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Are Kenyan water customers willing to pay a pro-poor sanitation surcharge?

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The Kenyan government estimates that 500 billion KES (\$5 billion USD) are needed to achieve sanitation coverage targets in urban areas by 2030. To finance these infrastructure improvements, the Ministry of Environment, Water, and Natural Resources is looking at various financing options, including private sector participation, foreign aid, and cross-subsidies. Using a double-bound dichotomous choice method coupled with qualitative interviews, this study investigated willingness to pay for a pro-poor sanitation surcharge among customers of two Kenyan water utilities. 75% of respondents were willing to pay a surcharge, with just over half willing to pay up to 100 KES (\$1 USD) per month. The primary determinants of willingness to pay were trust in the water utility to manage the pro-poor surcharge, feelings of solidarity towards people living without sanitation, and satisfaction with current water services.

Introduction

In urban Kenya, 69% of people use shared, unimproved, or no sanitation facilities (WHO and UNICEF, 2017). Inadequate sanitation infrastructure contributes to poor public health, particularly in low-income areas. WHO estimates that the 17,597 cumulative cases of cholera reported since 2014 in Kenya are attributed to poor sanitation (“WHO | Cholera – Kenya,” 2017). The Kenyan government estimates that 500 billion KES (\$5 billion USD) are needed to achieve sanitation coverage targets in urban areas by 2030 (Ministry of Environment, Water and Natural Resources, 2013). To date, revenue generated from sewer and sanitation user charges in Kenya are often diverted to fund water supply investments and operations, with little money going towards sanitation investments or operations (WSP, 2011). Thus, innovative ways to fund sanitation improvements are needed.

Other countries provide interesting examples of innovating sanitation funding. Since 2007, the Lusaka Water and Sewerage Company in Zambia charges all of its customers a sanitation levy (WSUP, 2012). The levy is disbursed to a ring-fenced fund for sanitation improvements in low-income peri-urban areas. So far, disbursements from the sanitation fund have been used to finance the construction of onsite sanitation facilities and condominal sewers (WSUP, 2012). In Burkina Faso, the Ministry of Agriculture and Water implements since 1958 a “fee for sanitation services” on water bills issued by the National Water and Sanitation Utility (ONEA) (WSUP, 2012). All water customers in Ouagadougou with a connection to ONEA pay a fixed surcharge on their water bill and an additional surplus based on water consumed (WSUP, 2012). The surplus is calculated according to a two-tier pricing structure designed to ensure that customers with a sewer connection pay more than customers with onsite sanitation (WSUP, 2012). The funds are used to promote onsite sanitation, provide subsidy support, and increase sewerage connections (WSUP, 2012).

This study sought to determine willingness to pay for a similar pro-poor sanitation surcharge in Kenya. Specifically, we examined whether water customers in Kenya will be willing to cross-subsidize sanitation improvements in low-income areas through an increase in their water bill. Cross-subsidies are already used in the energy and road sectors in Kenya to improve coverage in underserved areas (Boampong and Phillips, 2016; GoK, 2016). Here, we investigated whether a similar concept could be applied to the water and sanitation sector.

In addition, we examined factors influencing willingness to pay. We hypothesized that both customer-level factors (socio-economic status, satisfaction with current services, trust in the water utility, solidarity, perceived benefits) and the implementation strategy (type of messaging, billing method, sanitation technology cross-subsidized) could influence willingness to pay for the surcharge.

Methods

Study population

In partnership with the Water Services Regulatory Board (WASREB) of Kenya, we selected two water utilities (Utility A and Utility B) ranking in the top 10 amongst 84 regulated water suppliers (based on performance indicators such as service coverage, unaccounted for water, water quality, hours of supply, metering, revenue collection efficiency, and staff productivity). Utilities A and B serve approximately 48,000 and 15,000 water connections, respectively (WASREB, 2016). Over a third of Utility A's customers have a sewer connection, while this proportion is below 5% for Utility B.

Data collection

For this study, we applied a mix of qualitative and quantitative research methods. Qualitative data came from interviews with a variety of stakeholders in the two cities, including: nine government officials, two landlord associations, three non-governmental organizations, two community-based organizations, four respondents from the private sector, four non-water utility customers, and two water utility managers. We also conducted four focus-group discussions with utility customers. Quantitative data collection consisted in a survey of 402 utility customers (201 in each city), selected through stratified random sampling into three income categories (low, middle, and high) based on residential zones. Sewered customers were oversampled for Utility B because of the low proportion (<5%) of sewered customers. Qualitative findings were used to both inform the survey questionnaire and help interpret quantitative findings.

Willingness-to-pay

Survey respondents were presented with different implementation scenarios varying three aspects:

1. **Messaging- Community Health vs. Clean Environment:** some customers were told that the pro-poor sanitation surcharge would improve community health, while others were told that it would lead to a cleaner environment.
2. **Type of sanitation- Sewered Sanitation vs. Onsite Sanitation:** some customers were told that the pro-poor sanitation surcharge would be used to install sewer connections in low-income areas, while others were told that it would be used to build onsite sanitation.
3. **Type of billing- Flat Amount vs. Proportional Rate:** some customers were told that they would contribute a flat amount, and others were told that their contribution would be a proportion of their total monthly water bill.

The resulting 8 implementation scenarios were randomized amongst respondents. We used the double bound dichotomous choice method to determine willingness to pay. This approach consists in a series of three questions. First, the respondent is asked if he/she would be willing to pay an extra amount X. If the answer is yes, the same question is asked about an extra amount Y higher than X (or lower if the first answer is no). Finally, the respondent is asked about the maximum amount that he/she would be willing to pay. Although open-ended, the third question is guided (and bound) by the first two answers. The first amount X was randomly selected from 50 KES/100 KES/ 200 KES /300 KES/400 KES (\$0.5 USD/\$1 USD/\$2 USD/\$3 USD/\$4 USD) and from 5%, 10%, 20%, 30%, and 40% for the proportional rate scenario.

Results

Survey respondents

A majority of the respondents (77%) were domestic water customers. On average, each water connection had 5 users. Although almost all (92%) of the respondents used piped water from the utility for drinking, approximately half (54%) had a secondary water source. More respondents (73%) from utility B had a secondary water source than from utility A (35%). The median water bill was 1,088 KES (\$10.88 USD) per month (n=347). Respondents from utility B had a higher monthly water bill than those from utility A.

Most (89%) of the respondents had a flush toilet (connected to a pit, septic tank, or sewer). Only 32% of respondents had a sewer connection. Besides sewerage, 18% of respondents paid a median fee of 583 KES (\$5.83 USD) per month for sanitation services such as pit emptying or latrine cleaning. Sanitation service fees were higher in city A compared to city B.

Customer willingness to pay

75% of the customers surveyed were willing to pay at least 30 KES (\$0.3 USD) for a sanitation surcharge. The median willingness to pay was 100 KES/month (\$1 USD/month), which is 9% of the median water bill.

Willingness to pay was not significantly different when varying the three implementation characteristics: type of proposed sanitation, messaging, and bill type (figure 1). Willingness to pay also didn't vary significantly between sewered and non-sewered customers, or between customers using/not using a secondary water source (data not shown).

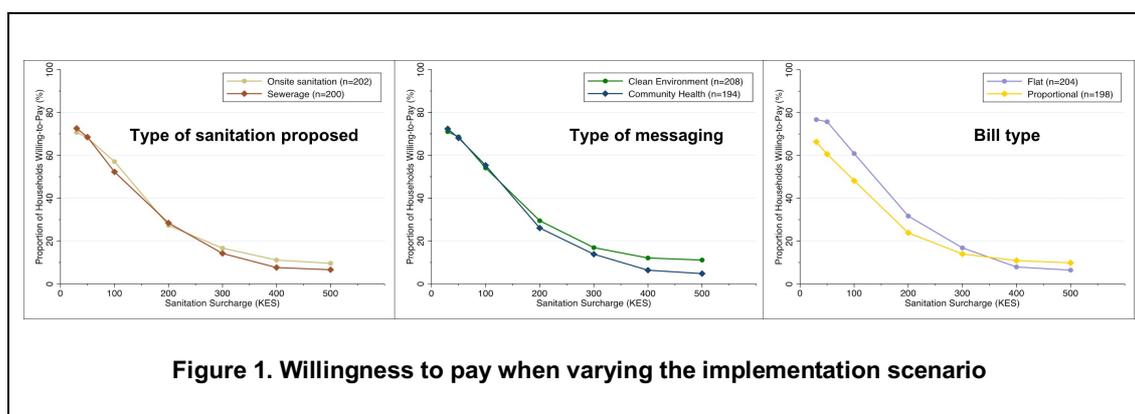


Figure 1. Willingness to pay when varying the implementation scenario

Three customer-level factors did influence willingness to pay: trust in the utility to properly manage the pro-poor fund, solidarity towards people living without sanitation, and satisfaction with utility services. It is also important to note that these factors were not widely shared amongst customers: only 55% of respondents trusted their water utility to manage the pro-poor fund (even less trusted their county government), only 43% approved the concept of cross-subsidies, and only 49% were somewhat or very satisfied with the water services provided by their utility.

We found substantial differences in willingness to pay between the two cities. 60% of Utility A's customers were willing to pay an additional 10% of their current water bill, compared to only 31% for Utility B (Figure 2). This difference was consistent with higher trust and greater customer satisfaction for Utility A. It should also be noted that Utility B's customers currently incur higher water and sanitation expenses, likely contributing to their lower willingness to pay for the surcharge.

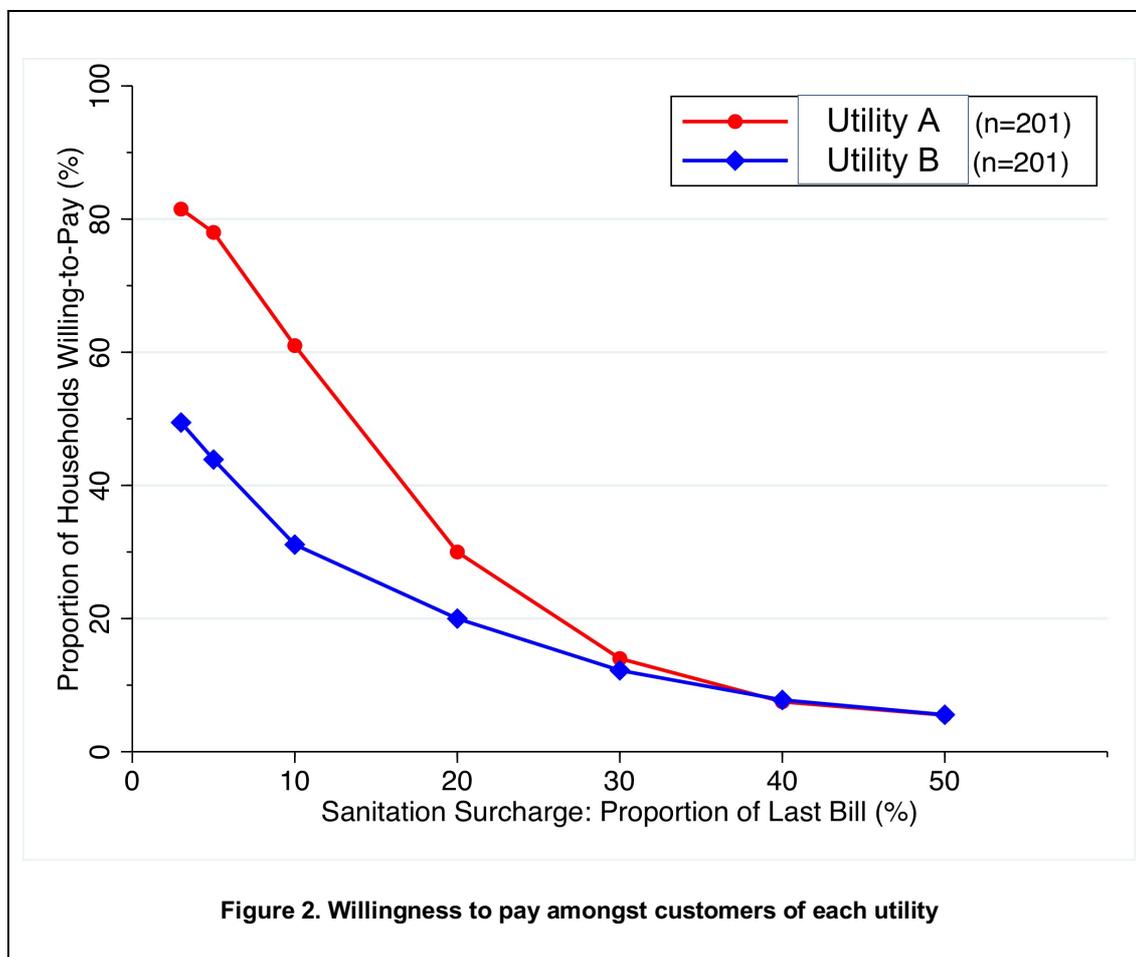
Qualitative findings

In our interviews and focus-group discussions, respondents expressed solidarity towards those who struggle with access to sanitation. A utility customer said, "I will be willing to [pay] because it helps those people who cannot help themselves." In addition, helping low-income neighbours was perceived as beneficial to the community as a whole. For example, a stakeholder noted, "I would feel it's okay to pay for someone else, because it affects me... When I am going outside my house, whatever he did outside, I will meet it. I'm the one to see it, my children might be affected because they might go and step on that waste."

Despite these feelings of solidarity, the interviews and focus-group discussions revealed that lack of trust in institutions to properly manage the pro-poor fund limited respondents' willingness to contribute. Corruption was the most cited concern in our interviews and focus-group discussions. A utility customer noted, "I think one of the most discouraging things in Kenya is corruption which permeates the whole society... it even prevents me from contributing because I think I am enriching the already rich."

Finally, customers indicated that they would be more willing to pay if the quality of utility services improved to provide them with continuous water supply and sewerage connections. A utility customer said, "I would be willing to pay if there is constant supply of water always. Because we do not have constant supply every week, sometimes we have to buy water." Another utility customer said, "when you exhaust you pay something like ten thousand shillings (\$100 USD) ...The cost... of establishing a disposable pit like mine here, you spend a

lot of money doing it and this could be avoided if there was such a sewerage system.” However, it is important to note that these qualitative findings were not supported by the survey results, which did not find significant differences in willingness to pay between customers receiving different levels of service.



Conclusion and implications

At the median willingness to pay of 100 KES (\$1 USD) per month, a pro-poor sanitation surcharge applied to Kenya’s 91 regulated water utilities could raise a total of 1.6 billion KES (\$16 million USD) annually for sanitation improvements in low-income areas. Based on our findings, messaging around trust and solidarity is recommended.

To implement such a surcharge, a number of aspects remain to be determined: the identity of contributors, eligibility criteria for beneficiaries, the disbursement mechanism (discount, rebate, or loan), and overseeing institutions.

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