible for all sewage collection and management of oxidation and septage ponds.

Sewerage and sanitation facilities within the city consist of sewerage and cesspit systems (6.0 percent), septic tank systems (9.9 percent) and pit latrine systems (83.1 percent). Thus, more than 90 percent of the city inhabitants rely on the on-site sanitation facilities. Poor pit emptying services and lack of appropriate technology for pit emptying in low income areas with poor accessibility and high ground water tables, lead to overflowing of septage due to frequent filling up of the septic pits and pit latrines. As a result, high incidences of water borne diseases plague the city. The sewerage network covers only the central part of Dar and a small section outside the city center. The system is old (built in the 1950s) and unreliable owing to poor maintenance management.

Key Findings

Sector Performance

To provide a basis for comparison of the performance of the UES services provision in the four countries under discussion a number of parameters including population, water supply/demand targets for the various categories of services are provided in Table 1.

Table 1. Sector Performance Comparison of the Four Study Cities

WATER SOURCES	MOMBASA	NAIROBI	KAMPALA	DAR-ES-SALAAM
Est. population:	700,000	2,500,000	1,000,000	3,000,000
Est. population in urban poor areas:	245,000	1,500,000	600,000	2,100,000
Water Supply : Piped water				
Utility sector	NWCPC	NCC, WSD	NWSC	DAWASA
Production '000,000 l /day	60	440	100	204
Ratio of supply/demand (%)	42	95	100	50
Volume available to the urban poor, '000 l/day:	3800	52,800	576	4800
Boreholes and wells: Total production '000 l/day:	18,000	Negligible	inf. not available	Inf. not available
Supply to urban poor, '000 l/day:	900	Nil	-	-
TECHNOLOGY OPTIONS - SANITATION				
Conventional sewerage: Coverage city-wide (%)	10	40	9	10
Coverage in urban poor (%)	0	3 – 5	-	-
Pit latrines: Coverage city-wide (%)	74	50	79	80
Coverage in urban poor (%)	100	95	100	100
Septic tanks: Coverage city-wide (%)	16	10	12	10
Coverage in urban poor (%)	3	5	-	-

Key:
NWCPC = National Water Conservation and Pipeline Corporation
NCC, WSD = Nairobi City Council, Water and Sewerage Department
NWSC = National Water and Sewerage Corporation
DAWASA = Dar es Salaam Water and Sanitation Authority

Institutional, Legal and Regulatory Framework

The institutional, legal and regulatory environment is largely non-supportive to SSiPs operators.

Central government is heavily relied upon to identify and resolve issues of needed legislative and institutional change. With increased participation of private operators and the anticipated improved services triggered by competition, regulations on safety, quality and health must be defined to impart on the operations of all sector actors. In Mombasa and Nairobi, land tenure policy is unclear, hence the municipal authorities consider informal settlements as being illegal and Investors, therefore, have no incentives to support the provision and improvement of basic social services and infrastructure in low-income areas.

Characteristics of SSiP

- **Water supply sub-sector**

The basic types of SSiP operations and organization types encountered in the four cities are provided in Table 2. The levels of coverage and cost indicators of SSiP operations in the four cities are shown in Table 3.

Table 2. Types of Water SSiPs in the Four Cities

TYPE OF SERVICE	MOMBASA	NAIROBI	KAMPALA	DAR ES SALAAM
Individual water kiosks/standpipes	Service available	Service available	Service available	Not reported
Community based kiosks/standpipes	Service available	Service available	Not reported	Nor reported
Handcart operators:	Service available	Not reported	Push-bikes	Service available
Borehole and wells operators:	Service available	Limited service	Not reported	Service available
Water tankers operators	Limited service	Service available	Service available	Service available
Water supply company	Not available	Not available	One company	Not available

Table 3. Comparison of Water SSiPs in the Four Cities

COVERAGE AND COST PARAMETERS Estimated Population	MOMBASA 700,000	NAIROBI 2,500,000	KAMPALA 1,000,000	DAR ES SALAAM 3,000,000
Water Kiosks/Standpipes				
Volume handled ('000 litres / day)	825	24,000	1,010	Not reported
No. of water points	>300	>3,000	7,500	
Market share in urban poor areas (%)	30	100	5	
Cost of water per 1 000 litres (US$)	1 - 5	1 - 2.5	3.6	
Utility tariff charge (US$)	0.2	0.15	0.36	
Ratio of cost charged/utility purchase price	5 - 25	6.7 - 16.7	10	
Investment cost (US$)	100 -300	150 - 400	290	
Total sales per day (US$)	1.7 - 15	3 - 10	7.5	
Handcart Operators				
Volume handled ('000 litres / day)	500	Not	Not	4,800
Water points (No. of operators)	>200	reported	reported	>800
Market share in urban poor areas (%)	20			80
Cost of water per 1,000 litres (US$)	5 - 25			3.5 - 30
Purchase price per 1,000 litres (US$)	0.8 - 1.5			1.5
Ratio of cost charged/utility purchase price	6.3 -31			2.3 -20
Investment cost (US$)	0.8[a] - 100[b]			35.6[c] - 120[d]
Total sales per day (US$)	3			5.8
Water Tankers				
Volume handled ('000 litres / day)	[illegible]	[illegible]	[illegible]	[illegible]
Number of operators	reported	[illegible]	[illegible]	[illegible]
Market share in urban poor areas (%)		[illegible]	[illegible]	[illegible]
Cost of water per 1 000 litres (US $)		[illegible]	[illegible]	[illegible]
Utility purchase price, per 1,000 litres (US$)		[illegible]	[illegible]	[illegible]
Ratio of cost charged/utility purchase price		[illegible]	[illegible]	[illegible]
Investment cost (US$)		[illegible]	[illegible]	[illegible]
Total sales per day (US$)		[illegible]	[illegible]	[illegible]
Borehole/Well Operators				
Volume handled ('000 litres / day)	[illegible]	[illegible]		
Number of operators	[illegible]	[illegible]	[illegible]	[illegible] reported
Market share in urban poor areas (%)	[illegible]	[illegible]	reported	
Cost of water in '000 litres (US$)	[illegible]	[illegible]		
Ratio of cost charged/utility purchase price	[illegible]			
Investment cost (US$)	[illegible]	[illegible]		

Key:

a - hire of handcart and jerrican b - purchase of own handcart c - license fee (US$ 35) and hire of handcart
d - purchase of own handcart e - price for domestic use f - price for commercial use
g - well construction cost h - borehole construction cost

• Sanitation sub-sector

Table 4 shows the range of services offered by SSiPs in the sanitation sub-sector in each of the four cities The operations cover pit emptiers and diggers, cesspool and septic tank cleaners/emptiers, handcart operators, community- based operators, and managers of public toilets. The range of services specific to Mombasa is presented in Table 5.

Table 4. SSiP Operations in Sanitation in the Four Cities

	MOMBASA	NAIROBI	KAMPALA	DAR ES SALAAM
Vacuum Truck operators:	Service available	Service available	Service available	Service available
Lorries and Drums:	Service available	Not reported	Not reported	Not reported
Manual emptiers and latrine diggers:	Service available	Not reported	Not reported	Nor reported
Handcart emptiers :	Not reported	Service available	Not reported	Not reported
Special equipment:	Not available	Vacuum-Tug Experimental	Not reported	MAPET
Community based Sanitation:	Service available	Service available	Service available	Service available
Public toilet management	Not available	Not available	One company	Not available

MAPET = Manually Operated Pit Emptying Service

Table 5: Case Example - Summary of Sanitation SSiPs , Mombasa

Name of Provider	Kanja & Fischer	Mbarak Pit Contractors	Nyaga Nthia	Bachani Septic Tank Cleaners	Peter Nyaga
Typology	Company	Company	Company	Company	Company
Other activities	Does other transport businesses	Owns a shop, has been in operation for 20 years.	Does other transport business, about 10 years.	Has hardware store has been in operation for about 5 years.	Owns a shop, has been there for less than five years.
Area of operation	Malindi, Ukunda, Kilifi and Mombasa	Anywhere within Mombasa	Anywhere within Mombasa	Anywhere within Mombasa	Anywhere within Mombasa.
Equipment (for this activity)	Two exhausters and two trailers	Three lorries, tanker, drums and debes (drums).	Two lorries and drums	One lorry and one trailer	A lorry, drum, pump and debes.
Pit latrine service	Mostly institutions and oil companies	Empties and constructs pit latrines	Emptying	Emptying	Emptying
Septic tank service	Mostly institutions & oil companies	Emptying and cleaning service	Emptying	Emptying and cleaning	Emptying and cleaning
Number of customers Served	Three septic tanks per week	Two to three customers per week	Very few customers, plans to pull out	Three trips per week	Three cesspools per week
Service charge	US $ 6.7 – 9.3 per 1000 litres in institutions; US $ 100 plus US $ 9.1per 1000 litres for others.	US $ 10.7 per drum; pit & septic, US $ 100 plus US $ 6.7 per 1000 litres	Not reported, but estimated to be within the range of others.	Charges between US $ 13.3 – 20 per tanker	US $ 266.7 larger septic tank, and US $ 133.3 smaller ones

Table 6 shows the extent of coverage of sanitation services provision by SSiPs in the four cities under review.

Table 6: Comparison of Sanitation SSiPs in the Four Cities

SERVICE OPTION Estimated Population:	MOMBASA 700,000	NAIROBI 2,500,000	KAMPALA 1,000,000	DAR ES SALAAM 3,000,000
Septic tanks, Pit latrines and Cesspools				
Coverage city wide (%)	90	60	90	90
Market share in urban poor areas (%)	5 – 10	10	not reported	80
Cost of service per trip (US$)	150 - 200	40 - 80	15 – 60	27 – 33
Number of trips per day	1 – 2	1 - 2	1 – 2	3 – 4
No. of registered operators (SSiPs)	5	10	5	4
Investment cost (US$)	20[i] – 50,000[j]	500[k] - 20,000[l]	32,000[l]	20,000[l]

Key:
i - accessories for manual operators j - cost standard exhauster tanker
k - cost of handcart operators l - exhauster tankers (lorries, etc).

Case Summaries of SSiPs Operations

Case Example 1: Pioneer of Private Water Systems, Kampala

Kalebu Limited has pioneered the development and management of private water systems in Uganda. The proprietor currently manages five such systems countrywide, two of which are in Kampala serving an estimated total population of 600 people. This SSiP offers both coin-operated kiosks and in-house connection services. In 1998, it reported a pre-tax corporate turnover of US$ 1,200,000.

The service is typically private conventional small water supply systems in various localities of the city where NWSC has no network. (The proprietor of the SSiP is a civil engineer with special training in geo-technical and structural engineering). Kalebu Limited identified a market niche in rural-urban sections of large towns, which could not be reached by the public enterprises.

The original idea was to supply water through kiosks from powered boreholes with overhead tanks. The strategy shifted to house connections. High yield boreholes powered by electric energy are installed in the community areas. Water is pumped to storage tanks from where it is distributed through pipe network to in-house connections and kiosks.

The Kireka System cost US$ 56,000. This was financed using rollover funds from savings of the first investment at Seguku of US$ 50,000. The rollover has slowed down because overhead and operational costs have risen. Kalebu Limited is able to create new supplies targeting communities of at least 300 people. A rapid feasibility study that is paid for up-front precedes investment in projects.

Coin-operated water kiosk systems - that were hooked on to NWSC networks - were first established in Kibuye. Coin-operated kiosks are used to cutback on operational costs and provide a 24-hour supply. Standard utility billing procedures are applied in management of these systems. The supply is mainly for domestic, institutional and industrial use. Demand for Kalebu's services is steadily growing. Profit motivates Kalebu to achieve better services for its clientele, thus providing an option to public utilities. The Kalebu system is currently operational in over seven locations, two of which are in Kampala.

Balance sheet (Estimated) of financial operations of Kalebu Ltd.

Projected Annual Operations Data (in US$)

Costs per Year		
Depreciation		
	Cost of System (30 years)	1,866
	Replacement of 3 vehicles (5 years)	4,800
Operational Costs		
	Rent	3,600
	Vehicles	7,830
	Wages	73,913
	System Maintenance	9,600
	Taxes	8,000
Sub-total		*109,690*
Revenue		121,740
Net Balance		*12,050*

• Constraints

Equipment damage and disruption of water supply owing to erratic power supply is one major constraint to operations. Pump motors for the Kireka System have been replaced three times in one month due to Uganda Electricity Board (UEB) grid fluctuations. Cost of capital for new systems is high. Unlike public utilities that access investment finance at concessionary interest rates, SSiPs supplying the same market do not. This causes market distortions especially in the pricing of services. Other issues of concern to SSiP operations are

- Historical socio-economic circumstances have created low living standards, which tend to cause difficulties in affordability and delays in payment of water bills.
- Low awareness of the need for safe drinking water makes people slow to switch over from traditional sources to piped supplies

Case Example 2: Water Kiosks, Nairobi

Key Characteristics

- These facilities are totally reliant on NCC bulk supply.
- Their major advantage is lack of access to mobile transporters in the informal settlements as the poor road infrastructure prevents bigger mobile operators from entering the market.
- Their establishment costs are relatively low.
- The NCC is unable to efficiently collect water bills and this lowers the cost of bulk water supply to the kiosk operators.
- They charge between US$ 0.02 and US $ 0.05 for a 20-litre container, and most kiosks sell about 300 litres of water a day. Thus, daily water kiosk sales average between US$ 0.3 and US$ 0.75
- Families would normally operate these kiosks and are either attached or near their residence. This brings down labor costs and in some instance, the costs do not really exist at all.

Costs and Income Statement of Water Kiosks (Estimated)	US $ equivalence
Set up cost	
Official city council connection charge	67
Official city council meter deposit	40
Unofficial fees paid for 'facilitation'	83 – 133
Costs for pipes to connect to main	50 – 170
Structure costs (exc Storage facilities)	10
Storage tanks	17
Monthly operating cost	
Labor costs	8.3
Water usage tariff (US$ 0 01 for 100 litres)	0.05
Maintenance (i e. tap replacements, etc.)	1
Monthly revenue	
Income from sales (US$ 0.67 for 300 l)	10
Less Depreciation (5 years structure & tanks + pipes)	(1 67)
Net Income	(1 05)

Case Example 3: Community Based Sanitation Service, Nairobi

There are a few community-based sanitation facilities funded by donors through local NGOs. A good example is the Mukuru-Kaiyaba pour flush toilet project that is managed and maintained by the community.

Key Characteristics

- The facility was funded by a donor through the Sister's of Mercy organization of the Catholic Church.
- The community contributed labor. There was a project committee comprising representatives of the community, the area chief and a technical advisor affiliated with the Sisters of Mercy.
- Each household pays US $ 0.5 monthly for use of the toilet as well as for bathing. Visitors pay US $ 0.03 per visit.
- The cost of putting up the pour flush toilet was estimated as US $ 4000.
- The pour-flush is dependent on the NCC sewerage network.
- There is no proper bookkeeping or accounting of the project funds, and so there is suspected lack of transparency on how the money generated is spent.
- An estimated 100 people use the facility per day.

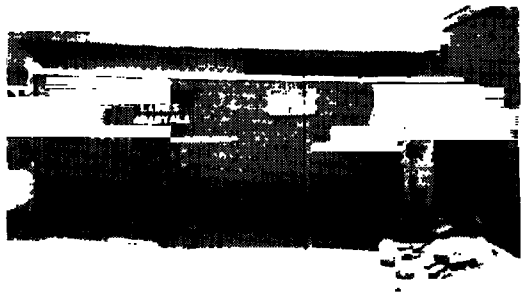
Case Example 4: Public Toilet Operator, Kampala

An entrepreneur, K.K.M. All Services Limited, has been contracted to operate all public flush toilets formerly managed by the Kampala City Council (K.C.C.). Before starting operations, the company invested US$ 38,000 to rehabilitate the facilities (as per contractual requirement) for an estimated 2,550 users per day.

Public toilet facilities (about 105 in total) range from modern water-borne flush toilets found mainly in the commercial district to community-managed VIP latrines in the peri-urban fringe settlements. Of these, 33 are located in the city core area including the newly constructed facilities at the main city market, "Owino Market". The rest are found in the peri-urban fringe.

Key Characteristics

- The toilets are clean, well maintained and pleasant to use. Attendants who provide customers with toilet paper, soap and water for hand washing service them.
- The cost per visit ranges from US$ 0.05 in the suburbs to US$ 0.1 in the city center.
- In the city core area, an eight-stance facility (four male and four female) serves about 70 clients per hour for an average of 11 hours per day. Business opens at 5:30 a.m. and closes between 6:00 and 10:00 p.m., depending on location.
- Although the facilities remain open on Sundays and on public holidays, the demand for public toilet service is practically zero on these days. The practical number of business days in a year is therefore 295.
- The operators face a big problem with the NWSC in terms of high tariffs as well as unreliable water services. The managers therefore ferry water in bulk from alternative sources to the toilet facilities using drums loaded on pick-ups.
- Use of own water has eliminated payments to NWSC and guaranteed availability of water for flushing.
- The water tariff is US$ 2 per 1,000 litres. Water consumption is 16,000 litres per toilet per day.
- The management contract compels the operator to rehabilitate the facilities to KCC standards as a pre-condition for managing them. This costs about US$ 3,500 per facility.
- The management contract between the operator and KCC allows for a three-year grace period during which the operator pays no fees to KCC. Thereafter a monthly rental charge of US$ 1,000 is payable by each operator.
- Since the takeover of the management of the public toilets by SSiPs, their hygiene has improved tremendously, hence more people are now using the toilets.
- The mean daily operating costs include: toilet paper at US$ 42, fuel - US$ 17, detergents - US$0 27 and labor - US$ 6.
- The profit per day is US$.50.



Public toilets operated privately in Kampala

The balance sheet below indicates financial operations of 33 facilities found in Kampala's commercial district
Projected Annual Balance Sheet (in US$)

Costs per Year	
Depreciation	
Cost of Rehabilitation (3 years)	8,811
Cost of operations vehicle (7 years)	4,290
Consumables (toilet paper, soap)	61,065
Fuel	15,045
Wages	80,640
Rental	36,000
Taxes	27,000
Maintenance	72,000
Sub-Total	*37,521*
Revenue	*524,717*
Net Balance	*219,866*

Note
- *SSiPs usually understate the revenues accruing from UES operations.*
- *Tax figure is an estimate of what the SSiPs would have paid if the operation were assessed for income tax liability.*

Constraints

- The high tariff imposed by the NWSC compels operators of water-borne public facilities use sources of supply in order to break-even. This has necessitated the purchase of pick-ups and water tankers by the SSiPs for additional water supply.
- Toilets that were built for a population of about 300,000 people now have to serve a daytime population of 1.2 million, creating excessive demand on the facilities, thus increasing maintenance costs.
- In most cases, the users are not conversant with water-borne toilet technology. This leads to misuse, resulting in blockages and high operational costs.

Case Example 5: Latrine Diggers and Emptiers

Key Characteristics

- This is the most common method used in low-income areas where over 90 percent use pit latrines. The digger has no formal training but acquires his skills through working in the neighborhood.
- Pit latrine diggers usually also provide manual cesspit emptying services, and therefore experience similar reputations with their customers as local handymen who provide needed services at affordable prices.
- They charge between US$ 10-US$ 20 (Dar es Salaam) and US$ 60-120 (Mombasa) depending on the task.
- Emptiers operate mostly at night (stigma attached to the job) and bury the emptied sludge in nearby grounds (Mombasa).

A private exhauster services provider waiting for customers in a Nairobi suburb

Summary and The Way Forward

Success Factors

SSiPs are here to stay and have an increasingly significant role in service provision particularly in poor informal settlements. The most important factors in the success of SSiPs in water supply and sanitation are that they:

thrive due to the inability of the public enterprises to respond to the dynamics of market demand.

have the ability to access (physically) peri-urban areas not covered by the public sector enterprises, as well as neighborhoods with poor infrastructure.

are commercially oriented operations based on private enterprise and designed to make money. (The profit motive compels innovative approaches to resolution of operational conflicts, which in turn ensures sustainability of service).

respond to the needs of the market by accessing high population density communities through provision of standpipes and water kiosks. SSiPs have relatively lower installation, operation and maintenance costs, thereby making services more available to low-income inhabitants by proper utilization and protection of ground water resources.

operate other businesses in addition to provision of urban environmental services (operations diversification permits re-allocation of resources whenever necessary to keep the entire group of enterprises operational).

Constraints

The main constraints to the expansion of small-scale providers of urban environmental sanitation services were identified as:

External

Poverty limits investments in most low-income areas because of inability of households to support sanitation provision.

Inadequate legal framework (for Dar es Salaam, Kampala and Mombasa) frustrates the good job done by the SSiPs. In Nairobi, slow implementation of the reform and liberalization process makes SSiPs operate against the policy.

SSiPs operations are not recognized in public development programming and investments are at the mercy of public intervention.

The taxation system favors the public utilities, creating negative feelings in the private sector. This results in poor bookkeeping, no auditing and evasion of taxes by SSiPs.

Poor access to credit due to lack of information on the existence of supportive private sector development programs.

A haphazard legal system that favors monopolistic impositions of non-commercial transaction costs by the municipal entities on SSiPs. These impositions tend to erode the profitability of the SSiPs since there is no mechanism of recovering the charges from the final consumers, who are the poor.

- Although policies and programs that affect urban service delivery are currently encouraging, the environment for private sector participation is restrictive, thereby constraining growth. Business licenses are difficult to obtain and require costly regular renewals.
- Lack of investment capital leads to inadequate access to capital by SSiPs.

Internal

Failure of SSiPs to create a common front and a forum for the exchange and communication of views on constraining issues limit their recognition by public authorities.

- The SSiPs do not market aggressively enough nor widely advertise their businesses. This limits their coverage and so service charges are high, which impose rationing of water or discourages customers.

The SSiPs have had no formal training in their operations, specifically on bookkeeping, accounts and business management and, generally, lack information on training needs and opportunities.

- SSiPs also lack a sound financial base required to finance their business operations.

Areas of Intervention

The main strategic issues and recommendations for scaling-up and sustaining water and sanitation services offered by small-scale providers include

- The need to implement policies conducive to competitive SSiPs development by removing barriers that hinder their growth and reduce profitability.
- Repeal of existing by-laws which inhibit the entry of SSiPs into the service delivery market, which hitherto was dominated by the public bodies financed through subsidies from local and central government.
- Repeal of the Water Act for Mombasa and Nairobi to accommodate the entry of the private sector in exploration and development of water sources, as has happened in Kampala and Dar es Salaam.
- Encourage amendment of public health acts, municipal by-laws and the local government acts that make service provision the preserve of public utilities and allow communities to enter into contractual arrangement with SSiPs for the delivery of services where it is required, for which they pay directly.
- Building a regulatory capacity to regulate SSiPs operations by ensuring that the services provided conform to minimum standards and are SSiPs associations sanction charges.
- Accountability and transparency by the local authorities in the registration and licensing of SSiPs.
- Provision of supporting infrastructure by the Municipal Council, for example dumping sites and construction of wastewater treatment plants.

Issues for Scaling-up of SSiPs

Issues for consideration for the improvement and increasing the presence of SSiPs include:

- Funding of SSiPs – there is need to explore possible financial support for the SSiPs. . Specialized lending windows could be created to support SSiP operations.
- Encouragement of SSiPs to form an association or lobby group. Such a body could be an ideal forum to address some of the issues hindering SSiPs operations.
- Marketing and outreach programs, including hygiene awareness for the urban poor communities and other areas, to increase marketing and coverage of SSiPs services.

Focused capacity building to assist the SSiPs access funds as well as technical assistance in enterprise management.

Enhanced campaigns to accelerate public awareness of sanitation and hygiene related diseases and how the SSiPs are assisting the public to reduce their impact.

- Management of water resources must be strengthened through improved legal enforcement to protect the water infrastructure from illegal operators.
- Training is needed in sanitation for new and existing service providers to develop a clear understanding of environmental regulations concerning waste disposal and treatment.

Recommendations

As a follow up of the study, WSP-ESA and IRC are committed to

- disseminate the findings of the studies to the SSiPs, the local authorities, the donor community and other stakeholders. (This could be done through targeted country briefing and regional workshops).
- make accessible to SSiPs information on available training facilities to strengthen the management skills of SSiPs;
- seek opportunities for integrating SSiPs best practices into policy and country operations.(They could be duplicated in other cities),
- further investigate incentive and institutional environment,
- study the interface between SSiPs and municipalities/utilities and
- learn from other parallel knowledge centers (e.g. SMEs).

Water
East a
The W
Mail P
P.O. B
Tel: 2
Fax: 2
E-mail