

ENHANCING ACCESS TO PIPED WATER FOR LOW-INCOME HOUSEHOLDS

Experience with targeted subsidies in Ugandan small towns

Uganda Sanitation for Health Activity (USHA)

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SUMMARY

Only 19% of Uganda's population has access to safely managed, on-premises drinking water available when needed and free from contamination. Most of these residents live in the large towns, whereas service coverage in rural areas is as low as 9%¹.

The number of piped water systems serving small towns and rural areas is increasing, however, typically only the wealthiest households have private connections. Access for low-income households is traditionally through water kiosks or public standposts, where water is usually more expensive than for connected customers.²

This learning brief describes how subsidized connection fees triggered demand for individual water connections in six small towns supported by the USAID Uganda Sanitation for Health Activity (USHA). Low-income households, which had been identified through household surveys, were specifically targeted and received 50% of the new connections. Analyses of the billing records demonstrated that most of the newly connected low-income customers pay their water bills regularly. Subsidizing individual connections is therefore a viable strategy to extend safely managed water services to low-income households, with deliberate effort and intentional targeting interventions.

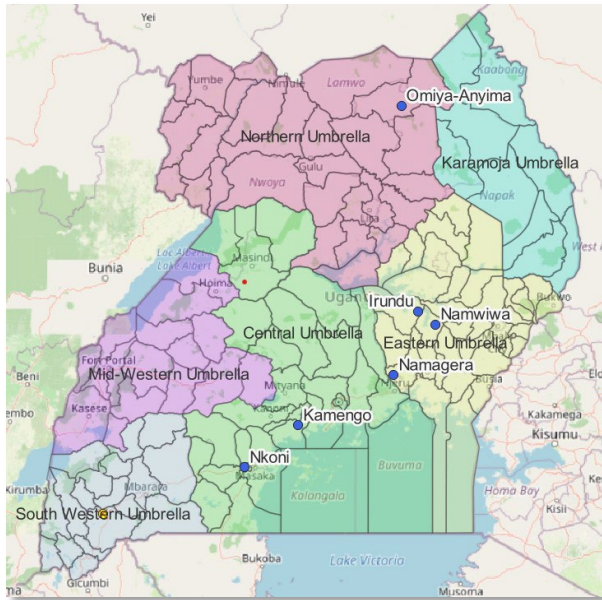
BACKGROUND

Enhancing household access to piped water was one of the sub-components of the USAID Uganda Sanitation for Health Activity (USHA), a five-year program (2018-23) covering 21 districts in Uganda. The activities were developed and implemented in direct collaboration with three regional water service providers known as Umbrellas of Water and Sanitation. The pro-poor strategies and tariff reforms were agreed and coordinated with the Ministry of Water and Environment (MWE). The main objective of the pro-poor strategies was to enhance access to safely managed water and enable consumption of a minimum quantity of safe water per month among the low-income households.

¹ Source: UN-Water SDG 6 Data Portal, <https://www.sdg6data.org/en/country-or-area/uganda>

² Typically, 100 UGX per 20litre jerrycan, the equivalent of 5,000 UGX per m³. For comparison: The highest water tariff for domestic customers is 3,528 UGX per m³ (including VAT) in the towns supported by the USHA project.

Figure 1: Location map showing the six intervention towns



The Umbrellas are regional public utilities established in 2017 in an effort to professionalize piped water services in the small towns and rural areas of Uganda. With leaner structures and lower, flexible tariffs, the Umbrellas are seen as providers towns. They operate under the supervision and with support from within the MWE. All billing and payments are made through a web-based system, which was adapted with USHA support to allow for the introduction of an increasing block tariff.

The project funded 170 km of network extensions and installation of 1,400 subsidized water connections to the existing water supply systems in the six small towns of Kamengo, Nkoni, Namagera, Irundu, Namwiwa and Omiya-Anyima (see location map in Figure 1). The total number of connections in the six towns increased from 2,200 to 3,600 through the intervention, with low-income HHs accounting for half of the increase.

KEY FINDINGS

#1. Demand for piped water connections can be triggered by affordable connection fees

The upfront connection fee is the main impediment for low-income household connections. A fee of USD 14 to 28 was found to be affordable for most in the small towns of Uganda, except for the most vulnerable.

#2. Specific targeting is needed to reach the low-income households

Low-income households need time to apply and flexible payment options for the connection fee. In many cases, distribution lines need to be extended to reach them. To make sure they benefit from the subsidies, specific targeting and prioritization are necessary.

#3. Sustainability: Low-income households pay their water bills

A review of customer payment records indicated that collection efficiency among low-income households is nearly the same as for wealthier customers.

#4. Using wealth quintiles for targeting

A simple method of categorizing households by wealth quintiles based on household surveys supported prioritizing applications for water connections from low-income households.

#5. Piloting an increasing block tariff

Pro-poor increasing block tariffs, which were applied for the first time in Uganda, can improve affordability of monthly water bills for low-income households.

METHODOLOGY

In each of the six towns, the USHA supported interventions started with focus group discussions followed by a socio-economic survey to establish the baseline situation and willingness to pay for piped water services. Existing piped water customers were also surveyed. All surveys were conducted by the Umbrellas' own staff after training by USHA, using tablets and the web-based ONA³ data platform.

The households were categorized by wealth quintiles from 1 (poorest) to 5 (wealthiest) by adapting the "EquityTool" method. The questionnaires included questions on housing quality and asset ownership (see box) but no direct questions on household income or expenditure, as answers tend to be biased.

After planning the extensions and future supply areas, community meetings were held to activate demand for subsidized connections, explain the pro-poor tariff and encourage low-income households to apply. Households were given 30 days to submit an application and come up with the connection fee, if necessary in instalments. In each town, the Umbrella teams reserved 50% of the available connections for quintile 1 and 2 households (bottom 40%).

The wealth quintiles were also used for analyzing the billing, consumption and payment data obtained from the Umbrellas' billing database.

Willingness / Ability to Pay

Over 95% of the interviewed households (across all towns) stated that they were willing to pay for piped water at home. Of these, 87% said that they were ready and able to pay 5,000 UGX (USD 1.40) per month, while 60% would pay 10,000 UGX (2.80 USD). This led to the idea of introducing an increasing block tariff to keep the monthly water bill affordable for low-income households. Most households were willing to pay a 50,000 UGX (USD 14) one-off connection fee but only 40% considered 100,000 UGX as affordable as illustrated in Figure 2. The agreed connection fee was either 50,000 or 100,000 UGX, depending on the relative wealth of each town.

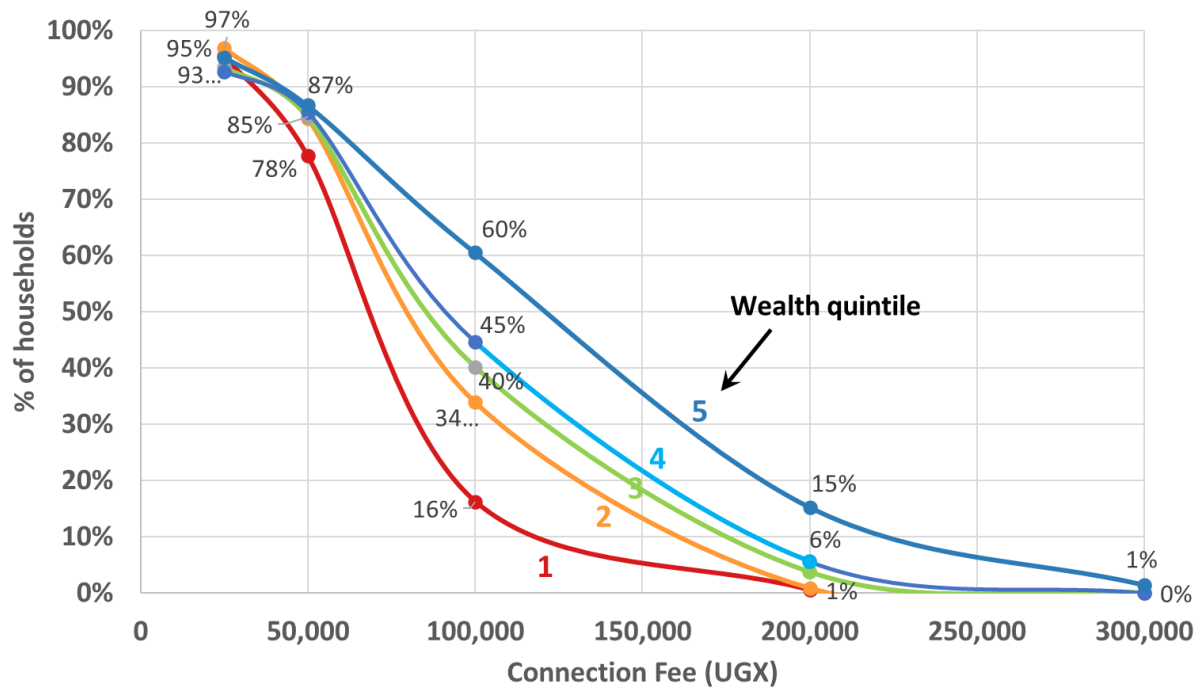
The 11 EquityTool Questions

1. Does your household have ... electricity?
2. ... a television?
3. ... a cassette / CD / DVD player?
4. ... a sofa set?
5. ... a cupboard?
6. Does any member of this household own: a mobile phone?
7. Does any member of this household have a bank account, mobile money account, or account with an agent?
8. What is the main material of the floor in your household?
9. What is the main material of the exterior walls in your household?
10. What is the main material of the roof in your household?
11. What type of fuel does your household mainly use for cooking?

Source: <https://www.equitytool.org/uganda/>

³ ONA is a set of tools that are used for field data collection using android mobile phones (devices) and allows data submission to an online or cloud server. <https://ona.io/home/>.

Figure 2: Willingness to pay for a private piped water connection (yard tap), 6 towns



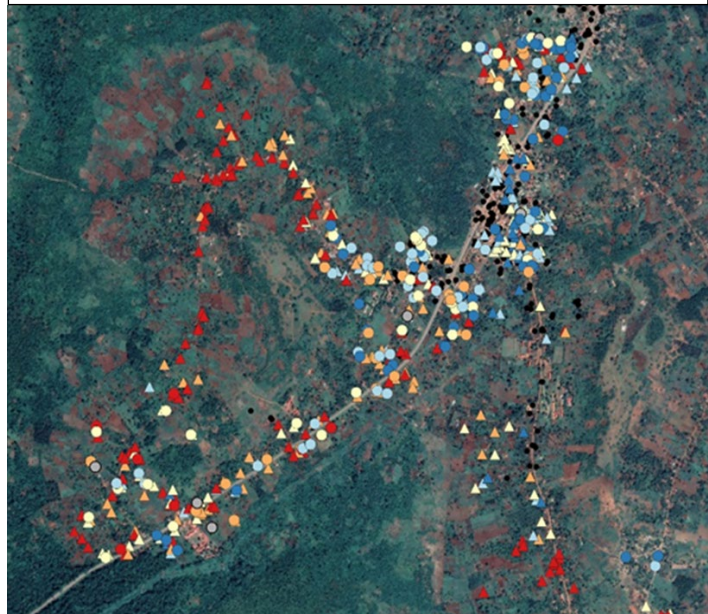
Reaching the Poor

Low-income households are often not living along the main roads and pipelines (see map – red and orange colors). Network extensions are therefore needed to connect them.

The map (Figure 3), plotted after the application process, also illustrates that many of the poorest households did not apply for a water connection (triangle symbol). The private connection approach presented here reaches the vast majority of the households, but not the poorest segment.

A sales pitch was designed and door to door visits conducted to encourage the low-income households to apply for the individual connections. Majority of those that hadn't applied cited inability to interpret the application forms and uncertainty that households would eventually be connected. Others applied but later did not come up with the connection fee. Low-income households are not early adopters and they need to be intentionally targeted.

Figure 3: Mapping of Households by Wealth Quintile Kamengo Town
Colors from blue (wealthiest) to red (poorest)

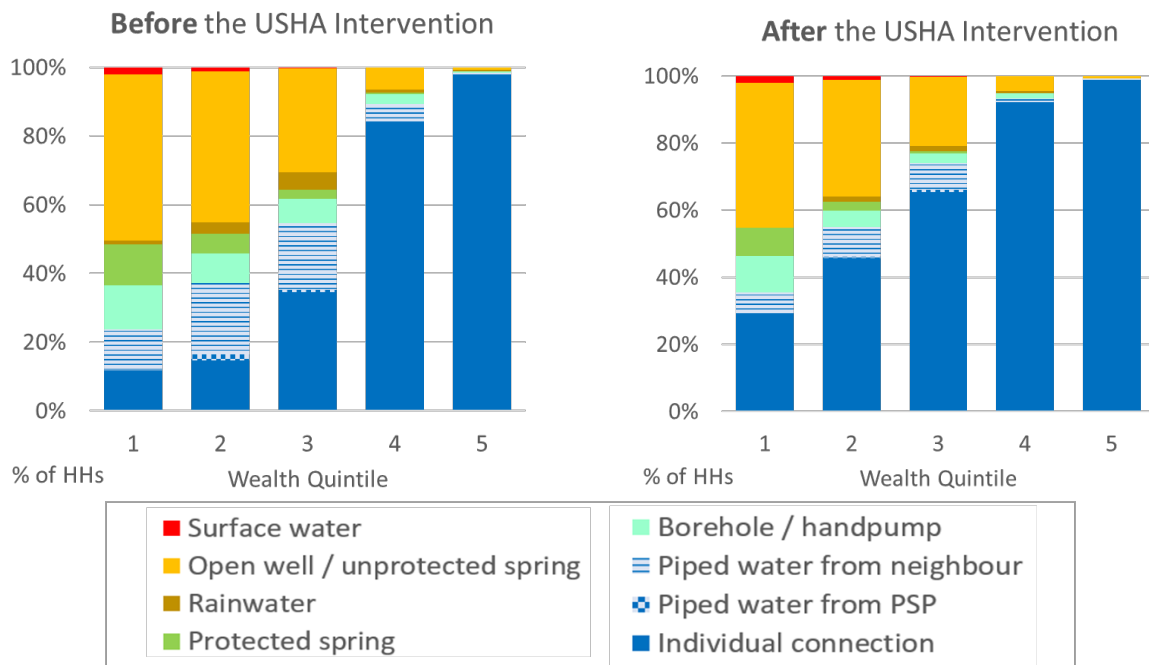


Extending piped water services to the less wealthy

In small towns with a piped water system, the majority of the population still use other (free) sources of water. Willingness to pay for water depends on the distance and quality of such sources, but most households are willing to pay for the convenience of having water at their home.

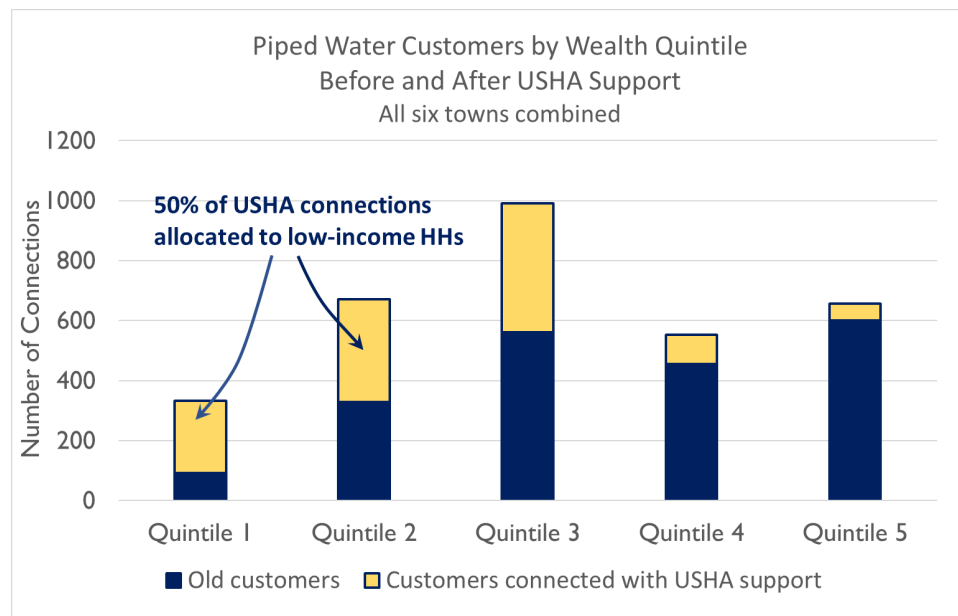
The example of Nkoni (chart below in Figure 4) shows that, before the intervention, piped water connections were mainly a privilege of the wealthiest two quintiles. By offering subsidized connections with priority for applicants from the bottom two quintiles, piped water is now reaching the majority of the population.

Figure 4: Main source of drinking water used in Nkoni town (1734 households surveyed)



Successful targeting

A final inventory of the connections made with USHA support confirmed that targeting was successful with 50% of the newly connected being low-income households.





Newly connected female headed household in Namwiwa, Kaliro District

Sustainability

Fears that subsidizing connections might not be sustainable – because HHs would fail to pay the monthly water bills – were expressed by various stakeholders. To study this, the socioeconomic data of the existing and newly connected customers were matched with the billing database. In each of the four towns analysed, at least 84% of the water bills were effectively paid by the low-income customers, including those connected by the project.⁴

Table 1: Collection efficiency - Total payments divided by total amount billed over 1 year (March 2022 to Feb 2023)

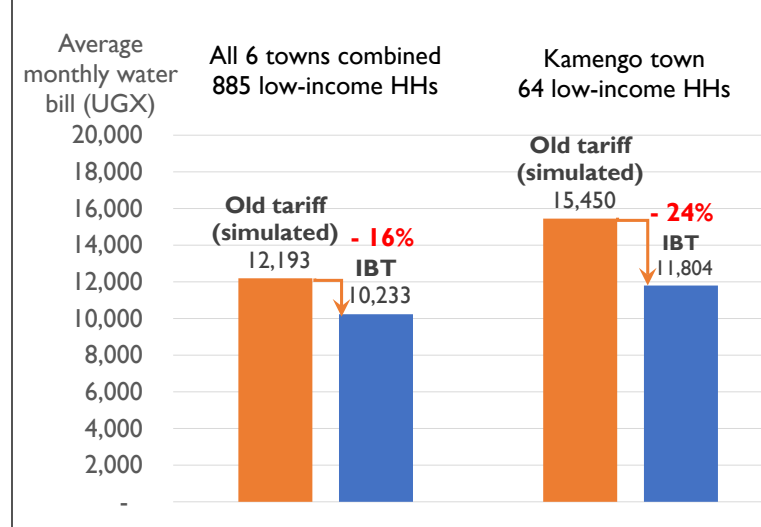
	Kamengo	Namagera	Irundu	Namwiwa
Wealthier customers (top 60%)	99%	97%	91%	90%
Low-income customers (bottom 40%)	88%	95%	86%	93%
New customers connected with USHA support (bottom 40% only)	88%	89%	84%	97%

Pro-poor tariff

Before 2021, all Ugandan water utilities had a flat tariff, with the same amount charged per cubic meter irrespective of consumption.

In collaboration with the Ministry of Water and Environment, a new tariff model was developed to improve affordability of piped water for low-income households. An increasing block tariff was chosen where the first cubic meter consumed per month is charged at 1,000 UGX, then the

Figure 5: Effect of the pro-poor tariff on the water bill of low-income households



⁴ In the other two towns, Nkoni and Omiya-Anyima, the new connections had just been made in the 1-2 months before the analysis. It was therefore still too early for meaningful payment statistics.

normal tariff applies from the second unit.

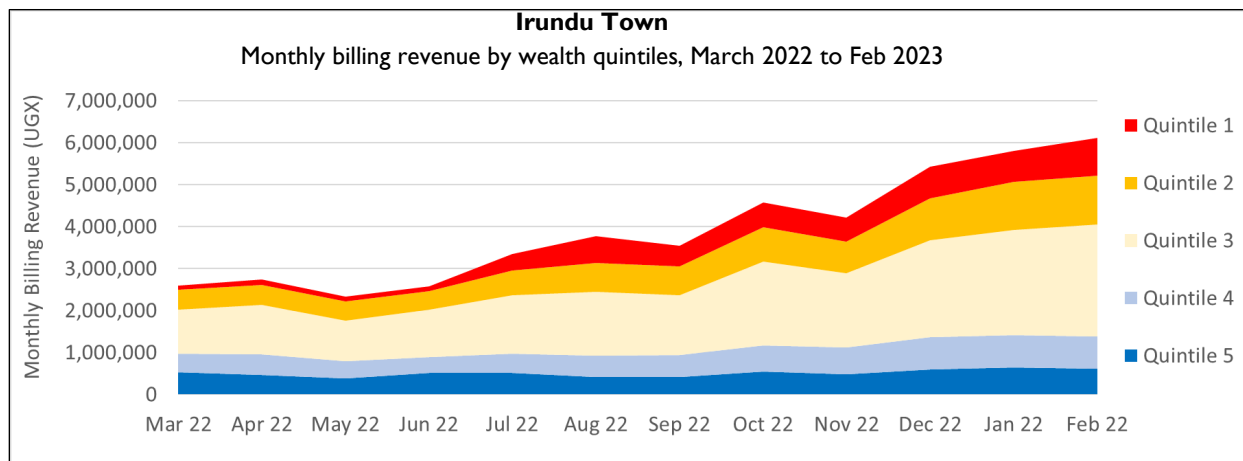
The new tariff reduced the water bill for low-income HHs by 16%, compared to the amount that would have to be paid under the old tariff (see Figure 5)⁵. In towns with higher tariffs the savings are higher (Kamengo example: 24%). The average price per unit paid by low-income households is 3,336 UGX (USD 0.92 USD) per cubic meter, including service charge and VAT. This is one third less than the price the households would have to pay at a public standpost (5,000 UGX/m³ for a price of 100 UGX per jerrycan). Vulnerable households can limit their consumption to a lifeline minimum of 10 liters per capita per day (for essential purposes) for about 6,000 UGX (1.65 USD) per month.

The average consumption of low-income HHs is 3.1 m³ per month per connection, or 14.5 liters per day per capita (users from neighboring HHs included)⁶. Sharing connections with neighbors is not very common (11.7% of all connections) but selling water to neighbors has become a source of income for some of the newly connected low-income HHs.

Impact on Utility Revenue

The potential loss from the introduction of the pro-poor tariff (up to 10% of the revenue from existing customers) was offset by the payments from the additional customers. In Irundu, the number of connections went up from 236 to 413 while the monthly billing revenue more than doubled (Chart in Figure 6).

Figure 6: Monthly billing revenue by wealth quintiles



The red and orange colors indicate that low-income households contribute significantly to the revenue of the utility. Subsidizing domestic connections not only increased service coverage, but also strengthened the financial viability of the utilities.

⁵ The analysis was done from the introduction of the new tariff to February 2023 (average: 18 months of data)

⁶ Interestingly, the consumption of the wealthier HHs is not much higher: 3.9 m³/month per connection and 17.4 l/c/d. Note that almost all connections in the six towns are yard tap connections, without in-house installations.

LESSONS LEARNED

1. **The project was successful in extending piped water services to low-income HHs.** High demand and willingness to pay for private connections in small towns can be met if subsidies help ensure affordable connection fees. Providing subsidies for connections is a very efficient way of raising service coverage.
2. **Low-income earners need to be intentionally targeted.** A “first come first served” approach will always favor the wealthy HHs, as low-income earners are not always ready to submit applications or pay the fees without support.
3. **Socioeconomic household surveys are an effective tool for targeting subsidies.** These surveys also help service providers become more familiar with the customer context and sensitize staff on the equity aspects of service delivery.
4. **The pro-poor block tariff is useful for keeping water bills affordable for low-income HHs.** The initial revenue loss is quickly compensated by the increasing customer base. The net revenue from private domestic connections is much higher than from public standposts and helps to improve the financial viability of small-piped water schemes.
5. **Low-income earners pay their water bills with almost the same collection efficiency as for the wealthier HHs.** However, some flexibility is needed for the timing of payments (no immediate disconnections).
6. **Working through existing structures increases buy in and opportunity for scale up.** All strategies were developed in close consultation with MWE and implemented through Umbrella structures. These have now been embedded in the normal workflows of the utilities and MWE has started scaling up of the increasing block tariff, initially to another 30 schemes across the country.



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