Prepaid Water in Nakuru: Case Study

Overview

Nakuru is Kenya's fourth largest city, with about 600,000 residents, and is growing rapidly. Almost half of its population lives in 42 unplanned low-income areas, and less than 10 percent have a house connection. Connection costs are high, at about USD 100 for individuals, and illegal connections are rife. The city relies heavily on groundwater and struggles with acute water supply shortages. Water supply is rationed in many parts of the city beyond the center, and some areas get water just three days a week or less.

In mid-2012, Nakuru Water introduced 95 prepaid meters on communal standpipes in low-income areas with 24/7 supply. With support from two funding partners, the utility targeted densely settled housing compounds, where 20 to 40 households were sharing a single tap. Local landlords commonly add a fixed charge for water to the monthly rent, and manage their water bills by keeping the tap locked except for three hours a day, several days a week. Some do not pay their water bills and so the utility disconnects them, leaving their tenants to source water from vendors or kiosks.

In Nakuru, the new prepaid standpipes provide water at less than a fifth of the cost that vendors charge, and the water is available 24/7. Customers surveyed for the Water Services Trust Fund said they now spend vastly less on water yet could afford to buy far more, and that their hygiene and health had improved. They said prepaid meters had contributed to reduced conflict between landlords and tenants.

The prepaid meters require intensive maintenance, with six to nine call-outs a day. A local resident has learned how to repair the meters, and provides a prompt service that complements the utility's technical support. NAWASCO aims to install a further 150 prepaid standpipes in 2014–2015.

Lessons

"Prepayment creates new customers." Issuing credit tokens to individuals means that people without any prospect of having their own private connection can, nonetheless, become full customers of the utility, with their own accounts. The utility is now starting to pay closer attention to their service needs and perspectives.

Integrating prepayment into a revenue management system set up for postpayment requires a systematic approach that accounts for the difference between the two. With postpayment, sales follow consumption; with prepayment, the opposite is true. The implications of this are far-reaching for tracking consumption, calculating nonrevenue water (NRW), and compiling management reports on monthly sales and consumption.

Adopting prepayment requires complete buy-in from top to bottom in the utility, from quality control of installations on-site, to equipping front office staff to answer new customers' questions, to well-structured integration of revenue management IT.

Make provision for spares in the original procurement process to minimize delayed repairs once the meters are commissioned.

Local residents can learn how to maintain the prepaid standpipes and undertake basic repairs. A local youth activist quickly learned how to repair the prepaid meters and played a significant role in minimizing downtime in case of malfunction.

The more users per prepaid standpipe, the more cost-effective the installation, but queuing times grow longer when more customers share a standpipe. This compromises the level of service

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provided.

Why prepaid meters were introduced

NAWASCO introduced prepaid meters in Nakuru in order to

Provide tenants with affordable access to an improved supply of water 24/7.

Pilot the introduction of prepaid standpipes in Kenya, on behalf of the Water Services Trust Fund, using Nakuru's experience to inform other Kenyan utilities. The Trust gave special attention to the design of the concrete fetching bay, and promoted a raised platform rather than a ground-level apron, which it said made lifting easier, with less splashing and contamination of the jerry can.

Test the financial viability of funding prepaid standpipes as a supply option in dense low-income settlements. Sustainable Water and Sanitation in Africa (SUWASA), a regional initiative of the US Agency for International Development (USAID), worked with development partners to assess the cost and payback period of prepaid standpipes.

Implementation

NAWASCO's pro-poor unit staff received close support from German and American development partners. The staff spent six months "sensitizing" residents and landlords before installations began, and followed this with ongoing training and interaction. Initially there was opposition to prepayment from both landlords and tenants. Landlords realized they would no longer be able to charge tenants more for water than it cost them; and most tenants were not aware that they were already paying a water charge as a component of their rent, and objected to having to pay for water from the new standpipe. Customer acceptance shifted rapidly once the new prepaid meters became operational and they experienced first-hand the benefits of cheaper, more accessible water (Photos 1 and 2).

Photo 0. Women say that the prepaid meters make water so much more cheaper that they can afford to do their laundry whenever they want to, instead of waiting for one large wash.

For landlords, the prepaid standpipes address an area of conflict with their tenants, and they no longer face disconnection for unpaid bills. Rooms in compounds with prepaid meters are also easier to rent out, and some are let at a higher rent than before. The vast majority has not revised rents downward now that their tenants are buying their water separately; instead, most said they would defer rent increases to compensate for the water increment.

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Photo 2. Prepaid standpipes offer tenants living in high-density housing compounds affordable water whenever they want it. Previously, their access was limited by landlords who kept the single tap per compound mainly locked.

Pro-poor unit staff have played an equally vital role sensitizing their utility colleagues to the needs and perspectives of low-income customers. One role player noted that following the introduction of prepayment, there was evidence of an important shift within the utility. Previously, most staff had regarded low-income settlements as problem areas, associated mainly with extensive illegal connections, low payments, and a high rate of disconnection. Introducing prepayment in those areas has "created" a large number of new customers, each with their own tokens. Issuing credit tokens to individuals means that people without any prospect of having their own private connection can, nonetheless, become full customers of the utility, with their own accounts. The utility is now starting to pay closer attention to their service needs and perspectives.

Service delivery performance

A customer survey undertaken for the Water Services Trust Fund in early 2013 indicates good acceptance. Customers highlighted the main benefits as affordability, continuous access to water, reduced conflict with the landlord over water, shorter queues, and the option of collecting water at any time. A third of respondents said their personal and household hygiene had improved because water was now cheaper and more accessible.

Over half the customers surveyed said they had experienced malfunctioning meters. In October 2013, the number of faults being reported was unacceptably high, at six to eight call-outs per day from the 95 meters. The most common problems were error alerts that shut down the meter, and required a minor adjustment and a quick reset with the maintenance key (Photo 3). A quarter related to leaking valve seals that required more time-consuming repair. Because of problems sourcing replacement seals, technicians have learned to improvise by using a piece of plastic sheeting as a gasket to seal the valve (Photo 4).

Photo 3. Fixing a fault on a communal meter

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Photo 4. A self-taught local resident repairs a leaking seal with a makeshift plastic gasket.

Each prepaid meter serves one or more housing compounds, and the utility aims to serve 40 households with each meter. The more users, the more cost-effective the installation, but queuing times grow longer when more customers share a standpipe, and this compromises the level of service provided.

NAWASCO aims to scale up the installation of prepaid standpipes considerably, with 150 more planned for 2014–2015. The utility is exploring how best to introduce prepayment in areas with water supplied for only three days a week because of severe source constraints. Residents consulted by NAWASCO's pro-poor unit said they would be willing to accept prepayment, even for just three days a week, if it means they will have more continuous access to water during those three days. Currently, most landlords keep their taps locked for much of the limited periods when the water is available.

Vending

NAWASCO sells credit from six utility offices across the city during office hours; customers cannot buy credit after hours and over weekends.

NAWASCO has issued more than 3,000 Dallas iButton tokens to prepaid customers. Residents applying for a credit token need to pay a 300 KSH (USD 3.40) deposit and present a national identity card. This requirement excludes some applicants without the necessary documentation, and leaves them reliant on vendors, neighbors, or kiosks. Replacement of an iButton costs 1,100 KSH (USD 12.51).

There is strong demand from customers for more convenient vending sites, and preferably mobile phone-based options.

Monitoring

NAWASCO collects information at least once a month on the performance of every meter and tracks continuity of supply, mean time between failures, water pressure and the time required to fill a jerry can, and consumption per meter. From customer purchase data, it tracks the frequency and amount of purchases.

Finance, funding and revenue

External partners funded the installation of the 95 meters and associated program costs. SUWASA worked with development partners to assess the cost and payback period of prepaid standpipes. Their conclusion was that the investment per standpipe could pay for itself in two to three years, depending on the number of users per standpipe. Maintenance and wider set-up costs were not included in the assessment.

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Prepaid users pay 1.20 KSH (USD 0.01) per 20-liter jerry can, which is below the tariff for individual domestic customers. This compares to 2 KSH from a kiosk and 5 KSH (USD 0.05) and often more from a vendor (Photo 5). The contribution of prepaid sales to total utility revenue is negligible.

Photo 5. Prepaid meters offer customers a cheaper and more convenient alternative to water vendors (left) and water kiosks (right).

The utility had to learn the hard way that integrating prepayment into a revenue management system set up for postpayment requires a systematic approach that takes account of the difference between the two. With postpayment, sales follow consumption. With prepayment, the opposite is true. The implications of this are far-reaching for tracking consumption, calculating NRW, and compiling management reports on monthly sales and consumption. External service providers configured NAWASCO's software before staff understood the special challenges that prepayment poses for tracking sales against consumption at shared standpipes, and the utility had to invest heavily in software modifications to allow it to deliver the basic management information required.

Summary

The introduction of 95 prepaid standpipes in Nakuru has vastly improved water services for tenants living in low-income housing compounds. Water is now substantially cheaper for tenants and available whenever they want it, in marked contrast to the very limited access they had when they relied on a tap controlled by a landlord. The amount of revenue collected from prepaid meters is negligible as a fraction of total income, and maintenance demands are high. The utility believes that the prepaid standpipes offer a significant service improvement to its low-income customers. It is planning to install 150 more in 2014–2015.

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