SMALL SCALE INDEPENDENT PROVIDERS OF WATER AND SANITATION TO THE URBAN POOR

A Case of Mombasa, Kenya

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**List of Abbreviations and Acronyms**

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<th>Description</th>
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<tr>
<td>CDA</td>
<td>Coast Development Authority</td>
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<tr>
<td>EEZ</td>
<td>Exclusive Economic Zone</td>
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<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
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<tr>
<td>MCM</td>
<td>Municipal Council of Mombasa</td>
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<tr>
<td>NWCPc</td>
<td>National Water Conservation and Pipeline Corporation</td>
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<td>SSIPs</td>
<td>Small Scale Independent Operators</td>
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<td>UES</td>
<td>Urban Environmental Services</td>
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<td>UNDP</td>
<td>United Nations Development Programme</td>
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<td>UNICEF</td>
<td>United Nations Children's Fund</td>
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<td>WSP-ESA</td>
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Foreword

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 a case study conducted in 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 consultant to carry out the study. The main purpose was to investigate the potential of SSiPs to improve, expand and sustain urban environmental sanitation (UES) services at affordable cost. The study alongside others conducted in Kampala, Uganda; Dar-es-Salaam, Tanzania and Nairobi, Kenya 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 is based on the findings of a study conducted in December 1998 on Small-Scale Independent Operators (SSIPs) of water and sanitation services in the Municipal Council of Mombasa (MCM). The thrust of the study was on operations of SSIPs in the low-income areas of the coastal town in Kenya.

The study was supported by the Water and Sanitation Program, East and Southern Africa (WSP-ESA). This study was part of a wider regional study in the capital cities of three Eastern Africa countries: Kampala, Uganda; Nairobi, Kenya; and Dar-es-Salaam, Tanzania.

The study objectives were to:
- develop a greater understanding of the type of service providers and scale of their operations
- assess the comparative advantages of independent service providers and why the low-income turn to them for service provision
- gain an understanding of the institutional and legal context in which SSIPs operate
- identify SSIps strengths and weakness and to evaluate the potential for further developing their activities; and
- identify bottlenecks that hinder the development of SSIps and recommend means and ways they can be overcome

Study Methodology

A consultant was contracted to undertake the study. At the onset, the consultant reviewed and summarized relevant recent studies and reports on the subject from both public organizations and donor agencies. Subsequently, interviews were conducted with key personnel from National Water Conservation and Pipeline Corporation (NWCP) and the MCM.

To gain insight into the functions of the SSIps, field visits were conducted to selected areas where they operate. Interviews, using questionnaires were conducted with the service beneficiaries selected using transect walk method. The operators were also interviewed at their work areas or at business centers, using prepared questionnaires.

Background of the Study

Mombasa is the second largest town in Kenya after the Nairobi. It is the gateway to Kenya and the other landlocked countries in the hinterland off the Indian Ocean (Uganda, Rwanda, Burundi and Democratic Republic of Congo) Because of its vast world class beaches, Mombasa is also a major holiday destination to local and foreign tourists alike.

The population of Mombasa is currently estimated at 700,000 people. This population has outstripped the capacity of the municipality to provide water supply, sanitation and solid waste services. The water situation is particularly bad where severe water shortages are experienced quite often. Sanitation is appalling and on-site sanitation is the most commonly used sanitation form.

Because of the inability of MCM and other utility sector operators to provide UES fully, SSIps have entered into market and have been in operation for some time now. The SSIps play a crucial role in the provision of UES particularly to the low-income communities, who make up between 30 and 40 percent of town population.

Sector Performance Overview

Water supply sub-sector:
Mombasa as a whole, experiences acute water shortage. The total available water is only 42percent of its demand forecasts. Major consumers have to undergo water rationing. Domestic supply is therefore rationed between midnight and dawn. Although the residential houses and commercial establishments have water storage facilities, hardly any water is stored because of the shortage in the distribution network. This is caused by extremely low water pressure in the distribution system.
In the low-income areas, the water situation is worse. Homes in the areas are not directly connected to the network and major sources of water are the secondary retailers. The retailers receive water from the NWPC, through the "spaghetti pipe network". The secondary retailers are the handcart water vendors; the water kiosks and standpipe vendors; and individual household vendors. Other service providers include independent operators who own private wells and boreholes.

**Sanitation sub-sector:**
Only 10 percent of the population are connected to the conventional sewerage system. The rest of the population relies on on-site sanitation facilities. Pit latrines serve about 74 percent of the population and there are estimated 39,000 pit latrines in the Mombasa municipality. Septic tanks serve about 16 percent of the population and there are an estimated 13,500 septic tanks in the municipality.

The pit latrine is the predominant sanitation facility in the low-income areas. When pit latrines fill up they are usually abandoned and in only a few cases are new ones, if space is available, constructed. Most pit latrines are located in the congested alleys between rows of the shanties, where accessibility to emptying them is not possible using conventional means. Only about 20 percent of the pit latrines are emptied and the method commonly used is manual emptying. The emptying is evenly shared between the registered SSiPs (10 percent), and the local pit latrine emptier (10 percent).

The construction of the pit latrines is by landlords, who usually hire local latrine diggers. The local latrine diggers have no special training, other than the on-job experience and they use ordinary tools.

To-date there are five SSiPs registered with the Municipal Council of Mombasa. The SSiPs provide cleaning services hitherto provided by the Cleaning Section of the MCM. Other private operators not registered with the Council are also reported.

**Main Findings**

**Institutional, legal and regulatory framework**
Although the MCM has recognized SSiPs through formal registration, the existing legal and regulatory framework is the same as was before SSiPs entry into the market.

The Water Act (Cap 372), the Public Health Act, the Municipal By-laws (Drainage Cap 136) and the Local Government Act (Cap. 265) mandate the local authorities and the NWPC the responsibility to provide UES within the MCM boundaries.

There is unclear land policy relating to land ownership and zoning in Mombasa. Besides, land in Mombasa is yet to be demarcated and provision of basic services in the low-income informal settlements is not well defined.

**Characteristics of SSiPs**

**Water supply sub-sector:**
Water kiosks and standpipe operators are the secondary water retailers and are wholly dependent on NWPC for the supply of water. The NWPC licenses secondary water retailers and to-date there are about 330 registered water kiosks and standpipes in operation in Mombasa. These water kiosks and standpipes are distributed throughout Mombasa, but more are found in the residential and low-income areas. These secondary water retailers are usually subsistence businesses operations, either self-employed or family owned.

Water kiosks and standpipes supply about 50 percent of the water needs in the low-income areas. The balance of water needs comes mainly from private boreholes and wells, handcart vendors, etc.

The level of investment varies from low, moderate to moderately high. The water kiosks /standpipes main components are the pipes leading from the NWPC water mains and the kiosk and standpipe superstructure.

The handcart water vendors buy water from water kiosks or standpipes and some from individual households, the latter who sell water illegally. Handcart main business investments are water jerricans and the handcart.

The estimated investments cost of water operators are standpipe US $100; handcart US $ 100; and water kiosks US $ 200. The majority of handcarts prefer to hire handcart and water containers. The charges range between US $ 0.8 and US $ 0.4 per day, with and without the jerricans, respectively.
The water kiosks and standpipes sell on average between 100 and 150, 20-litre jerricans per day (2000 and 3000 litres per day) whereas the handcart water vendor daily water sale averages 40, 20-litre jerrican per day (800 litres per day).

Water costs at the standpipes and water kiosks between 5 and 25 times more than the tariff charged by the NWCP. The water costs between US $ 1 and US $ 5 per 1000 litres (between US $0.02 and US $ 0.10 for 20-litre jerrican). Whereas water kiosks and standpipes buy water at around US $0.20 per 1000 litres (US 0.4 cents per 20-litre container) from NWCP.

The handcart water is the most costly of the secondary retailers. These sell water between US $0.10 and US $0.50 for 20-litre jerrican, which is between 25 and 150 times more than the price charged by the primary supplier the NWCP and other sources.

Water vending in Mombasa is considered not very profitable. The average daily water sales at standpipes and water kiosks vary between US $1.7 and US $15, and handcart water sellers average daily sales is US $ 3.0. However, the daily water sales compare, favorably with the town’s unskilled labor daily wage earning, which is US $1.5.

The cost of water from wells and boreholes operators is about US $1.25 per 1000 litres (US $ 0.025 for 20-litre jerrican). The borehole and well construction investments are moderate to high between $1000 and $5000, respectively. Some private boreholes and wells give free water to domestic users and others sell water to secondary retailers and also to consumers.

Sanitation sub-sector

Only an estimated 20 to 30 percent of the pit latrines and septic tanks are emptied after filing up, and of these only about 10 percent in the low-income areas. This is mainly due to high service charge.

The SSiPs level of investment varies depending on the method and technology used. The least costly method is the bucket, with investment costs estimated to be about US $20. An old lorry and drums investment is moderate at about US $5000; while an exhauister truck investment is high at US $50,000.

Only one SSIP had an exhauister truck and operated in the Malindi area as well due to lack of enough business in Mombasa town. Only two SSiPs owned a lorry and drums, and others used shovels and buckets.

The local pit latrine emptiers are the main operators in the low-income areas. They usually operate at night and bury the emptied sludge at grounds nearby.

The sanitation service charge varies, but averages between US $ 150 and US $ 200. The charge is about US $125 to empty up to 4000 litres and $12 for any additional 1000 litres. The local pit latrine emptier charge between US $ 60 and US $ 90 per pit latrine/septic tank emptied.

Success Factors

The SSiPs success is attributable to the following factors:

• The SSiPs entry into the market was prompted by the council’s inability to cope with increased demand for services and the council’s budgetary constraints. Thus SSiPs services will continue to play a critical role where the council and other sectors operators have failed.

• The SSiPs share of market is currently estimated at 30 percent in sanitation and between 10 and 15 percent in the water sector, thus the potential for expansion of SSiPs operation is enormous.

Constraints

Internal constraints:

The SSiPs internal constraints to the delivery of services include:

• Operations which are dependent on utility sector infrastructure facilities, which in most cases are poor or inadequate.

• The SSiPs have weak or inadequate marketing skills.

• SSiPs have weak bookkeeping, financial accounting and management structures. They also lack formal business set-up, have no offices to transact business and lack trained staff in technical operations and basic business management. The SSiPs lack information on appropriate technologies and financing channels.
External constraints
The SSIPs constraints outside their control include:

- They receive very little water from the utility sector. The independent providers also rely on boreholes and wells. This water is of limited use because of high contamination from septic tanks and pit-latrines.
- The water utility sector imposes low water tariff to the secondary service providers. This renders cash returns only marginal.
- There is no clear policy on land use in Mombasa. Because of this uncertainty in land ownership investors usually are unwilling to commit heavy investment for fear of losing their investments in the event of area rezoning.
- The development of water supplies is the monopoly of the NWCPC. Lack of private sector investment in the sector constraints accelerated development of alternative water sources.
- Unfair competition from the MCM Cleansing Section whose service charge is usually low. There are also unethical practices by some SSIPs who do shoddy work at extremely low service charge – these remove only the liquid portion leaving dense sludge intact only for the emptied pit to overflow soon after.
- There is poor accessibility and long tipping distances and these increase SSIPs' operational costs.
- The community is ignorant of benefits of improved sanitation and only few use the service of SSIPs. This leads to high service charge, which is beyond the reach of many urban poor.
- There lacks policy framework to sustain SSIPs operations.
- Lack of credit facilities to support SSIPs hampers their growth, expansion and improvement.

The Way Forward

Areas of intervention:
In order to facilitate the SSIPs operations and improve their sustainability, following are intervention areas:

- Competitive policies conducive to SSIPs thriving by removing barriers that hinder their growth and reduce profitability should be put in place. The MCM should stop delivering services the SSIPs are engaged in, and should stop levying service charge to those who have contractual arrangements with SSIPs.
- There should be legal framework to support the SSIPs operations and entry into the market. Thus there is need to repeal existing by-laws and local authority acts to accommodate the SSIPs entry into service delivery, which hitherto was being performed by the public bodies financed through subsidies from both local and central governments.
- The Water Act should be repealed to accommodate the entry of private sector in exploration and development of water sources.
- The Public Health Act, the Municipal By-laws and the Local Government Act need to be repealed to require that where SSIPs services are available, communities should be mandated to enter contractual arrangement with the SSIPs.
- The MCM should build a regulatory capacity to control and manage the SSIPs operation. This will ensure that services performed are to set minimum standards and are not exploitative.
- The local authorities should exhibit accountability and transparency in the registration and licensing of SSIPs. The MCM should provide supporting infrastructure to SSIPs.

Issues for scaling-up of SSIPs
In order to increase the service coverage of SSIPs in service delivery the following issues should be considered:

- Need to explore possible existing financing sources and conditions and such information relayed to the SSIPs.
- There is need to strengthen the management skills and capacity building of the SSIPs and to disseminate information on available training facilities.
- Encourage SSIPs form an association and for a lobby group. Such could be ideal forum to address some of the issues hindering their operations.
- Conducting marketing and outreach programs including hygiene awareness for the low-income communities and other areas to increase marketing and coverage of SSIPs services.
**Recommendations**

As a follow-up to this study, the following recommendations are made:

- That the study findings be disseminated to the SSiPs, the local authorities, the donor community and other stakeholders. This could be done through workshops.
- That there is need to strengthen the management skills and capacity building of the SSiPs and to inform them of available training facilities, and explore possible credit financing channels.
- The Municipal council should introduce the SSiPs to the community through the elected representatives of the community.
Introduction

The Country

Kenya covers an area of 582,650 square kilometers. She borders Ethiopia in the north, Sudan in the northwest, Uganda on the west, Tanzania in the south and Somalia in the east. Kenya has a vast Indian Ocean shoreline of 400 kilometers. The country’s climate is entirely equatorial. Longitudinally Kenya lies between 3 degrees to North and 5 degrees South, and between 34 and 41 degrees East Longitude.

Kenya is characterized by enormous physical and ecological diversities. Approximately 80 percent of Kenya’s land is arid or semi-arid and only 20 percent is arable. A large part of the arid and semi-arid zones is used for wildlife conservation. The country is divided longitudinally by the Central Rift Valley, which is over 60 kilometers wide and in some areas up to 330 meters deep. To the east of the Rift Valley, the highlands rise to over around 2000 meters and Mount Kenya (5199 meters) and the Aberdares (4000) dominate the region.

Agriculture accounts for about 25 percent of the gross domestic product (GDP) and manufacturing about 13 percent, with tea and coffee being the major cash crops. Tourism is an important economic activity, especially in the Kenya’s coastal region and in the arid and semi-arid areas.

Economic Overview

Since attaining independence from Britain in 1963, Kenya has gone through several economic phases. During the first 10 years after independence, the country enjoyed low inflation, high employment creation, and a relatively stable balance of payments. The GDP growth rate averaged 6.5 percent per annum during this period.

Between 1973 and 1980 there was a record growth upset due to a sharp rise in oil prices, which created considerable internal and external economic imbalances. Nonetheless, the Kenya economy enjoyed an average growth rate in GDP of 5.2 percent per annum, reflecting a moderate reduction in the high growth rates achieved in the first 10 years of independence.

The period between 1980 – 1985 was characterized by slow growth where the GDP averaged 2.5 percent. This economic decline resulted from several confounding factors, including high cost of oil due to the global recession in 1980 – 1982, as well as a severe drought experienced in 1984.

Between 1986 and 1989 the government implemented structural adjustment programs in agriculture, trade and industry which were supported principally by the World Bank and the International Monetary Fund. The adjustment program accelerated the growth in GDP to an average of 5.8 percent per annum.

In the 1990s the Kenyan economy began plummeting with GDP growth falling to 4.3 percent. The GDP was 2.2 percent in 1991 and 0.4 percent in 1992. The suspension of Enhanced Structural Adjustment Facility by the International Monetary Fund in the 1990s exacerbated the poor economic performance. The economy has continued to perform dismally as evidenced by GDP growth of only 2.3 per cent in 1997, 1.8 percent in 1998 and 1.4 percent in the first half of 1999. The slowdown in growth is felt in all sectors, but agriculture, manufacturing and services are the most affected. The poor economic performance recorded in the 1990s is characterized by decay in the infrastructure across the entire country, wide budgetary deficits and depressed employment earnings.

Population

Kenya’s population has increased from 5.4 million in 1948 to 15.3 million in 1979 to 21.4 million in 1989. The 1989 census indicates that the inter-census population growth rate for Kenya was 3.4 percent per annum. This represents a modest decline from the growth rate of 3.8 percent per annum estimated from the 1979 population census. At the present population grow-rate, the population of Kenya is estimated to increase to 30 million by the year 2000.
Mombasa Town Profile

Historical Overview
Mombasa is the gateway to Kenya on the Indian Ocean and thus was exposed to the medieval maritime trade and conflicts, which were characteristics of the early times. Around the fifteenth century Mombasa was reported to have been the largest and most sophisticated trading town on the East African coast together with Kilwa in Tanzania. Spices, gold, ivory and iron were traded for cotton cloth and jute from India, ceramics from China and India, and foodstuffs.

The turn of the twentieth century saw the building of the Kenya–Uganda Railway line from Mombasa. This opened Mombasa as the major port of entry into the Eastern Africa region for settlement and trade. Mombasa was also the capital of Kenya until 1906.

In spite of the initial setbacks occasioned by armed conflict between the natives and the foreigners wanting to control the port of Mombasa, Mombasa town has continued to grow both in size and as an important commercial center. Today, Kilindini harbor is the largest and most sophisticated port in the East African coastline and handles Kenya’s, agricultural, industrial and commercial imports and exports and those of neighboring countries. Besides, Mombasa is also endowed with a vast coastline with beautiful beaches and is a popular national and international holiday resort town.

Administration, Position and Size
Mombasa has two administrative authorities, the Municipal Council and the Central Government administration unit headed by the District Commissioner.

Mombasa District (MCM) comprises four divisions: Mombasa Island (21 km²), Kisauni (126 km²), Likoni (64 km²), and Changamwe (71 km²), with a total area of 282 square kilometers. Mombasa District lies between latitudes 3° 80' and 4° 10' south of the Equator and between longitudes 39° 60' and 39° 80' east of the Greenwich Meridian.

Population
During the 1989 census, Mombasa had an estimated population of 461,753 people. This was an intercensal annual growth rate of 3.0 per cent from 1979 census. Currently the population of Mombasa District is estimated as 700,000 people. Likoni is the least populated with an estimated population density of 1434 persons per square kilometer, whereas Mombasa Island, Changamwe and Kisauni have 8260, 2170, and 1656, persons per square kilometer, respectively. The increase in population is attributed to the natural growth and the migration of the labor force from other parts of the country.

Infrastructure
The district has a total of 109.6km of classified roads. It also has a number of unclassified roads, which cover various divisions. Major roads are the one heading to Nairobi, Malindi, and Lunga Lunga. The Ministry of Public Works and Housing maintains all of them. The MCM maintains the minor roads. A number of these roads require major repair works, especially those leading to and from the port.

The district has one major railway line leading to Nairobi. It’s the major transport facility for goods from the port of Mombasa to other parts of the country and to the neighboring countries.

Mombasa has an international airport. The airport is a major outlet for exporting cargo and inward and outward movement of people and goods.

There are two ports: the Kilindini Harbor and the Old Port. The Kilindini Harbor is the largest and most modern port in East Africa. The port has 16 deep berths, with square length of 3,014 meters, and a maximum dredged depth of 11 meters, which includes 13 general cargo berths and a modern container terminal with three berths.

Commercial, industrial and other economic activities
The district has several historic sites, which have been major attractions for tourists. The famous sites are the Fort Jesus, Slave Caves along Mama Ngina Drive, old mosques and commercial buildings in the Old Town and old port of Mombasa. The ocean beaches have attracted the development of high-class hotels.

The hotels provide a major market for farm produce, locally manufactured products and handicrafts, creating employment opportunities. The district is in close proximity to some of the country’s important game reserves.
Tsavo, Amboseli, Shimba Hills and Malindi Marine Parks. Tourists are able to visit these sites while still based in hotels in Mombasa.

The district’s coastline stretches from Ng’ombeni in the South to Mtwpapa in the North. It has 65km² of open water plus access to 200km of the Exclusive Economic Zone (EEZ), as potential fishing grounds. Fishery is an important economic activity for Mombasa’s inhabitants and has been their occupation for a long time. Most of the fishing activity is confined to local consumption.

Most industries are located either on the Island, Changamwe or Kisauni Divisions. Likoni Division has few industries because of communication problems. Most industries have not exploited fully the potential because of limited supply of water and persistent electrical power interruptions. The major industries are the processing industries: fruits, cassava; bakeries and confectioneries; vegetable oil; fish; textiles; and tanning. The manufacturing sub-sector includes cement production (Bamburi), paints, cosmetics, glass, plastics, iron sheets, aluminum, bolts, coil spring steel sheets, wire nails and petroleum products.

_Economic indicators and welfare_
Employment is generally generated in manufacturing, building and construction, trade, restaurants and hotels, transport and communication, finance, insurance, real estate and business services, community, social and personal services. Manufacturing accounts for 21.1 percent; community, social and personal services 31.5 percent while transport and communications contributes about 20.9 percent of the wage employment.

The district has disparity income distribution. The commercial and industrial enterprises contribute highly to incomes of the people. Less than 1 percent of income is accrued from agricultural activities while about 60 percent are earned from wage employment and 24.4 percent from self-employment.

Typically wage earnings mainly accrued in the industrial sector are in the region of US $ 40 per month. The majority of wage earners live in the low-income areas. The Mombasa district has a prevalent absolute poverty level of 39.7 percent compared with the national figure of 29.3 percent. Mombasa’s population, therefore, is below the national absolute poverty prevalence.

_Urbanization_
The pattern of settlement is Mombasa has been influenced by the early history of the town. Around the 15th Century, Mombasa was a trading town, and major merchandises of trade were ivory, gold, cloth and foodstuffs from India and ceramics from China.

Mombasa came under the influence of the Portuguese, the Oman Arabs and the British government, who had colonized Mombasa at one time or another from the 15th century to the beginning of the 20th century. In the 18th century Mombasa was an important trading center for the notorious slave trade. The turn of the 20th Century saw the building of the railway line from Mombasa to Nairobi and later on to Kampala, Uganda. This made Mombasa a major port of entry into the Eastern African region for settlement and trade.

Mombasa town is an urban setting displaying all the characteristics of an industrial town. The major constraint for accelerated industrial growth is unavailability of land. This is due to problems of land ownership. Land in Mombasa is either individually owned or is government land and is yet to be surveyed and demarcated. The question of land ownership is crucial as the population increases; the building industry will require land to put up residential and commercial buildings.

The majority of the work force in the commercial and industrial sector are immigrants from other districts in Kenya. The migration has put pressure on the available resources including accommodation. The result of this has been proliferation of informal settlements in most parts of Mombasa. The informal settlements are not concentrated in one section of the town but are widespread, occasionally found in the middle of the high and middle-income areas and also in the fringes of the town.

The informal settlements are characterized with congestion and lack of basic services. Potable water is inadequate, and human waste disposal facilities, accessibility and drainage are all poor and inadequate and housing structures are shacks made of rusty iron sheets and muddy walls and polythene waste paper. Solid waste management remains a big problem as a health concern and as an environmental degradation.
The expected trend is that the proliferation of the informal settlements will continue in Mombasa. The prevailing harsh economic condition and the increasing population will continue to push the rural population to urban centers in search of employment opportunities. The immigrants find refuge in the low-income areas where they get inexpensive accommodation while looking for employment opportunities.

**Evolution of Small Scale Independent Providers (SSiPs)**

Water shortage in Mombasa has been experienced for a long time now. The water shortage is compounded by low pressure in the distribution system. Even in areas where water pressure is adequate, water is rationed for only a few hours a day. The NWCP is the only source of potable water. A few individuals have sunk boreholes and wells, to supplement the NWCP supply. However, groundwater in most cases is salty and is contaminated by human waste from pit latrines and septic tanks, which are sunk down to the water table.

The perennial water shortage in Mombasa has led to individuals operating water points from where they sell water. These are mainly the water kiosks and standpipe operators and Handcart water vendors. The NWCP licenses the water-kiosks and standpipe operators. These operators sell water directly to consumers and to handcart water vendors, who in turn sell water by hawking it around the town in 20-litre jerricans. The handcart water vendors are usually casual workers looking for employment. During severe water shortage water is only obtained at a few kiosks and thus handcart vendors assist in distributing water to other areas.

The low-income areas with an estimated 27 percent of Mombasa's population receive water from the NWCP through water kiosks and standpipes. The kiosks and standpipes distribute water to areas directly connected to the NWCP distribution network.

The inadequate and unreliable water supply necessitates the use of on-site sanitation systems. These are more suitable than the water-borne conventional sewerage systems. However, only 10 percent of the population are served by the conventional sewerage system whereas 90 percent relies on on-site sanitation facilities – the septic tanks (16 percent) and pit latrines (74 percent).

Presently most pit latrines are abandoned after they fill up and only rarely are new pit latrines constructed to replace the filled ones. Land, however, will soon become unavailable leaving no space available to accommodate new pit latrines. Groundwater pollution from pit latrines is a serious problem in Mombasa. Thus the practice of abandoning pit latrines once they fill will have to be addressed sooner than later and pit latrines be emptied rather than abandoning them.

The number of on-site sanitation facilities in Mombasa outstrips the municipal council's available resources to maintain these facilities. In retrospect, private individuals have entered into this service sector to provide services for a fee. Towards the end of 1997, the Municipal council of Mombasa moved a step further and recognized those private service providers and the Municipal Council licensed five contractors to provide private pit and septic tank emptying and cleaning services. With the growing population in Mombasa, the demand for on-site sanitation services, in particular in the low-income areas where sanitation is appalling will dictate that private operators play an increasingly important role in this sub-sector.

The SSiPs have resulted from the inability of the Municipal Council to meet the demand for basic services especially in the sanitation sub-sector. In the water supply sector, the SSiPs participation especially in the low-income areas, is driven by the demand for the service, which is not provided by the Municipal Council. As the population increases, the demand for services will be greater and SSiPs will continue playing a greater role as the only service providers in the water supply and sanitation sub-sectors. Thus the need to strengthen and expand SSiPs to provide services, in particular in the low-income areas, would eventually be a rewarding undertaking to service providers, the service recipients, and other stakeholders—municipal council, the central government, the donor community and others.
Sector Performance Overview

Water Supply Sub-sector

The NWCP 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 Land Reclamation, Regional and Water Development, scheduled water supply schemes. Thus, most of the urban water supply schemes in Kenya including the Mombasa District one are under the management of the NWCP.

The Coast Development Authority (CDA) was established in 1990 and covers Kilifi, Taita-Taveta, Kwale, Lamu, Tana River and Mombasa and the Southern Garissa Districts. Its functions include developing up-to-date long-range development plans, design and initiation of related development activities and studies and surveys in areas which may be considered, to ensure that land owners undertake all measures to protect the water and soils of the area. The CDA regional office is located in Mombasa, and is expected to expand water sources in order to meet the increased demand in Mombasa.

The NWCP manages the Coast Water Supply System, and covers an area of about 5,700 square kilometers. The major sources of water are the Mzima springs in the Tsavo area with a daily supply of 35 million litres. The Marere Springs in the Kwale District and 40 kilometer long pipeline, with a daily supply of 9.2 million litres and Sabaki Water Works in Kilifi District and Tiwi boreholes in Kwale District.

The NWCP has only been able to provide about 42 percent of the total water requirements for Mombasa District. There is therefore need to increase water supply to meet the increasing demand as a result of the fast growing population and the increase of commercial and industrial activities. The gap between supply and demand calls for substantive development and expansion in water supply.

Mombasa district has no rivers, and gets its water from the neighboring districts. The water is distributed into the four district divisions: The South Coast water supply which receives 5.32 million litres per day from Marere Springs and Tiwi boreholes from Kwale District. The North Coast Water Supply receives 20.3 million litres per day from Sabaki in Kilifi District. The Mombasa Island Water Supply receives 18.4 million litres per day from Sabaki, and Marere Springs and Mzima springs in Taita-Taveta District. The West Coast Water Supply receives 16.12 million litres per day from Mzima and Marere sources.

Water is pumped to surface reservoirs and then fed into the distribution system. Although there is good water distribution network, most of the areas receive inadequate water due to persistent rationing and low pressure in the distribution network due to the relatively flat Mombasa terrain. Piped water supply to the informal settlements is through what is commonly referred to as the ‘spaghetti’ pipe networks, constructed by individuals or community groups with some donor support. These single water pipes terminate to a standpipe or water kiosk from where the community buys water.

The NWCP water supply is supplemented by water from individual borehole/wells. However, the groundwater in the district has been a problem due to high salinity levels and contamination with human waste from pit latrines and septic tanks. Thus, groundwater is mainly used for cleaning and washing purposes.

The total water supplied by NWCP is about 60.14 million litres per day. This water is less than what is required for domestic use and for other needs. This leads to rationing of water between the major consumers. The domestic consumers are rationed at night, between midnight and dawn and receive only 25 percent of the total water available, which is estimated to be about 15 million litres meters per day.

With a projected population of 628,000 people in 1999, the average per capita water availability in Mombasa district as a whole is about 24 litres per day. However, there is disparity in the distribution of this water, as shown in Table 1. Not all the domestic consumers receive 24 litres per capita per day. For example, the low-income areas with an estimated population of 162,500 people receive very little water. The water is obtained through service lines to water kiosks /standpipes. Thus, the per capita water supply reaching the low-income consumers is much less than the town’s average. This group is estimated to receive much less than a quarter of the town’s 24 litres per day average.
Table 1: Water Distribution by Division in Mombasa and Per Capita Domestic Consumption in the Division

<table>
<thead>
<tr>
<th>Division</th>
<th>Water source</th>
<th>Quantity, 000' litres per day</th>
<th>Per capita supply, litres per day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Changamwe</td>
<td>Mzima and Marere Headworks</td>
<td>16,120</td>
<td>32</td>
</tr>
<tr>
<td>Mombasa Island</td>
<td>Sabaki, Mzima and Marere</td>
<td>18,400</td>
<td>28</td>
</tr>
<tr>
<td>Kisauni</td>
<td>Sabaki</td>
<td>20,300</td>
<td>25</td>
</tr>
<tr>
<td>Likoni</td>
<td>Marere and Tiwi Boreholes</td>
<td>5,320</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>50,140</td>
<td>24</td>
</tr>
</tbody>
</table>

To deal with the inadequacy of water and coupled with its unreliability in supply, some consumers have dug private boreholes and wells. However, the borehole and well water is usually contaminated through pit latrines and septic tanks and from the intrusion of salty water, rendering water useful only for cleaning and washing. Although the quantity supplied from the boreholes and wells is not readily available, it’s estimated to be between 30 and 40 percent of the water consumed in the District.

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

Sanitation Sub-Sector

The MCM is the undertaker and operator of sewerage, storm-water drainage and on-site sanitation systems for the town. The MCM performance in this sub-sector requires significant improvement if service demands of the residents of Mombasa are to be met. The condition of existing facilities is poor, services provided are inferior, and operation, maintenance and financing systems are inadequate. Consequently, congestion, environmental degradation and poor health conditions are increasing, as are poverty and unemployment. The low-income people who form between 30 to 40 percent of MCM population and mostly reside in congested areas of Mombasa are most affected as they have limited acceptable options and are least likely to obtain alternative services.

The Municipal Council of Mombasa is faced with a rapidly growing population, inadequate capacity and increasing poverty as well as unemployment. All these lead to serious problems in its effort to provide services. The developments on the ground overtake the council’s capacity of planning and thus informal settlements are mushrooming all over. A recent assessment shows that between 30 and 40 percent of Mombasa residents may be categorized as poor. The majority of these poor people live in informal settlements.

Conventional sewerage system

The conventional sewerage system is at present estimated to serve approximately only 10 percent of the population. This has decreased from 17 percent, which was the estimated coverage in 1975. The decrease in coverage is as a result of increase in population without an equal expansion in the conventional sewerage system. The conventional sewerage network is found in the old town in the Island, parts of the West Mainland—Changamwe, Chaani, Miritini, Mikindani, Port Reitz Estates and the Mombasa Airport.

The sewerage system comprises: 19km of sewers in the "old town" area in the Island Division and 9.4 km of sewers in Changamwe, West Mainland Division. The general condition of the sewers is satisfactory although some manholes are blocked, a few manhole covers are jammed and a few missing.

There is not a 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 and is being refurbished. An oxidation ditch at Kipevu in West Mainland was used to handle the waste from the area. This, however, has been decommissioned and a new plant is currently under construction at Kipevu, whose commissioning is expected late 1999.
Although a conventional sewerage network is planned for the whole of West Mainland, coverage will increase only to between 20 and 25 percent of the population. Thus, a sizeable proportion of Mombasa population will continue to rely on onsite sanitation systems.

**Septic tank / soak pit**
The Septic tank/soak pit serves approximately 16 percent of the population. In 1995, Mombasa was estimated to have a total of 13,000 septic tanks. These are found mainly in the middle and high-class residential areas of Tudor, Ganjoni and Kizingo Estates in the Island, and in the high class Nyali Estate in the North Mainland. Prior to 1997, the municipal council Cleansing Section provided septic tanks exhauster service. However, as from 1997, the Council has licensed five private contractors to provide exhauster services for a fee paid directly by the service beneficiaries. The Municipal Council, nonetheless, continues to provide exhauster services to the Municipal schools, clinics, and residential estates.

**Pit latrines**
It is estimated that 74 percent of Mombasa population uses pit latrines. Pit latrine is the only sanitation facility available in the low-income areas with an estimated population of 162,500 people, a staggering 27 percent of the Mombasa population. The pit latrines are found predominantly in the South Mainland, a major portion of the North Mainland, a significant area in West Mainland (Magongo, Bangadi, Jomvu, and Bomu Estate) and in Majengo Estate in the Island.

In 1995 Mombasa was estimated to have 35,000 pit latrines, which is equivalent to 12 persons per pit latrine. Projections are that there are as many as 38,730 pit latrines in Mombasa and of these 13,500 are found in the low-income areas. In most places, pit latrines are the predominantly deep Swahili types and are generally 20 meters deep. In the West Mainland pit latrines are shallower, about six feet deep, the depth to the water table in the area. Past investigations have revealed that ground water drawn from wells and boreholes could be grossly polluted. The coliform counts as many as 60,000 MPN /100 ml, have been confirmed in such waters.

The construction of pit latrines is the responsibility of the landlords. The majority of pit latrine diggers are local people who have no special training. When pit latrines fill up, they are either abandoned and new ones dug where land is available. Where land is not available, pit latrines are emptied either by private contractors, or by local people who manually empty the pit latrines and bury the emptied sludge nearby.

**Institutional, Legal and Regulatory Framework**
The Ministry of Land Reclamation, Regional and Water Development water sector policy is to create an enabling environment for orderly coordinated and sustainable development of water resources including their conservation and protection against pollution.

The legislation for proper use of water and provision and functioning of sanitation services are well spelled out in the various Acts. The Water Act Cap. 372 (1972), revised in 1986 and currently under review covers the broad field of water conservation, control and apportionment of water resources. The Water Act places the responsibility of managing the water resources with the ministry responsible for water or other person authorized by the minister. The Public Health Act Cap. 242 (1986) deals with sanitation and protection of water supplies including legislation responsible for drainage and latrine. Although the legislation is powerful for the intended control, its enforcement is lacking.

The NWPC is the monopolistic provider of water supply in Mombasa, although the CDA inaugurated in 1990 is mandated to study and develop water sources including pollution control in the entire Coast region. The NWPC fixes water tariffs. Currently the water tariff is unrealistically low -- about US $ 0.16 for1000 litres. The water tariffs are too low and they are a de-incentive to private sector involvement in the sector.

The law prohibits the development of private public water supplies. Although the NWPC approves development and construction of private boreholes and wells, the water is not meant for public distribution, but for individual use.

The Local Government Act Cap (265) 1975 empowers the local authority in urban areas to undertake water supply, sewerage and drainage works and to enact by-laws as appropriate. The Municipal Council has allowed private contractors to provide pit latrine/septic tank cleaning and emptying services, including the privatization of solid waste collection in three divisions of the Mombasa Municipality. However, the Act vesting the responsibility
of the provision of those services to the Mombasa Municipal Council is still intact. Thus there is no legal framework to support SSIPs operations in the provision of services and thus SSIPs operations are largely outside the law.

Land ownership in Mombasa is a major constraint as land is either owned by individuals or by the state and it is yet to be surveyed and demarcated. Thus the development of land policy in Mombasa and its physical planning is a daunting task. Without land being demarcated and surveyed and its ownership sorted out, land occupation and development including the mushrooming of slums will largely have to remain haphazard.
Characteristics of SSiPs

Water Supply Sub-sector

The SSiPs profiles are appended as annexes at the back of this report. Following are the summaries of the SSiPs characteristics.

Water kiosks and standpipes operators

The SSiPs categories are:

- Individual water kiosks and standpipes water vendors – these sell water obtained directly from the NWCPCC supply. The water kiosks and standpipes sell water in 20-litre jerricans.
- Community based water kiosks and standpipes - The Bamako Initiative is community managed. UNICEF initially backed this program by assisting the low-income and other communities in congested areas improve on sanitation conditions.
- Handcart water vendors – these buy water and sell it to consumers when water is not available at water kiosks/standpipes. During severe water shortages, handcart water vendors buy water from the few boreholes and wells which sell water.
- Private boreholes and wells - some individuals have own wells/boreholes. Some give free water to domestic consumers and others sell water for domestic consumers and private water vendors.

Table 2 shows the distribution of SSiPs in the delivery of water services and the contribution of each service type sector in the low-income areas.

Table 2: The Contribution of SSiPs in the Delivery of Water in the Low-income Areas:

<table>
<thead>
<tr>
<th>ZONE</th>
<th>Handcart %</th>
<th>Stand-pipe %</th>
<th>Water Kiosk %</th>
<th>Private borehole %</th>
<th>Private well %</th>
<th>Others* %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mombasa Island</td>
<td>10</td>
<td>30</td>
<td>22</td>
<td>30</td>
<td>8</td>
<td>Not reported</td>
</tr>
<tr>
<td>West Mainland</td>
<td>12</td>
<td>35</td>
<td>49</td>
<td>Not reported</td>
<td>Not reported</td>
<td>8</td>
</tr>
<tr>
<td>South Mainland</td>
<td>10</td>
<td>40</td>
<td>30</td>
<td>Not reported</td>
<td>20</td>
<td>Not reported</td>
</tr>
<tr>
<td>North Mainland</td>
<td>15</td>
<td>45</td>
<td>40</td>
<td>Not reported</td>
<td>Not reported</td>
<td>Not reported</td>
</tr>
</tbody>
</table>

Other* refer to sources such as: factories, industries, commercial centers, etc.

The bulk of water supplied in the low-income areas is from standpipe water points followed by water kiosks. But a significant portion is also supplied from boreholes, wells and other sources. Boreholes and wells contribute as much as up to 40 percent of the supply in Mombasa Island and 8 percent in West Mainland. The contributions of the sources vary from one division to another as shown in Table 3.

Table 3: The Percent Water Contribution by SSiPs-Type in the Low-income Areas.

<table>
<thead>
<tr>
<th>ZONE</th>
<th>Standpipe, percent</th>
<th>SERVICE</th>
<th>Water, percent</th>
<th>Kiosk, percent</th>
<th>Boreholes, percent</th>
<th>Wells, percent</th>
<th>Others*, percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mombasa Island</td>
<td>75</td>
<td>20</td>
<td>2</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>West Mainland</td>
<td>25</td>
<td>65</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>10</td>
<td>-</td>
</tr>
<tr>
<td>South Mainland</td>
<td>75</td>
<td>25</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>North Mainland</td>
<td>80</td>
<td>10</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Others* refers to sources other than those listed (includes also water from undefined sources such as ocean and stagnant water pools).

The water cost structure:

Table 4 is a summary of the cost of water at various outlets and in comparison with the NWCPCC tariff. Thus, the cost of water varies between 5 to 50 times the NWCPCC tariff.
### Table 4: Costs of Water at Various Outlets and in Comparison with the NWPCP tariff

<table>
<thead>
<tr>
<th>Outlet</th>
<th>Cost per 1000 litres</th>
<th>Cost at outlet</th>
</tr>
</thead>
<tbody>
<tr>
<td>NWPCP</td>
<td>US $ 0.16</td>
<td>NWPCP tariff</td>
</tr>
<tr>
<td>Borehole or Well</td>
<td>1 - 1.3</td>
<td>6 - 8</td>
</tr>
<tr>
<td>Water Kiosk/Standpipe</td>
<td>0.67 - 1.33</td>
<td>4 - 8</td>
</tr>
<tr>
<td>Handcart</td>
<td>3.33 - 6.67</td>
<td>21 - 42</td>
</tr>
</tbody>
</table>

- The NWPCP tariff for water for re-sale is US $ 0.16 per 1000 litres and the kiosk and standpipe retailer is authorized to sell at water kiosk for US cents 1.4 per 20 litres – which is five times higher than the NWPCP charges.
- Some water vendors do not comply with the NWPCP tariff structure. The actual water cost depends on its source whether community-based or privately owned water kiosk/standpipe. The cost from the handcart vendor depends on the distance traveled to get water and the severity of water shortage.
- Water costs between US cents 1.4 and US cents 2.8 at community based and privately owned water kiosks and standpipes and boreholes, for a 20-litre jerrican. The average water cost per 20-litre jerrican from a handcart vendor is between US $ 0.07 – 0.14. However, in the South Mainland where water shortages are most severe and distance traveled to fetch water could be as far as four kilometers away, water costs as much as US $ 0.4 per 20-litre jerrican.
- While those connected to the NWPCP mains receive limited supply of water during the rationing hours at the very low NWPCP tariff, the low-income communities pay water at the much higher tariffs charged by the handcart pushers and the water kiosks and standpipes operators all the time.

### Constraints

- The lack of water in the distribution system severely constrains the SSIPs operations. Kiosk water sales amount to between US $ 1.33 and US $ 1.5 on a typical day, which is a dismal business performance by any standards. Thus most water SSIPs consider water vending an unprofitable undertaking.
- There usually are long queues at water kiosks/standpipes due to reduced flow of water at the tap arising from the poor water pressure in the distribution system. Thus a lot of time is spent filling water containers. To avoid long queues some consumers can buy water at 3 to 4 times more than the usual price.
- The NWPCP does not allow the installation of booster pumps in the water distribution in order system to avoid complaints that water is unfairly directed to favored consumers.

### Handcart Operators

These are job seekers who failing to get suitable jobs, enter water vending simply because of the very low capital needed to start generating wage income. All that is needed is some one to introduce the handcart vendor to a handcart owner. The prospective handcart water vendor leaves the national identity card as a surety and collects the identity card in the evening after work and pays for the hire of the handcart. The handcart hire charge per day is between US $ 0.33 and US $ 0.40 and together with the water jerricans is US $ 0.67.

Most handcart water vendors engage in water vending for a short of time, on average between 1 and 2 years. This is because they get weakened by the heavy load (estimated to be 0.3 tones) that they cart for long distances every day. Most of them also can not afford adequate meal, and after a while they get weakened and fatigued and engage for other manual jobs.

### Operational Background of Handcart Water Vendors

- The business investment requirement is very low. All that is required is the initial US $ 0.27 to buy the first round of 14 water jerricans.
- The volume of business depends on the severity of water shortage.
- The handcart water vendors buy water in 20-litre jerricans from water kiosks and standpipes water vendors. The handcart water vendor then looks for customers.
- The cost of water depends on the severity of its shortage and the distance traveled by the vendor to fetch water. The vendors buy water at between 1.3 and 2.7 US cents per 20-litre and jerrican and sells it between 6.7 and 13.3 US cents. Sometimes water can be sold as high as 40 US cents per
20-litre jerrican if the shortage is very severe and distance traveled is far. This is usually common in the Likoni area where water shortages are most severe.

- When the water flow improves, the handcart water vendors virtually are rendered redundant, except in the low-income areas, where the demand for water is always sustained. During these periods of improved water flow, handcart water vendors look for alternative manual jobs awaiting the water situation to deteriorate and then go back to water vending.

*Handcart Operations (Balance Sheet)*

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hire of handcart and jerricans</td>
<td>US $0.67 per day</td>
</tr>
<tr>
<td>Cost of water @ US $0.02 (per 20-litre jerrican)</td>
<td>US $0.94 per day (average)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>US $1.51</td>
</tr>
<tr>
<td><strong>Total water sales per day</strong> (42 jerricans)</td>
<td>US $3.92</td>
</tr>
<tr>
<td>Loss cost of water and hire of handcart and jerricans</td>
<td>US $1.51</td>
</tr>
<tr>
<td><strong>Net returns per day</strong></td>
<td>US $2.41</td>
</tr>
</tbody>
</table>

*Constraints*

- The existence of the handcart water vendors is as a result of severe water shortages. Thus, the handcart water vendor’s operation is temporary and exists only when there is water shortage.
- Water handcart vending is usually a frustrating undertaking. It is tiring and pushing a handcart in the busy and congested streets is risky. Although the water vendor can earn a reasonable wage, as much as US $120 per month, which is about three times the local unskilled, labor wage, most water vendors find the job unsuitable.

*Sanitation Sub-sector*

There are five municipal council licensed SSIPs in the sanitation sub-sector. The Sanitation SSIPs operational backgrounds are:

- All the five SSIPs have other business ventures. Pit latrine/septic tank cleaning and emptying services are secondary jobs.
- All the five SSIPs complain of lack of enough business.
- Four of the five operators have no suitable equipment. They empty and clean the septic tanks/pit latrines manually. Only one operator has a conventional exhauster truck.
- Most of the operators have had no prior job training. They have limited professional backgrounds for job requirement.
- Only two of the five operators provide pit latrine construction.
- The service charge varies from one contractor to another. But the general charges vary between US $100 to US $267 to empty a pit latrine / septic tank, respectively.
- Most of the pit latrines in the low-income areas are abandoned after they fill up. The lack of accessibility and cost of emptying pit latrines compels landlords to abandon filled pit latrines.
- The service providers dump the septic tank/pit latrine sludge at the Kibarani solid waste dumpsite. Some contractors dump the sludge at unauthorized places such as the ocean and open places.
<table>
<thead>
<tr>
<th>Name of Provider</th>
<th>Kanja &amp; Fischer</th>
<th>Mbarak Pit Contractors</th>
<th>Nyaga Nthia</th>
<th>Bachani Septic Tank Cleaners</th>
<th>Peter Nyaga</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Typology</strong></td>
<td>Company</td>
<td>Company</td>
<td>Company</td>
<td>Company</td>
<td>Company</td>
</tr>
<tr>
<td><strong>Other activities</strong></td>
<td>Does other transport businesses</td>
<td>Owns a shop, has been in operation for 20 years.</td>
<td>Does other transport business, about 10 years.</td>
<td>Has hardware store has been in operation for about 5 years.</td>
<td>Owns a shop, has been there for less than five years.</td>
</tr>
<tr>
<td><strong>Area of operation</strong></td>
<td>Malindi, Ukunda, Kilifi and Mombasa</td>
<td>Anywhere within Mombasa</td>
<td>Anywhere within Mombasa</td>
<td>Anywhere within Mombasa</td>
<td>Anywhere within Mombasa</td>
</tr>
<tr>
<td><strong>Equipment (for this activity)</strong></td>
<td>Two exhausters and two trailers</td>
<td>Three lorries, tanker, drums and debes.</td>
<td>Two lorries and drums.</td>
<td>One lorry and one trailer</td>
<td>Lorry, drums, pumps and debes.</td>
</tr>
<tr>
<td><strong>Pit latrine service</strong></td>
<td>Mostly institutions and oil companies</td>
<td>Empties and constructs pit latrines</td>
<td>Emptying</td>
<td>Emptying</td>
<td>Emptying</td>
</tr>
<tr>
<td><strong>Septic tank service</strong></td>
<td>Mostly institutions oil companies</td>
<td>Emptying and cleaning service</td>
<td>Emptying</td>
<td>Emptying and cleaning</td>
<td>Emptying and cleaning</td>
</tr>
<tr>
<td><strong>Number of customers Served</strong></td>
<td>Three septic tanks per week</td>
<td>Two to three customers per week</td>
<td>Very few customers, plans to pull out</td>
<td>Three trips per week</td>
<td>Three cesspools per week</td>
</tr>
<tr>
<td><strong>Service charge</strong></td>
<td>US $ 6.7 – 9.3 per 1000 litres in institutions; US $ 100 plus US $ 9.1 per 1000 litres for others.</td>
<td>US $ 10.7 per drum; pit and septic, US $ 100 plus US $ 6.7 per 1000 litres</td>
<td>Not reported, but estimated to be within the range of others.</td>
<td>Charges between US $ 13.3 – 20 per tanker</td>
<td>US $ 266.7 larger septic tank, and US $ 133.3 smaller ones</td>
</tr>
</tbody>
</table>

**Constraints**
- The council by-laws are not facilitative to private sector service delivery
- The private sector operations and performance require regulation and control in order to curb the unethical operations by some private operators.
- The contractors lack the right equipment to do the job satisfactorily.
- The cleaning and emptying of pit latrines in congested low-income areas is cumbersome and in most cases not possible.
Enabling Factors, Constraints and Threats

The bottlenecks and constraints to the expansion in coverage and improvement in operating efficiency in the delivery of services by SSIPs can broadly be classified into two categories. The first category is the internal constraints of the SSIPs themselves. This includes factors relating to the business organization and management and the existing structure. The second category is the external bottlenecks affecting the SSIPs operations. This second category includes factors outside the control of SSIPs. The enabling factors (opportunities) include factors that facilitate or support SSIPs operations. There are also threats that are either short-term or long-term.

The Enabling Factors

Political will
The council has licensed the contractors after its inability to provide the service due to limited resources. The SSIPs require political goodwill in order to flourish. The council has already licensed private service providers in the sanitation and solid waste sub-sectors. Thus, the municipal council would be willing to have the policy and by-laws in place, which would facilitate private sector participation in the service delivery in the sub-sector.

Liberalization
Although most of the SSIPs complained of lack of work and low financial returns, the major obstacle to their operations, however, is lack of business organization and unclear council policy. The contractors are undergoing teething problems after which they will have the experience in what the job entails. Thus, there is already some level of capacity building to provide the service in this sector. The need for the contractors’ service is enormous. The majority of Mombasa’s population, as many as 90 percent, relies on onsite sanitation that requires cleaning and emptying from time to time.

Some SSIPs complained of unethical behavior by others. The contractors therefore know what it takes to do the job well. These contractors can now establish an association, or take part in drafting rules and regulations to implement measures aimed at controlling the unethical behavior from the association members.

Capacity building
The community is now familiar with the SSIPs and the benefits of their operations. Thus, there is a certain level of capacity building in the community with regard to their participation in the service delivery. Once the community is sensitized well enough, many will subscribe to the contractors’ services and thus the service providers’ service coverage will expand and be a source of employment as well as achieve overall improved sanitation in the community.

An infrastructure for private sector participation in the delivery of services is already in place. The community is already aware of the existence and type of services the SSIPs can provide and level of sophistication of services available, including the roles played by the various stakeholders.

In the case of the water sub-sector, water kiosks/standpipes are central to the distribution of water in Mombasa and in particular to the low-income communities. The water kiosks operations are simple and require moderate financial investment. The only major limitation in the water kiosk operations as a business undertaking is lack of adequate water and the low NWCPCLC tariff.

Socio-economic
The low-income communities pay water at prices much higher than the other communities. If water tariffs were raised to levels of prices in the low-income areas, this would result in between three and fivefold increases in revenue generated by the NWCPCLC. The improved financial base could be utilized for improvement of water supply in the district.

The Bamako Initiative community-based water kiosks are major sources of water in the low-income areas. These have water storage tanks and the cost of water at the community kiosk is lower than at other individually run kiosks. The Bamako Initiative is central to urban community organization and mobilization and can be used to access the low-income communities, and improve the sanitation services as well as other service delivery
including solid waste. The Bamako Initiative could work out an arrangement between the SSIPs and the low-income communities on how the latter can access the services of the former.

**Constraints**

**Internal weakness**

**In-supportive structure**
The SSIPs are competitors and appear suspicious of one another. This makes it difficult to assemble them together as service providers and address some of the common issues affecting them. This includes issues like unethical working of some of the SSIPs such as dumping of sludge in the ocean and at open grounds. The existing council by-laws are not facilitative to the SSIPs operations.

**Advertisement**
Only one of the five sanitation contractors has brochures, which advertise the services. The other four service providers rely on informal contacts to solicit for business. Thus the SSIPs existence and type of service they provide are unknown.

**Lack of business management and structure**
The majority of the sanitation SSIPs does not have suitable business offices. The SSIPs have in addition other business undertakings as most of them run grocery shops. Thus the SSIPs do not give full attention to their operations. Most of the sanitation SSIPs is family outfits and lack formal business set-ups. It is not possible to know which aspect of the SSIPs operation is not profitable.

**Lack of record keeping and access to records**
Most sanitation SSIPs does not keep records of their operations. Only one of the five contractors has an employee responsible for record keeping. The SSIPs were unwilling to discuss their operations and maintenance records.

**Lack of training**
The SSIPs do not have job training in their areas of operation. The employees as well are not trained. Thus, the SSIPs performance is unsatisfactory and leads to complaints by the clients.

**Operating equipment**
Only one of the 5 registered sanitation SSIPs had suitable equipment (exhauster truck) for emptying septic tank/pit latrines. The other operators had the typical open lorry/lorry and use drums and pumps, which are inadequate and unsuitable for carrying out the operations in particular sludge removal. Because of lack of appropriate equipment, the operators work during the night to avoid creating a nuisance to the public by transporting human waste in open drums and trucks. This leads to poor service delivery and complaints from the clients and general public.

In the low-income areas, accessibility is poor and the pit latrines require special types of equipment. None of the SSIPs had equipment suitable for pit latrines emptying.

**External bottlenecks**

**Poor infrastructure**
The SSIPs provide services everywhere within the Municipal Council. However, in the informal settlements where the bulk of population live and where SSIPs services are most needed, the infrastructure is poor. The informal settlements are considered by the local authorities and central government to be illegal and hence they are not provided with services such as schools, roads, water supply, etc.

**Poverty level**
The majority of those who live in low-income areas are the very low-income earners and most are unemployed and thus cannot afford the services provided by the SSIPs. The community/landlord in the low-income areas may therefore require financial assistance in order to benefit from the services of the SSIPs.

**Illiteracy level**
The education level in the low-income areas is low such that the community is ignorant of benefits accrued in improved sanitation. The low education level is a contributory factor to the low-income earnings.
Administration
There is lack of law enforcement in Mombasa to ensure that pit latrines/septic tanks are emptied once they are full and that solid waste is collected and safely disposed of. This constrains the SSIPs operations, who subsequently do not have much work to do and thus cannot commit high financial investment to their operations for fear of poor returns.

Policy
Although the Municipal Council has in principle allowed SSIPs to operate, the environment is still not private-sector friendly. The by-laws in force are still the same ones that existed before the SSIPs were allowed to operate. These by-laws still require the Municipal Council to provide services now being done by the SSIPs.

There is lack of controlled human settlement within Mombasa, in particular in the low-income areas. The Municipal Council should designate areas for human settlements, with provision for control of groundwater pollution from human waste, including provision of other services, including solid waste collection and disposal.

There lacks groundwater sector policy regarding groundwater preservation, pollution control and exploitation. The municipal and other relevant authorities should develop and enforce rules and policy regarding the use of groundwater, in particular the prevention of pollution from the pit latrines/septic tank.

The NWCP is the monopolistic water undertaker in Mombasa. To accelerate development of water resources and boost water supply in the town in order to meet the increasing water demand, the authorities concerned should come up with a policy framework that facilitates private sector participation. In addition, the very low NWCP water tariff needs review to be consistent with a liberalized environment.

Economic
The SSIPs have poor financial base and they have no access to credit. Arrangements should be made where the SSIPs can access credit and borrow funds to finance their operations.

Threats

Legal
The existing legal structure relating to the provision of services needs to be looked into, with a view to repealing it. In particular, the by-laws need amendment to reflect the changing times and circumstances and to accommodate the private sector participation in the delivery of services, as well as the control of pollution to the groundwater source. The following acts and by-laws require attention:

- The Water Act Cap. 372 (1972) which is currently being revised, notably the aspects dealing with the water supply, pollution prevention and control.
- The Public Health Act sections dealing with provision of toilets within the local authority including maintenance.
- Mombasa Municipality (drainage) by-laws Cap. 136 relating to the septic tank construction and cleaning.
- The local government Act 265 and the Municipal By-laws Sections dealing with service delivery being undertaken by the SSIPs needs reviewing.

Land Policy and Ownership
The demarcation of land in Mombasa and ownership needs to be sorted out so that a clear planning policy pattern can be put in place and the same is enforced. In particular, land that is earmarked for commercial and industrial services should be clearly defined and that devoted for human settlement should be gazetted.

The informal settlements should not be allowed to mushroom anywhere within the municipality but only where there are adequate basic services. The proposed land policy should take into account the existing informal settlements, with a view to giving them some form of recognition so that they can be considered by the local government and other authorities in the allocation of funds for the provision of basic services.
The Way Forward

Areas of Intervention
To facilitate the SSiPs operations and increase on coverage and improve on their sustainability the following are identified as intervention areas:

- Competitive policies conducive to SSiPs thriving by removing barriers that hinder their growth and reduce profitability should be put in place. The Mombasa Municipal Council should stop delivering services that the SSiPs are performing, and stop forthwith levying service charge to those who have contractual arrangements with SSiPs, as is the case now.
- Repealing the existing by-laws to accommodate the SSiPs entry into service delivery, which hitherto was performed by public bodies financed through subsidies from local and central government.
- The water Act needs to be repealed to accommodate the entry of private sector in exploration and development of water sources.
- Repeal of the Public Health Act, the Municipal By-laws and the Local Government Act to require that where SSiPs services are available, communities are mandated to enter into contractual arrangement with the SSiPs for the delivery of services and that communities should pay for the services directly.
- The Municipal Council should build a regulatory capacity to control and manage SSiPs operations by ensuring that the services performed are to set down standards and are not exploitative. The local authorities should exhibit accountability and transparency in the registration and licensing of SSiPs.
- The Municipal Council should provide supporting infrastructure, for example dumping sites and construction of wastewater treatment plants. Sludge from pit and septic tanks could suitably be treated at wastewater treatment plants.

Issues for Scaling-up of SSiPs
The issues for scaling up, especially the sanitation SSiPs include:

- Funding of SSiPs is necessary. There is need to explore possible existing financing sources and conditions and relay such information to the SSiPs.
- The need to strengthen the management skills and capacity building of the SSiPs and to disseminate information on available training facilities.
- There is need for encouragement of SSiPs to form an association and or lobby group. This could be an ideal forum to address some of the issues hindering their operations.
- There is need for conducting marketing and outreach programs including hygiene awareness for the low-income communities and other areas in order to increase marketing and coverage of SSiPs services.

Recommendations
As a follow-up to this study, the following are the recommendations:

- There is need to disseminate the findings of the studies to the various stakeholders: the SSiPs, the local authorities, the donor community and others. This could be done through workshops.
- It is necessary to strengthen the management skills and capacity building of the SSiPs and to inform them of available training facilities.
- The Municipal Council should introduce the SSiPs to the community through the elected representatives of the community.
Annexes: SSiPs Profiles

PROFILE A: Water kiosk/standpipe operators

Service Provider: Bamako Initiative Community based water operators and individual kiosks/standpipe operators

Typology: Permanent partners with the NWCPC, whose water they distribute

Funding: Funded by the private individuals and the Bamako Initiative community based organization. They purchase pipes and the NWCPC install meters and lay the pipes after vendors buy them. NWCPC officials read the meters and send the bills.

Technical Assistance: NWCPC, private plumbers

Key Features: Services - water kiosks/standpipes are the reliable source of water for drinking during most of the times. There are a total of 1330 licensed kiosks/standpipes in the four divisions of Municipal Council of Mombasa. The water kiosks/standpipes get water from the NWCPC supply. The kiosks are found mainly in residential estates, and in the low-income areas. Most kiosks are operated as family businesses. In the low-income areas, water kiosks/standpipes are community-managed through the Bamako Initiative. Many kiosks and standpipes have multiple taps because it takes as long as five minutes to fill 20-litre jerricans due to the lower pressure in the distribution network. Water is sold in the mornings for 1-2 hours, after which there is no water to sell. For example, in Bangladesh an informal settlement in West Mainland with two water storage tanks of 600 gallons each, they sell only 30, 20-liters jerricans on a typical day. Consumers have to leave jerricans overnight and the attendant fetch them before dawn, when there is water in the NWCPC mains.

The average distance traveled to fetch water varies from day-to-day. During severe shortages the distance could be as far as 4 kilometers and at normal days could be somewhere from 40 meters to one kilometer. A family consumes on average about 4, 20-litre jerricans per day. The household has to store water. Some store as many as 13 jerricans at any one time. The demand for water far outstrips the available supply.

The volume of water sold per day in a kiosk/standpipe varies from day-to-day and from season-to-season. The volumes sold in the zones vary according to the bulk supplies rationed by the NWCPC to each zone. The survey of the kiosk/standpipe owners is of water sold per day from jerricans is as follows: South Coast, 20 to 100, jerricans with an average of 38 jerricans, West Mainland between 20 to 280 jerricans with an average of 73 jerricans. The North Mainland kiosks sell between 20 and 200 jerricans with an average of 52 jerricans and the island, between 15 - 80 jerricans and daily average of 24 jerricans.

Market Site: Water kiosks/standpipe main service users are households, shops, restaurants (kiosks) and butchers. The quantities sold vary considerably depending on availability in the NWCPC distribution network. A typical kiosk volume sale is about 1000 litres per day. In the low-income areas, kiosks/standpipe are the sole sources of water. There is higher demand for water than the supply.

Technologies: The water kiosks/standpipes water pipes and other accessories comply with the NWCPC's specifications. Most of the water kiosks have no water storage facilities. The Bamako Initiative water kiosks have storage facilities (plastic tanks). Some standpipe owners have dug pits underground where they place jerricans so that they can fill when the pressure in the mains is extremely low.

The water kiosks are constructed using materials used in the construction of the houses and other structures within an area. But they are typically constructed of iron and tin sheet roofing, timber and cemented on the floor. Others are just simple supersstructures. The Bamako Initiative water kiosks are semi-permanent buildings and the buildings are also used for other community services such as tailoring.

Cost and Financing: Capital investments for water kiosks/standpipe vary. Typical water kiosks costs are US $ 100 deposit to the NWCPC, fittings and pipes cost varies but typical estimate is US $ 167. A simple water kiosk superstructure - US $ 133 and a 400-litre storage tank - US $ 67. Thus capital investment varies somewhere between US $ 400 and US $ 467 without and with one 400-liters storage tank, respectively.
Water costs between 1.3 and 3.3 US cents at the kiosks but the recommended NWCP price is 1.7 US cents for 20-litres. The NWCP charge kiosk owners US $0.17 per 100 litres of water.

**Key Constraints:** The 330 licensed water kiosks are few for the Mombasa population. The relatively few kiosks are attributable to the non-availability of water in the mains. The daily turnover from water sale at a water kiosk is between US $1.67 and US $2.5. Most kiosk operators consider water kiosk business an unprofitable business venture.

**Market characteristics:** With Mombasa population increasing at 3% per annum, the demand for water will continue to grow and without matched growth in water supply, which is expected, the situation will worsen. Water kiosks will thus continue to play a crucial role as the only major source of drinking water within the Municipal Council of Mombasa and is the only source of potable water in the low-income communities.

**Sustainability:** Most of the water kiosks sell less than 100 jerricans of water per day. The total revenue accrued in water kiosks vending is thus conservatively in the tune of US $1.67 and US $2.5 per day. After the payment of water bill, which is about US $0.17 per 1000 litres of water (0.33 US cents per 20-litre jerrican) the kiosk net return is between 80 and 90 percent of the water sales at the recommended NWCP controlled price and at US cents 0.33, respectively.

Although water kiosk operation appear not very profitable in terms of the total volume of business and revenue generated, the service is likely to continue uninterrupted. It is the only source of water for most of the times during the day and the only source of water to the community in the low-income areas. The US $50 is typical of the monthly wage earned in Mombasa.
PROFILE B: Handcart Water Vendors

**Service Provider:** These are individual operators who purchase water in 20-litre jerricans from private kiosks/standpipe Operators and other private boreholes/wells sources, and distribute it to consumers using handcarts.

**Typology:** Quasi-permanent partners with the water kiosk / standpipe water vendors and other water sources.

**Funding:** Funded privately. Usually rents the handcart and the water jerricans. A few have their own handcarts.

**Technical Assistance:** Handcart owners / entrepreneurs

**Key Features:**
Services: The handcart water vendors (mkokoleni) buy water from water kiosks/standpipes and other sources and sells it to consumers. The handcart water vendors many of them are job seekers and they get attracted to water vending because of the low capital investment required in the business. The handcart water vendors are self-employed and about 90 percent of them hire the handcart and the jerricans. The length of their vending period varied from one zone to another.

The handcart water vendors are men. The vendors distribute water within a given area. The handcart is fitted with a tyre-bell, which announces the passing-by of a water vendor. A typical handcart carries 14-water jerricans of 20-litres each (280 litres per trip). Travel distances vary between 100 meters to as long as four kilometers. Handcart water vendors sell an average of three handcart loads per day (42 water jerricans).

**Brief summary of the handcart operators in the various zones:**

**Mombasa Island:** The length of business varied between less than one year to four years, three years being the median period and the number of trips made average between 1 – 3, and two trips per day being the average. When water supply improves, the average trips reduce to an average of one per day. Many handcart pushers have no regular customers. Three of the eight vendors interviewed had two, four, and five regular customers each, who were mainly food kiosks and households.

**West Mainland:** Seven vendors were interviewed. The lengths of their vending period varied between 7 months to 3 years; while their median length of operation was two years. The vending was a full-time job and all were independent operators. Only one of the seven operators interviewed had regular customers (three) and the customers were mainly household residents and food kiosk operators. The average trips made by the handcart operators varied between 1 – 3 trips per day, and the average trips per day were two trips.

**North Mainland:** Nine vendors were interviewed. Their period of operation varied between 2 – 4 years, with a median period of 3 years. For all of them, the job was full-time, were independent carriers, and all hired the handcarts. They made between 1 – 4 trips per day, 2 – 3 trips being the average number of trips of 10-jerricans each. Customers were mainly residents, hotels, kiosks, butchery, etc. Most had no regular customers and sell water to whoever wants it. One vendor had 10 regular customers.

**South Mainland:** Ten vendors were interviewed. The period of their operations varied between 1 – 4 years and three years were the median period of being in operation. All the vendors were independent water carriers and the job was full-time. They all hired the handcarts. They made between 1 – 4 trips per day and the average trips per day were 2 – 3 of 15-jerricans each. Some water vendors bought water as far as 4 kilometers away.

**Market Size:** The handcart pushers sell an average of 30 – 40, 20-litres water jerricans per day. The availability of water in the kiosks determines how much water a vendor can sell per day and how much the consumer pays for it. On average a vendor sells about 600 litres per day of water, and serves 5 – 6 families. Some families also collect water from kiosks/standpipe and boreholes. The length of the queues however discourages the family members to get water directly from the kiosks/standpipes and instead buy it from handcart water vendors. There is also the convenience of having the water brought right to the consumer’s doorstep.

**Technologies:** Handcart is the mode of transport. The handcart assemblage includes two wheeled tyres mounted on a wheel-axle, and a timber fabricated carriage body. The water containers are mainly 20-litre plastic containers, although there are a few tin ones, these corrode easily and are being phased out.
Costs and Financing: The capital investment of a handcart water vendor is very low. Most of them hire the handcart and containers. The handcart hire charge is between 0.33 and 0.42 US $ per day. The handcart and containers are hired at US $ 80 per day. To start the water vending business, a handcart pusher needs between 0.23 and 0.35 US $ to buy the initial load of water as the handcart hire charge is paid after the day’s work. Most handcart pushers would not want to spend the relatively high initial purchase cost of a handcart (US $ 83.3), which is not a mean cost for someone jobless. The total cost of 14, 20-litre jerricans is about US $ 23.3. Thus, handcart pusher total investment in water vending is approximately US $ 107, if one wanted to have own handcart and water jerricans. Subsequent handcart maintenance costs average around US $ 33.3 per year. The summary of costs and returns of handcart water vendors in the four divisions are:

Island: Water costs 33 US cents at the kiosks/stand pipe on average and is sold between 0.12 and 0.17 US $ on normal days, 0.12 US $ being the normal cost, for a 20-liter jerrican, but if the kiosk is a bit far, water costs around 0.17 US $. During severe water shortage, a jerrican is sold for US $ 0.33. On average, therefore, the total sales for handcart water vendor amounts to US $ 3.3 per day. After allowing for hire of handcart and containers and purchase of water, the net income (on an average day) is between US $ 1.5 to US $ 8.2, on severe water shortage days, respectively.

West Mainland: Water costs between 2.5 and 33 US cents and Kshs.2 and the handcart vendors sells water between 12 and 17 US cents. On an average day, handcart pushers average two trips. Thus, the handcart vendor’s turnover is the same as those who operate in the Island.

North Mainland: Water costs between 25 and 33 US cents at the water kiosks/standpipe and is sold at an average at 17 US cents. During severe shortages, however, water is collected from boreholes where the cost is 3.3 US cents, and is sold to consumers for as high as 33 US cents. The handcart vendor net returns are the same as those of other vendors in the island and West Mainland.

South Mainland: Water costs between 2.5 and 3.3 US cents and is sold at around 25 US cents per jerrican (one bought at 2.5 US cents) and 17 US cents. During severe shortages, water is sold between 42 and 50 US cents. Average returns for the South Mainland handcart vendor is between US $ 5.83 on a typical day and up to US $ 8.33 during severe shortages.

Constraints: More water vendors could venture into the water selling business but due to an unavailability of water, the number is limited. Although Mombasa terrain is fairly flat, pushing the handcarts in the extreme hot weather of the city is a frustrating experience. Vendors also indicated that it is difficult to sell water to consumers if they did not know the vendor well, as some consumers get concerned that vendor could sell water whose quality is uncertain.

Market Characteristics: The demand for water vending service will continue because water shortages are expected to persist; and handcart pushers are the only source of water in Mombasa when the NWPCC mains dry up, especially during the dry season. In the low-income areas where about 27 percent of the Mombasa population live, handcart water vendors are the only reliable source of water.

Sustainability: The economic analysis shows that water vending (handcart) earn between US $ 1.5 and US $ 8.33 per day. The US $ 1.5 (lowest rate of return) is the average wage earned by casual workers in the Mombasa's industrial area and at the factories. On the other hand earnings by handcart pushers could be high, as high as about three times the average wage for the laborers in the town. The cost of water, however, is the same to the handcart vendors or the consumer (although some kiosks charge handcart vendors 0.83 US cents less than the consumers do). Therefore the extra charge charged by the handcart water vendors appears to be their labor charge.

Some handcart water vendors from up country are not keen to invest in the water vending business for fear of clashes as happened in 1997 in the Likoni area. A few expressed fear of possible eruption of clashes and thus they live on day-to-day basis ready to leave at anytime. One handcart vendor sold his handcart for US $ 83.3 and is now hiring out the same one for selling water. He expressed satisfaction on the job and was happy that he could easily earn US $ 150 per month on the job and he reckons that the job is reliable.
PROFILE C: Septic Tank /Pit Latrines: Kanja and Fischer Company

Service Provider: This is one of the five companies licensed by the Municipal Council of Mombasa (MCM) to provide septic tank/pit latrine emptying services which hitherto were being provided by the Cleansing Section of the MCM.

Typology: This is a private company operated by the owner.

Funding: Funded privately by the owner.

Technical Assistance: Receives no technical support.

Key Features: Services: The company provides exhauster services anywhere within the Municipality. They provide exhauster service also in Malindi, Ukunda and Kilifi areas. They have a workforce of 11 people. Schools and oil companies are their regular customers. They estimated that they empty about three septic tanks a week. The company also undertakes supply of clean water, provide general transport, general excavation and contracting equipment. They were also interested in entering into solid waste collection business.

Market size: The demand for exhauster service is there, 74 percent of the population relies on pit latrines and 16 percent on septic tanks. Thus in total 90 percent of the population would need exhauster service. The company however reported that for four days preceding the survey, they had not had a single customer.

Technology and Equipment: The company has two exhausters --- one 9000 litres and the other 8000 litres, which operates in Malindi town; 2 trailers, each of 4000 litres capacity. The company has good vehicle maintenance records. Most of the company’s equipment are 5 years old, but the company plans to buy another lorry. The total value of the equipment is estimated to be US $ 167,000.

Cost and Financing: The company service charge is as follows: Big hotels between US $ 8.3 and US $ 11.7 per 1000 litres per; Others: US $ 125 for a load between 0 – 4000 litres, and each additional 1000 litres US $ 11.3. The US $125 is standing charge - covers costs if it turns out that the services needed are unblocking only.

Key innovation: The company’s exhauster trucks are made from Germany. The company has a brochure which describes the type of service they perform and they guarantee professionalism and customer satisfaction. The company conducts door-to-door business marketing.

Key Constraints: The company complained that the business activity in Mombasa is slack. The company has capacity to empty more septic tanks than they currently are doing.

Sustainability: The Company appeared would continue delivering the service. Although they did not give details of financial statement the business is expected will pick up. The information provided during the survey was not adequate to carry out the business’s financial position of the company operations. But it appears that at the present level of operations the running costs consume most of the earnings. However, the company was eager to continue providing the service and injecting new investments in the business.

Key Dates: The company was officially registered in 1997 by the MCM, prior to that date the company was still in existence.

Names: Kanja and Fischer Company Limited
Address: P.O. Box 82943, Mombasa
Telephone: 226586
PROFILE D: Septic Tank/Pit Latrines: Mbarak Pit Contractors

Service Provider: This is one of the five companies licensed by the MCM to provide septic tank/pit latrine emptying services which hitherto were being provided by the Cleansing Section of the MCM. The operator provides pit latrine construction as well.

Typology: This is a private company operated by the owner.

Funding: Funded privately by the owner.

Technical Assistance: Receives no technical assistance.

Key Features: Service: The family owns a sports shop, besides the pit latrine/septic tank emptying job. Initially, septic tank/pit latrines emptying was the only job, but due to unethical operations by other contractors, its no longer the main job. The company operates anywhere within the Mombasa Municipal Council, including the digging of pit latrines where he hires casual workers. Some private operators charge very low fees and pump out only the liquid leaving sludge. This leads to complaints from the customers whose pit/septic tanks fill very fast after emptying.

Market Size: The demand for service is high. Up to 90 percent of the population relies on septic tanks/pit latrines to dispose of human waste. As the population increases, the demand for service will continue to grow.

Technology and Equipment: The company has three lorries, one tanker, 200 litre drums and 6 pumps. The company has no special tools for pit latrine emptying and for digging.

Cost and Financing: The company financed its initial investment cost from own sources/savings. Drums are cleaned every two months and these costs about US $13.3 per drum. The lorries require replacement of body every year because of rust and major repair work every six months. The service charge is US $125 (minimum charge) plus US $8.3 per m³ emptied. The company pays workers wages between US $5 and US $6.7 per day. The running costs vary, but were unwilling to discuss its details. The company plans to purchase an exhauster.

Key Innovations: The company has no key innovations in its business operation.

Key Constraints:
- The septic tanks sludge is very corrosive and this increases substantially the running costs of the equipment due to their frequent replacement.
- Lack of ethics by other contractors makes the work difficult. Some contractors pump only liquid leaving sludge and at very low charges.

Sustainability: Although the contractor was unwilling to disclose the actual earning and the running costs, it appeared that he is willing to continue operating and plans to buy a new exhauster. The company had few regular clients; but it had no marketing department. Customers called on him.

Key Dates: The company was officially registered in 1997 by the MCM, prior to that date the company was still in existence. The owners mentioned that they had been in operation for almost 20 years in pit construction and cleaning.

Name: Mbarak Pit Contractors
Address: P.O. Box 83303, Mombasa
Telephone: 494454 or 49121
PROFILE E: Septic Tank/Pit Latrines: Nyaga Nthia Contractors

Service Provider: This is one of the five companies licensed by the MCM to provide septic tank/pit latrine emptying services which hitherto were being provided by the Cleansing Section of the MCM. The operator provides pit latrine construction as well.

Typology: This is a private company operated by the owner.

Funding: Funded privately by the owner.

Technical Assistance: The operator receives no technical support other than his own.

Key Features: Service: The company provides service anywhere within the Municipality. The company is a family business, which is managed by the owner. The company however appeared set to pull out of the operation.

Market Size: The company complained that there is no business. The person interviewed appeared not interested even in the interview.

Equipment and Technology: The company owns two lorries.

Cost and Financing: The company pays US $16.7 per day; and employs eight people to empty septic tank. Thus labor charges per septic tank is about US $67.

• Vehicles running cost the company estimates to be US $ 200 per two days. This however is much overstated and thus is likely to be not the case.
• The company charges a minimum of US $ 167 to empty a septic tank.

Sustainability: The owner plans to sell one lorry then fixes the other one and start transporting sugar, tea, etc. The owner informed that the operations are unsustainable at the present level of business activity.

Key Dates: The company was officially registered in 1997 by the MCM, prior to that date the company may not have existed. The Company’s license to operate expires of November 30, 2000.

Name: Nyaga Nthia
Address: P.O. Box 99353, Mombasa
Telephone: 492411
PROFILE F: Septic Tank/Pit Latrines: Bachani Septic Tank Cleaners

Service Provider: This is one of the five companies licensed by the MCM to provide septic tank/pit latrine emptying services which hitherto were being provided by the Cleansing Section of the MCM.

Typology: This is a private company operated by the owner.

Funding: Funded privately by the owner.

Technical Assistance: The operator receives no technical support other than his own.

Key Features: Service: The company operates anywhere within the Mombasa Municipality. The business is owner managed. The owner and the staff had no job training.

Market Size: For the last two years the business has been very low.

Technology and Equipment: The company owns one lorry (5 tones) and one tank and also hires a lorry if its own breaks down.

Cost and Financing: The owner of the company obtained a loan from a friend to start the business (could not disclose how much). The company charges US $ 11.7 per m³. Running costs are between US $ 15.6 and US $ 25 per trip and they make on average three trips per day (running costs thus are US $ 50 and US $ 75 per day). The company employs casual labor and it has no permanent staff.

Key Innovations: The company solicits for customers by walking around checking the filled septic tanks. Some customers also call the company.

Sustainability: Although it was difficult to assess the economic viability of the contractor's operations, he appeared would continue in the business.

Key Dates: The company was officially registered in 1997 by the MCM, prior to that date the company was still in operation for about five years. The Company's license to operate expires of November 30, 2000.

Name: Bachani Septic Tank Cleaners
Address: P.O. Box 85357, Mombasa
PROFILE G: Septic Tank / Pit Latrines: Peter Nyaga

Service Provider: This is one of the five companies licensed by the MCM to provide septic tank/ pit latrine emptying services which hitherto were being provided by the Cleansing Section of the MCM.

Typology: This is a private company operated by the owner.

Funding: Funded privately by the owner.

Technical Assistance: The operator receives no technical support other than his own.

Key Features: Service: The company provides services anywhere within the Municipality. The company is owner-managed and operations a shop as well. The main clients are residential premises, hotels, schools and bars.

Market Size: The demand for service is there although the contractor complained of poor business within the last year.

Equipment and Technology: The company owns a lorry, pumps, and drums and debees

Cost and Financing:
- The company financed initial business investment from own sources
- The service charges are: US $ 333 for large septic tank (18 meters) and US $ 167 for a small one (9 meters)
- They empty an average of three cesspools per week
- He hopes to inject new investments in his business

Key Innovations: The company has no key innovations, but gives business cards for future contacts. The company employees walk around soliciting for business.

Sustainability: Although it was difficult to carry out an economic analysis of the business operations as the owner was unwilling to disclose his running costs and cash returns, it is estimated that the company makes between US $ 750 and US $ 1000 per week. The contractors running cost would be estimated to be 75 percent of the revenue accrued from the business. The company had ten (10) regular customers, and appeared interested in continuing in the business operation.

Key Dates: The company was officially registered in 1997 by the MCM, prior to that date the company was still in existence for a couple of years. The Company’s license to operate expires of November 30, 2000.

Name:Peter Nyaga
Address: P.O. Box 97165, Mombasa
Telephone: 490356