



Livelihoods & Gender...

Sanitation, Hygiene and Water Services

in Sanitation, Hygiene and Water Services among the Urban Poor





Introduction

Majorities of people in developing countries have limited or no access to safe drinking water and sanitation facilities. Approximately 35% of the total population of Kenya live in urban centres where basic service delivery is highly constrained. The situation is compounded by the high growth rate of the informal settlements within the urban centres. Since these settlements are unplanned, no systems have been put in place to support the growing population. According to assessments carried out by the Ministries of Health and Water, the national sanitation coverage was 49% in 1983. Analyses conducted by the United Nations Children's Education Fund (UNICEF) put sanitation coverage in Kenya at 45% in 1990 and 46% in 1996.

Over half the population lives without access to safe domestic water supplies, and many lack adequate sanitation. As a result, many people, particularly children, suffer from water-borne diseases such as diarrhoea. More than 50% of all preventable illnesses in Kenya are related to inadequacy of water supply, poor sanitation and poor hygiene. Lack of access to safe water reinforces poverty. Sick children do not go to school and perform poorly in their studies. Parents lose the opportunity to earn income and contribute to society while looking after sick children. Over the past two years, the water sector in Kenya has undergone a myriad of changes linked to the implementation of the Water Act 2002. One of these changes was the creation of new regulatory bodies, which allow for consumer - rights protection, efficient service delivery, financial sustainability and pro-poor policies to protect low-income consumers.

Water Sector Reforms

Water has undergone major changes since implementation of Water Act 2002 by the government.

- **National level:** The Ministry of Water established a Water Sector Reform Committee (WSRC) and a Water Sector Reform Secretariat (WSRS) to steer the reforms.
- **Institutional Level:** Water Appeal Board and Water Services Trust Fund that works with Water Resources Management Authority and Water Services Regulatory Board in policy formulation and regulation.
- **Regional level:** Water Services Boards work closely with Catchment Areas Advisory Committees to regulate water usage and utilization.
- **Local level:** Water Resources Users

Associations and Providers (WRUAs & WVSPs), which include companies and community groups formed to supply water to consumers.

Environmental Sanitation and Hygiene

Sanitation has for long lagged behind water. This is because sanitation does not have a clear institutional home. The government is keen to create an enabling environment to motivate all Kenyans to improve their hygiene and sanitation facilities by providing the necessary support. Many policies emphasize the health impacts of improving access to sanitation and hygiene services. Some of the laws addressing sanitation issues are:

- Public Health Act (Cap 242) provides legal framework governing environmental sanitation.
- The Water Act which covers waste water.
- Food, Drugs and Chemical Substances Act (Cap 254, food hygiene).
- The Mosquito Control Act which deals with mosquito breeding.
- The Local Government Act (Cap 265) (F.O. Donde, 1997).

At national level, an Environmental Sanitation And Hygiene Working Group (ESHWG) was set up in the year 2000. The group comprised of the Ministry of Health (MoH); Ministry of Local Government (MoLG); Ministry of Environment and Natural Resources (MoENR); Ministry of Roads, Public Works and Housing (MoPWH); Ministry of Finance and National Planning (MoFP); Ministry of Education and Human Resources (MoEHR) and Attorney Generals Chambers (AGC) (MoH 2000).

Gender Assessment in the Policy Framework

The policy framework has made effort to mainstream gender. The most observable gender divide, especially in the developing countries, is on sanitation and hygiene. Women and children suffer most through poor sanitation and hygiene. Although are regarded as the traditional bearers of health, sanitation and hygiene, very often their concerns are not addressed.

Coupled with lack of adequate sanitation facilities and societal pressures (e.g. lack of privacy) these burdens have subjected women and children to poor health and many indignities. In the urban areas of many developing countries women and girls are subjected to innumerable security risks and other dangers when they use shared toilets. The Poverty Reduction Strategy Paper (PRSP) highlighted the role of women in provision, management and safeguarding of water, sanitation



Top: Members of the community line up for water

Middle: These ladies fetch water from a broken pipe

Above: Tapped water: this is not common in the low income settlements

Did you know?

- In Kenya, about 35% (11.5 million) of the total population currently live in urban centres highly constraining basic services delivery
- Reports from hospitals in Kenya show that over 50% of all preventable illnesses in Kenya are water, sanitation and hygiene related
- It costs between Kshs 1000 – 1500 per foot to dig down into the bedrock level and Kshs 200 at the surface soil level. Ventilated Improved Pit latrines (VIP) toilets are very uncommon since it costs approximately Kshs 50,000 to put them
- 77.2% of Kenya's sanitary facilities are pit or bucket latrines
- Women suffer the brunt of lack of access to water and sanitation because of their responsibilities for caring for their families while facing insecurity and gender – insensitive facilities.

and hygiene, and pointed out the need for special efforts to facilitate women's effective participation in decision-making in issues of water; thus identifying the importance of gender equity in this regard (PRSP, 2001-2004).

The Survey

The research on gender and livelihoods issues in sanitation and hygiene was an initiative of the University of Southampton. It was funded by the Department for International Development (DFID) KaR programme. It is also part of a parallel research project looking at the links between water supply and livelihoods. The project was led by the Overseas Development Institute (ODI), and funded by DFID- KaR. The local partner was Intermediate Technology Development Group – Practical Action (ITDG – Practical Action). The survey focused on the informal settlements in Nairobi where more than 60% of the city's population reside. The aim of this research was to achieve strategic improvements in sanitation amongst the urban poor through promotion of more effective gender-sensitive institutional policies and project practices.

The research mainly investigated the gender impacts of poor water, sanitation and hygiene services. Gender differences arise from the different responsibilities men and women have in carrying out domestic tasks and caring for their families. Critical questions to be addressed were:

- The Meaning of "appropriate sanitation" for poor women and men in urban areas.
- Gender and wealth factors in determining access to water, sanitation and hygiene services.
- How current sanitation delivery and water supply systems meet the needs of poor women and men in urban areas.
- The linkages between sanitation, water supply and livelihoods.

The Survey Areas

In the slums, population is usually heterogeneous with people from various ethnic and religious groups. About a quarter of households are headed by women as single parents. Most residents are casual workers with unreliable sources of income. The survey focused on three of these settlements:

(a) Maili Saba

Maili Saba is an informal settlement of about 3.9 square kilometres (km). It is situated about 15 km east of Nairobi city centre, bordering Dandora area

in Embakasi division. It consists of three villages namely: Maili Saba, Mwingenye and Shilanga. A survey conducted in the late 1990's indicated the area is among the poorest of Kenya's slums with an average income of Kenya shillings 700 - 1,000 per month. By 2004, the settlement had a population density of 2,531 persons per square kilometre (ITDG, 2004).

(b) Kiambiu

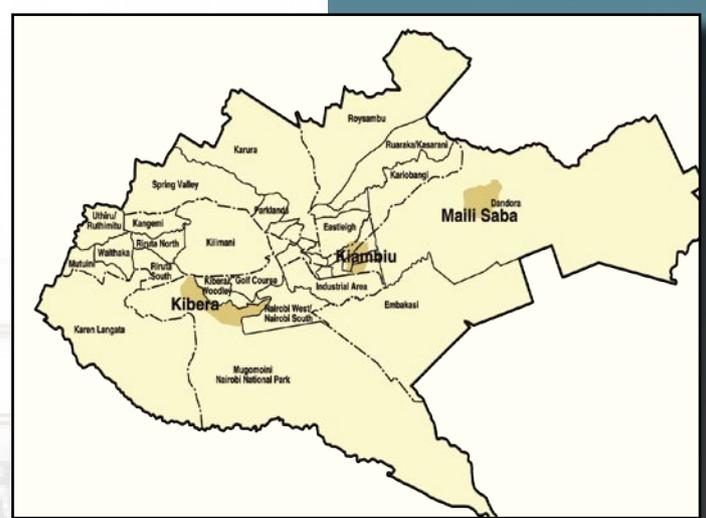
Kiambiu informal settlement is a small but growing slum situated in Eastlands, Nairobi - between the affluent Buruburu estate and lower middle class Eastleigh. Kiambiu has a population of about 20,000 people. The settlement is fairly concentrated but is accessible with fairly wide earth roads. Majority of the residents are tenants who rely on sanitation facilities provided by their landlords. However, the latrines are far away from the plots due to lack of space for construction thus posing serious security risks.

(c) Kibera

This is among the largest informal settlements in Africa and one of the poorest and most densely populated in Nairobi. Kibera slum is divided into nine villages. One village holds approximately 100,000 people. Environmental sanitation and hygiene in Kibera is extremely poor; this is clear manifestation of the level of poverty and inhuman situation. Pit latrines are scarce in Kibera and the few available ones are poorly maintained, a situation that has led to an enormous environmental crisis.

Level of Poverty in the Survey Areas

Majority of residents in the survey areas live in abject poverty. However, there was a clear division in poverty levels in these areas as a result of the sources of livelihoods. Poverty levels among the dwellers were classified as; better - off poor, medium poor and poorest of the poor, as demonstrated in the table below.



Area of study

Top: A map of Nairobi showing the areas where the survey was conducted
Below: An overview of Maili Saba



WEALTH INDICATORS	DIFFERENT SOCIAL – ECONOMIC WEALTH GROUPS		
	Poorest of the Poor	Medium Poor	Better off Poor
Water	Hard to get adequate water, quality not assured	Hard to get enough water; can afford, quality an issue	Able to afford water quality still questionable
Sanitation	Few baths to control costs, shares toilets, uses shack bathrooms	Can meet basic needs, some own sanitation facilities & some share	Able to afford, most have some toilets and bathrooms, some share
House Type	1 – 2 rooms, dirty, mud walls, iron sheet roof, earthen floor, rented	Like the poorest, with plastered walls, cement floor, some owner-occupiers	Owner occupiers, some block walled, cement floor, clean, iron sheet roof.
Income Generating Activities	Mainly ballast making, some sell illicit brews and significant casual working	Mainly hawking in items as 2nd hand clothes, shoes, riverside farming,	Small retail shops, sells vegetables, water vendors, landlords
Incomes	Earns between Kshs 80 – 100 daily, income very much irregular	Earns less than Kshs 150 a day on average but its also very irregular	Earns irregularly about Kshs 200 Daily retail business -less than Ksh 2000 (gross)
Clothing	Dirty and smelly, torn clothing, mainly 2nd hand clothes, less often washed	Relatively clean 2nd hand clothes, mostly not torn as those of poorest ones	Runs small retail shops, vegetable grocers, and labourers in industries
Family Size and Education	Large family, 8- 12 children, primary level education likely to become chokoras	Less children than the poorest, some have access to school, several drop outs	Have relatively fewer children (1 – 5) who have access to education
Household Assets	Some have no bed, own old chairs & stools, and poor quality cooking utensils	Some chairs, stools, ballast making tools, tables of better quality than the poorest	Most own plots, houses, radio, sofa sets, animals, good beds, tables, and chairs

Survey Methodology

Research Area Selection

The following factors were considered while selecting the research areas:

- Population density.
- Utilities providing water and sanitation services and supply volumes.
- Inspections and accessibility of the services and availability of small water providers.
- Legality of the settlement property and ownership of the infrastructure.

Sample Size selection

Random cluster sampling (area) in Maili Saba was first done according to the villages then the zones. Two household surveys with 97 respondents of both genders were conducted. The second survey focused mostly on Mwengenyne and Maili Saba villages. The respondents were selected by the community and were individual household heads drawn randomly from the zones.

(a) Questionnaires

Questionnaires for both the first and second surveys were designed to bring out information on age, types of households, how people make a living. The survey was informed by the existing gaps identified in the literature review. The first survey focused on access to water while the second on access to sanitation.

(b) Household case studies across social

Economic wealth groups: Respondents were picked within the three different social-economic wealth groups found in the slums i.e. poorest of the poor, medium poor and better off poor. Interviews were conducted and information collected on general demographic issues and intrinsic water and sanitation issues. Overall, fifteen case studies were done.

(c) Focus Groups

Participants were randomly selected and interviewed to ascertain their perception and their main concerns on sanitation and hygiene. Respondents from both genders were selected and a wider scope achieved by getting views from the three villages and comparing them.

(d) Sanitation block case studies

These were selected from three slum locations, namely Kiambiu, Kibera Kianda and Kibera Laini Saba. The areas were selected from different civil societies' implementation approaches. The information was collected for a duration of seven days, starting 6 am to 9 pm.

Findings - Sanitation

Community's Perception of Appropriate Environmental Sanitation and Hygiene.

What do they understand about sanitation? Here is a sample of responses:

- **Monicah Njoki* - Mwengenyne Village,** "Having pit latrines, bathrooms, places to dump waste and drainage systems."
- **Anthony Mutisya* - Maili Saba Village,**

"Access to deep pit latrines, clean water, electricity, good roads and working sewerage and drainage systems."

- **Nancy Wanjiru* - Shilanga Village,** "Enough toilet facilities, sewerage systems for liquid waste, quality water supply for all villagers, designated dump sites for solid waste and hospitals."

Sanitation Supply Situation

Pit and bucket latrines constitute 77.2% of Kenya's sanitary facilities. In urban centres, decent sanitary facilities have not matched the increase in poor urban population. Government policies do not support the provision of sanitary facilities in the informal settlements. Maili Saba villagers have no title deeds for the land they occupy. The government has realized that it is not feasible or advisable to deliver sanitation systems directly. In Kenya, only 44% of population has access to formal sewerage systems. The systems are overloaded and environmental pollution is a common phenomenon in poor urban poor communities. Maili Saba does not have sewerage, drainage, or household waste collection services. There are only a few private toilets, which are often shallow (about 5–6 feet deep); hence they fill up quickly.

Rating of Basics Needs and Services in Maili Saba

Water was rated as most important, followed by food and sanitation. In addressing problems to enhance access to these needs, water was ranked first by 80% of respondents followed by food (63%), sanitary services (55%), health (53%), employment (50%) and education (35%) in that order.

Ownership and Use of Various Sanitation Systems

Pit latrines and bathrooms are the main forms of sanitary systems available in the area – the used by 95% and 100% of respondents, respectively. Bucket/pan latrines and public toilets and bathrooms are not available while only 5% use flush toilets and own septic tanks for sewage.

Most of the available sanitary facilities are shared amongst users and are free of charge. Children commonly use the streets to help themselves. This is partly because the latrines are dangerous for them since their edges are slippery. Usually they defecate into plastic bags in the house, and throw them onto the streets, onto heaps of refuse or into pit latrines ('flying toilets'). This practice is more common among women who feel it is too embarrassing to use the latrines too regularly. In Maili Saba, 78% of pit latrines are shared, with an average of 15 persons per toilet. Those who share latrines walk 29 metres on average since the toilets are few and construction costs are prohibitive; it costs between Kenya shillings 1000 – 1500 per foot to dig to the bedrock level and Kenya shillings 200 at the surface soil level. Ventilated Improved Pit latrines (VIP) toilets are not common since it costs approximately Kenya shillings 50,000 to put up one VIP toilet.

In Mwengenyne village, 9 people on average share



Top: Flowing sewer and flying toilets in Maili Saba area

Above: Community in focus group discussions

each latrine. Almost all the respondents from Mwingenye felt that the situation had improved in the last 5 years while only 68% from Maili Saba reported improvements. About 73% have no access to water for washing hands after using toilets. However a few people access water by walking to the nearest water vendors, boreholes or kiosks. The poorest and medium poor tend not to wash their hands, because water for all domestic uses is so scarce. Another 15% said they did not have bathrooms (they bathe at home). Women often bathe after dark in their homes, since there is lack of privacy and women fear rape. Bathroom sharing was reported by 60% of respondents (with an average of 15 per bathroom), while 25% have their own. Those who share a bathroom walk an average 24 metres.

Management of Sanitation Systems

Maintenance (digging, repairing, and exhausting) of the pit latrines is primarily the responsibility of men. Members of the community who are hired by the owners exhaust pit latrines that are full use buckets and dispose off the waste within the settlement - usually into the nearby rivers. City Council Nairobi (CCN) and formal private sector involvement in sanitation is rare since the area is not easily accessible.

Occasionally, the CCN and some larger private contractors offer latrine exhaustion services. Cleaning the latrines is primarily the responsibility of women. Where toilets and bathrooms are shared, 57% of respondents say that the users, mainly tenants, help in keeping them clean. Five percent (5%) of landlords have employed caretakers to clean the toilets and bathrooms, while 60% of respondents clean their toilets and bathrooms daily.

Problems with Sanitation Facilities

Latrines

Cleanliness and convenience were rated as 'average' by the majority of respondents. However, most rated the design of the latrines as 'poor' or 'very poor' for use by children and the disabled. Nearly half (45%) said rated the toilets as dangerous for children, which is a major problem. Cleanliness was rated as either 'good' or 'very good' by 57% of the men while only 30% of the women said the same. Terrible smell in the latrines was identified as a problem by 38% of respondents. They attributed the terrible smell to lack of proper cleaning and also because latrines fill up quickly and need to be frequently exhausted. When it rains heavily, latrines overflow and diseases such as diarrhoea and typhoid are common. Long queues in the morning were cited by 8% as a problem in the mornings. When women were asked prioritize sanitation facilities, they cited cleanliness first, followed by privacy and safety.

Bathrooms and Other Facilities

Majority thought bathrooms were 'average' in terms of cleanliness and convenience, but they have muddy, slippery floors, which are dangerous to children and the disabled. The following are the main problems in using bathrooms:

- Concerns about security for women thus

many bathe in their homes.

- Lack of water at certain times of the year means the toilets remain dirty.
- Poor drainage was attributed to lack of channels for disposal of dirty water.

7. Suggestions to Improve Sanitation and Hygiene

Over half the respondents (53%) still hope that CCN alone will provide services. They would like CCN to pay for each house to be connected to a sewer (which is clearly unrealistic). Respondents assume the CCN ignores them and feel this is why they do not receive services. Simultaneously residents fear that even if the government delivered piped water and sewer connections, these services would be unaffordable to most residents.

On the other hand, 63% of respondents were willing to invest their own resources towards public/community sanitation improvements. They could see benefits of providing facilities for those who currently do not have their own. Others thought the council should assist in community-driven initiatives by contributing to 'public' (community) sanitation projects such as digging trenches and having 'clean-ups'.

Some residents envisaged a role for NGOs and other organizations by financial contributions, and assisting in implementing projects. A community-driven approach was suggested by 12.5% of the respondents, including 'making the community responsible' and 'raising awareness'. All projects should however serve a broad sector of the community, and not just be owned and managed by a few individuals. Practical suggestions for the way forward included:

- Initiatives to improve community awareness and cleanliness.
- Private companies who exhaust should use hygienic methods, better equipment and avoid dumping waste in rivers.
- Public/community toilet blocks are the best solution though it might be difficult to find space where they can be constructed.
- Showers would not be necessary, so long as there were segregated places where people could wash.

Findings - Water

Water Supply

Half of the Kenyan population lacks access to sustainable safe drinking water sources. Dwellers of Maili Saba slum get most of their household water supply from:

- Water vendor kiosks using piped water. These vendors get their fresh water supply from the water trust company of Nairobi city and sell it to residents at about 20 times the cost of buying it.
- A borehole sunk by the Baptist Children Centre whose water is salty. They are allowed to buy the water.
- Shallow water wells dug by the slum dwellers along the highly polluted Mwingenye and Maili



Top, middle and above: Various toilets in the Maili Saba area

Saba rivers. This water is of poor quality, but is free to all.

Water Vendors in Maili Saba

The Nairobi City Water and Sewerage Company has rules and regulations provisions where the informal settlements residents can access water. These rules and regulations ensure that operators are licensed, sign a binding agreement and conform to the existing City Council by-laws on public health.

Until recently, water vending was not a recognized alternative means of water distribution. However, the CCN now allows water vendors to operate in the slums. The vendors meet the full costs of infrastructure from the company's main line to their water kiosks (i.e. trench digging, piping etc.). The meter is cheaply rented from the utility company.

The water vendors in Maili Saba engage in this business to earn an income by taking advantage of the lack of water in the community. In most cases, vendors can be either plot-owners or tenants who live within the settlement. There are two types of water vendors: those who own and operate water kiosks and those who sell water using hand carts or bicycles – mobile water vendors; the latter sell water at higher prices than the kiosk owners.

General Water Usage and Access

Most of the residents (76%) get at least some of their water from water vendor kiosks. The salty water from boreholes is the second priority while the last is the shallow water wells. Households from all three socio-economic groups fetch water from water kiosks. The better-off households are the only ones who have water delivered by vendors. The poorest rely more than others on water collected from roof catchments and rivers.

The poorest residents spend on average Kenya shillings 241 per month (in normal times) on water, compared to Kenya shillings 495 spent by the medium-poor and Kenya shillings 1,028 spent by the better-off poor. During water shortages, the poorest households cut their consumption of water from kiosks by 59% i.e. from an average of 118 litres to 48 litres per month. The better off reduce by 46% i.e. from an average of 130 litres to 70 litres. During shortages, the options of sources of water are more limited.

At such times, the poorest of the poor struggle to buy water from the vendors since prices shoot up. They cope by fetching water on credit and/or from shallow wells. Households spend 2 Kenya shillings to obtain a 20 litre Jeri can during normal water supply. It goes up to 9 Kenya shillings when there are shortages and up to Kenya shillings 14 during acute shortages. Due to the uncertainty about quality, families end up spending their meagre resources on treatment of water borne diseases.

Determinants of Water Uses

- **Water quality:** Water from boreholes, water kiosks and vendors is used for cooking and drinking by all three social – economic categories in the settlement. Some households

improve the quality by boiling drinking water but the cost of boiling fuel is a challenge.

- **Wastewater reuse:** The medium and poorest of the poor recycle household wastewater especially for cleaning the floor.
- **River water use:** A significant number of the slum dwellers use water from rivers Mwingenye and Maili Saba for bathing and washing clothes. However, the water is polluted especially by raw human waste.
- **Other usage adjustments:** People in Maili Saba do not get adequate amounts of water for household use. Some adjustments must therefore be made. These include: skipping baths for long periods and washing clothes only once a week. Priority is given to cooking and drinking. This makes life particularly difficult for women during their menstrual cycle. One resident explained how she copes:

Judy Makau* *“During menstruation, I have a half bath – to remain clean! Instead of using modern sanitary pads, sometimes we use pieces of old cloth material instead since modern towels are expensive.” After use, its wrapped in polythene bag and dumped in a pit latrine and/or in the river. I use old newspapers or some tree leaves at worst instead of tissue paper - the latter is expensive.”*

Individual Case Studies

Poorest of the Poor

Anthony Mutisya* – Household Head - Maili Saba Village:

Mutisya is married with 12 children, eight of whom are adults with families, while the other four are in lower primary school and nursery. The family shares a toilet with a neighbour and bathe in the house or in the open. He has two sources of income – part time shoe repair and ballast making. He gets less than Kenya shillings 100 daily shoe repair but manages to sell an average of 20 buckets of ballast per day selling at Kshs. 10, although this income is not assured. Food and water bills are Mutisya's first and second priority while hospital bills rank third since the family is usually attacked by water borne diseases – typhoid and diarrhoea. Mutisya's family gets water from three sources – water vendor kiosk, boreholes and the shallow water well.

Medium Poor Category

Jeniffer Wafula* – Household Head - Shilanga Village

Mama Jeniffer Wafula lives with her husband and four children in a small, two roomed mud house. The house is rented from a police officer not living in Maili Saba and the plot also contains four similar houses and a nursery school. They pay a rent of Kenya shillings 400 a month. Jeniffer used to wash clothes for middle class households, earning Kenya shillings 100 daily. Her husband is handicapped, but like many others in Maili Saba, he earns income from crushing ballast. The family lives on a plot that has a pit latrine, but it is full since four families and the nursery school children use it. Currently, they use a neighbour's toilet and sometimes the children walk a long distance to a private school's toilet. They use



Top: residents have to travel long distances to fetch water from this broken pipe

Above: Water vending point

a collapsed house as a bathroom. All the children suffer from chronic health problems including diarrhoea and typhoid due to lack of clean, safe drinking water. Jeniffer tries to reduce this by boiling water but the daily cost of fuel is a challenge.

Better off Poor

Monicah Njenga* – Household Head - Mwengeny Village.

Monicah is a single mother of four. She moved to Maili Saba slums (Mwengeny village) in 1994 from Donduri in Nakuru (Rift Valley Province of Kenya). She owns a 0.125 acre land where her two roomed mud walled house is built. The house also serves as a water and charcoal kiosk. The only available sanitary facility in the compound is a mud walled pit latrine and a bathroom made of rusty corrugated iron sheets. The toilet fills up quickly and requires regular exhausting. However, the pit latrines are dug out on impermeable rock to a depth of hardly 10 feet deep. During the rainy season, it's common to see raw human waste flowing in the open drains. Monicah is a full time water vendor. Her average daily income from water sale is Kenya shillings 120 and Kenya shillings 50.00 from sale of charcoal. This income totals to approximately Kenya shillings 5,100 per month, although it is not regular. However, she frequently gets inflated water bills from the water utility company, which supplies her with the water.

Sanitation Block Case Studies

Kibera Sanitation Blocks

One of the solutions suggested by residents in Maili Saba was the construction of community sanitation blocks. These have been constructed by NGOs and are in use in other parts of Nairobi. The blocks were designed through a participatory process and built by local contractors. The participatory process has meant that there is a good sense of ownership of the blocks by the community. Subscription fee for a household of up to 10 members is Kenya shillings 150 and Kenya shillings 300 per month for institutions. Non-subscribers are charged Kenya shillings 3 per use of toilet, and Kenya shillings 3 per use of a shower. Water is sold for 12 Kenya shillings for 20 litres. Toilet use includes tissue paper and hand washing facility.

An average of 462 people use the toilet facilities per day. Differences between numbers of men and women using the facility were small. However, among non-subscribers more men than women used the block - 127 men compared to 80 women on average per day. Only 15% of those using the block are children. Of all the people showering, 81% were men. Both men and women appreciated the warm water in the showers. One participant said: "you find those who used not to shower regularly due to allergy or "fear" of cold water can shower now because of the warm water".

Positive Impacts of the Blocks

- Separate toilets and showers now mean that privacy is ensured.
- Cleanliness -the block is cleaned regularly using

- the funds from the subscriptions and charges.
- The problem of queuing to use a latrine or to collect water has reduced greatly.
- Women do not have to wake up early to queue for water for the family to shower.
- Less evidence of 'flying toilets' or flowing human excreta.
- The smell from latrines, urine and stagnant bathing and cleaning water has reduced.
- There are fewer hygiene related diseases and fewer household insects and rodents.
- For some users, the block has brought savings because they have been granted rent relief by their landlords who closed their pit latrines to free land for the block.

Lessons and Recommendations

This research took place in a context in which hundreds of thousands of poor residents in Nairobi's informal settlements have very poor access to water and sanitation both in terms of quality and quantity. They pay more and travel further for these services than their richer counterparts in formal settlements. The reasons for poor provision are partly due to the legal framework and its application, and partly due to the limited financial resources of the various stakeholders; another reason is how spending is prioritized. There is evident lack of planned interventions, or regulation of service provision by local authorities or other public entities, partly because local authorities are under no legal obligation to provide services to informal settlement dwellers.

In the absence of other provisions, local entrepreneurs sell water in informal settlements through kiosks and mobile water vending. People also collect water from wells, boreholes and roofs. Landlords build poor-quality latrines and bathrooms for their tenants, which are poorly and irregularly cleaned and maintained. Some residents dig their own latrines, while others share latrines and bathrooms between many households.

1. Poverty and livelihoods

There is a marked stratification of the poor in the informal settlements - these are 'very poor', 'medium poor' and 'better-off poor'. The varying levels affect the level of access to water and sanitation. This stratification means that when new initiatives are planned, the very poor are less likely to afford the prices (e.g. subscription to a sanitation block) that appear 'reasonable' for other groups of the poor. Water and sanitation services offer business opportunities for some. The community toilet blocks are able to employ staff from their charges and provide some profit for the groups while water vending provides an income for some. A small number of people are also employed by kiosk-owners.

2. Gender

Women are responsible for making sure that the household has sufficient water for drinking, cooking, washing and sanitation. They often have



Top: One of the Kibera sanitation blocks

Middle and above: examples of shelter depicting the livelihoods of those who live in the survey area

to pay for water from limited household budgets. Three factors constrain women's access to and use of improved sanitation facilities e.g. community blocks.

- a) **Finance:** When funds are inadequate, the family may buy less water or fail to pay their subscription for use the sanitation block.
- b) **Time:** Many women combine domestic responsibilities with income-generating activities. To save time they wash their clothes, their children and themselves at home rather than spending time visiting the sanitation block.
- c) **Safety:** Fears of attack and rape prevent some women from bathing in the existing bathrooms or using pit latrines, especially at night.

3. Appropriate Sanitation

'Appropriate sanitation' for poor women and men in urban areas, is affordable and safe for both people and the environment. Systems do not need to be hi-tech or complicated, but should be those that the poor can help design, use, own, operate and easily understand. It is clear from this research that 'appropriate sanitation' means more than just latrines or toilets. "Appropriate sanitation' also includes washing, and having adequate drainage. Washing entails having a safe and private place to wash and having sufficient clean water. Water for washing clothes and keeping the house, latrines and bathrooms clean is also important.

4. Design and Use of Sanitation Blocks

The community sanitation blocks in Kianda and Kiambu both serve many hundreds of people each day. However, they are not the complete solution to the sanitation needs of residents. Women will continue to combine the use of their homes and nearby pit latrines and bathrooms at some times and for some activities to fit in with their daily routines. Clearly, there are some aspects of the design that did not fully meet the needs of users. Currently, fewer women than men use the blocks – while children use them even less. Two issues that were not foreseen included the disposal of materials

for sanitary materials by women. In the absence of other places to dispose off these, they often throw them in the toilet, thus blocking the pipes. Secondly, the blocks are used for multiple functions; the concrete slabs are good places for washing clothes, the blocks act as shelter from rain and sociable places. These additional uses may need to be planned for, or extra space reserved when plans are drawn.

5. Policy Issues

In the current policy climate where the government has moved towards playing the role of facilitator, there is clear need for co-ordination of interventions amongst the various stakeholders. There is a need for all agencies to pool lessons, best practices and resources so that solutions can be taken beyond the scale of demonstration models. A lesson from this research is that plans for interventions in water or sanitation need to take into account the livelihoods of residents, and their concepts of 'appropriate sanitation'.

Land tenure has been a significant stumbling block to improving access to water and sanitation in Nairobi's informal settlements. Conflicts over land ownership and threats of mass evictions by either the government or landlords mean long-term planning is not possible. All the stakeholders become wary of investing in permanent structures. Greater efforts towards regularising land tenure and promoting upgrading, or at least allowing for the provision of certain types of water and sanitation systems in informal settlements could make improvements possible for hundreds of thousands of people.

Because in the past water vendors have not been given legal recognition, they risked harassment from government and water company officials. Residents often feel exploited by the vendors, especially when they raise their prices during times of shortage. The Water Act provides grounds for the recognition of water vendors, but action needs to be taken to make this a reality.

* Names have been changed to protect the respondents' identities



Top: A pit latrine in Maili saba area
Above: Dr. Deepa Joshi of the University of Southampton inspects a latrine during a visit to Maili Saba to examine the sanitation situation in the area

MDG Goal 7: Ensure Environmental Sustainability

Target 10: Halve, by 2015, the Proportion of People Without Sustainable Access to Safe Drinking Water and Sanitation

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For further information contact:

David Kuria
 Programme Manager, Environmental Sanitation Unit,
 Intermediate Technology Development Group
 - Practical Action
 P.O. Box 39493, 00623 Nairobi, Kenya AAYMCA
 Building, Along State House Crescent, Off State House
 Avenue
 Tel: +254 020 2713540 / 2715293 / 2719313 / 2719413
 Fax: +254 020 710083
 Email: david.kuria@itdg.or.ke / david.kuria@practicalaction.or.ke
 Website: <http://www.practicalaction.org>

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