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TRANSFORMATION TOWARDS SUSTAINABLE
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Management of cost recovery for sustainable rural water supply: case study from Uganda

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In Uganda, whereas urban water supply coverage has increased from 61% to 69% in the last 6 years, that for rural areas has stagnated between 63 and 64 %, despite the installation of new every year. This study was conducted to understand the current sources of rural water supply and their acceptance by communities, assess the ability and willingness of users to pay for service levels beyond their current level of service and determine the operational costs for continuous functionality and the funding mechanisms for the costs. The study revealed that politicians need to be sensitised about O&M for water supply and get engaged in tariff setting; community-based water supply systems should be phased out; private sector participation explored; and rural water supply investments should eventually shift from point sources to piped systems. Rural communities are willing to pay for a higher level of service.

Background

In Uganda, the rural water supply coverage has stagnated between 63 and 64 % for 6 years despite the installation of new water supply systems every year. On the other hand coverage in urban water areas dominated by piped supply systems has steadily increased from 61% in 2007/2008 to 69% in 2012/2013 (SPR, 2009 – 2013). The urban sector has a tariff policy that guides the setting of realistic tariffs that can sustain the water supply systems. This policy is not applicable to rural areas where the Water User Committees set a tariff that has minimal consideration of the actual cost of service provision and sustainability. This has created a situation where the Government is required to intervene financially to redeem system operations (MWE, 2009, p.5).

Research problem

The poor people are currently paying more per unit volume of water because of lack of easy access resulting into high charges levied by intermediaries (Winpenny, 2003, p.19). Other studies indicate that people are willing to pay more for the water services they are being offered than what they are currently charged. This is due to policy makers refraining from increasing tariffs to appropriate levels in fear that the people may not want to pay (UNDP, 1999). More so, the low rates are set largely for political reasons rather than practical (Fonseca and Njiru, 2003). The current options of water supply to rural communities need to be revisited and appropriate tariff structures put in place to improve the coverage and sustainability of rural water supplies.

Research aim and objectives

The overall aim of this study was "To contribute to the establishment of a cost recovery model for sustainable management of rural water supply systems". The specific objectives were:

1. To study the current sources of water supply and their acceptance by the beneficiary communities.
2. To assess the ability and willingness of users to pay for service levels beyond their current level of service.
3. To determine the operational costs that could ensure continuous functionality of the preferred water system and how the funds to cover all the costs could be raised.

Research methodology

The case study methodology was adopted for the study. It used the mixed design which involved use of both quantitative and qualitative data collection methods. Field work was carried out in three purposely selected districts in Western Uganda of Kabarole, Kamwenge and Ibanda. In each of these districts, a community with a borehole or shallow well, protected spring, piped water and no water source (4 communities in total) was visited. To ascertain acceptance, preference, ability and willingness to pay for different types of water service by the community, Focus Group Discussions (FGD) disaggregated by gender were conducted.

Semi-structured interviews with political and technical staff were also conducted, to reinforce learnings from the community and get insights in how cost recovery for rural water supply can be managed.

Photograph 1. Technical Staff Ibanda District

Photograph 2. Technical Staff Kabarole District

Observations were also conducted to get a feel of usage, quality of water collected and time spent collecting water. Literature and document review was done to understand the different types of costs associated with sustainably maintaining a water supply system. The qualitative data collected was coded into themes and the qualitative data statistically analysed to understand acceptance of current water supply, preference, willingness and ability to pay for different water supply technologies. The data was analysed to also understand how operational costs for maintaining water supply systems could be managed. The study followed ethical requirements as prescribed by Loughborough University's Ethics Approvals (Human Participants) Sub-Committee.

Findings and discussion

Water supply options

Review of Ministry of Water and Environment reports and website indicates that the most common type of water supply technology is the deep borehole which is serving 44% of the population country wide followed by the shallow well and then protected spring. Only 9% is served by piped water. Water is collected by women and children in 20, 10 or 5 litre containers depending on one's strength, between 7 to 9am and 5 to 8pm. Households use an average of four 20-litres jerry cans per day. Sources are 500-1000m away from households and a round trip takes 40-60minutes. Community members are majorly concerned about the convenience, (location of sources) reliability of the sources in the dry season and water quality in the wet season.

Kamwenge District in Western Uganda has a number of boreholes that have been retrofitted with a water meter to ease management of clusters of these wells by the private sector. There exists 46 of these wells where community members are paying 100UGX per 20litre jerrycan. The metered hand pump model is currently being adopted by other districts and the Uganda Sector as a whole, however, this study did not look at the technology as the other districts the study was being conducted in (Ibanda and Kabarole) by then did not have the technology in place.

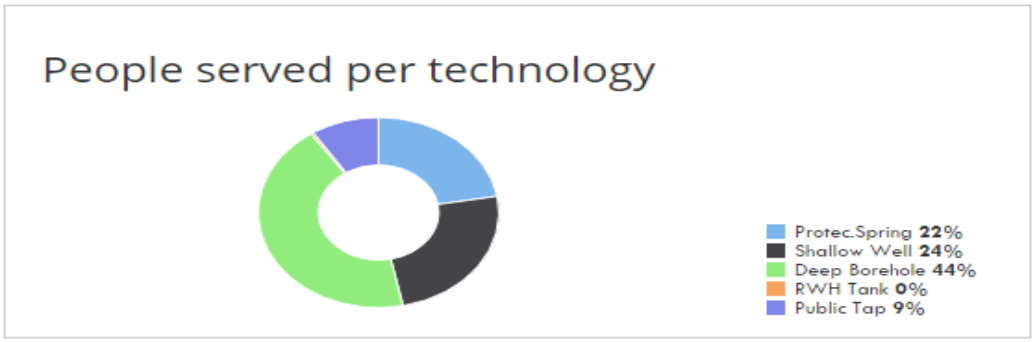

Figure 1. People served per technology in Uganda

Source: http://www.wateruganda.com/index.php/reports/national

Satisfaction and preference

52% of piped water users are satisfied with this type of source because of its convenience to their homes and its good physical water quality properties such as colour and taste. The 48% cited dissatisfaction with the poor pressure in the systems and high cost associated with the service. Only 25% and 10% users of borehole and protected spring water are satisfied with the sources. They expressed dissatisfaction with the distance of the water sources from their households, long hours involved in collecting the water from these sources, poor water quality especially in the rainy seasons. Inclination to a particular type of system was driven majorly by convenience, physical / visual water quality and reliability. Overall, 64% of the community members preferred the piped water supply system, 24% preferred borehole or shallow well type of water source, 11% preferred the protected springs whereas 1% preferred the ponds or scoop holes type of water supply.

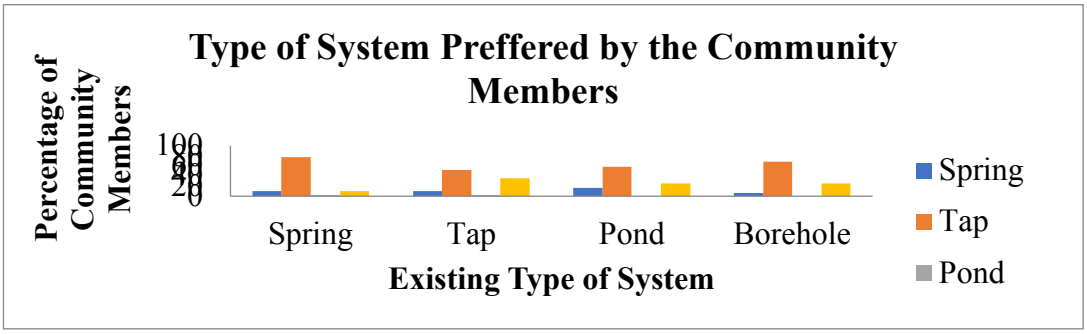

Figure 2. Type of System preferred by different communities against the existing

Source: Research Findings

Water quality

Water quality was only ascertained via observation and peoples perspectives. This indicated various levels of water quality ranging from colourless, odourless water to yellowish water infested with algae and tadpoles. Water from tap stands and protected springs had the best physical water properties, shallow well water was indicated to become turbid and yellowish during the rainy seasons and pond water was always turbid, smelly, infested with algae and tadpoles. The community definition of clean and safe water is colourless and odourless and they do not like chlorinated water as this is thought to cause cancer.

Ability and willingness to pay

This was driven by mainly convenience and reliability. 82% of the community were willing to pay for the piped water supply type of system. 18% cited high costs associated with operation and maintenance (O&M) and low pressure. The 82% is made up of 52% women and 48% men. 64% of the men are willing to pay for

borehole water which is cheaper than piped water. Only 36% of the women would want this due to its location from their homes and high energy required to pump and collect water. Other studies have shown that willingness to pay varies with season and the use of formal water point goes down when it rains. This was not considered in the study since we were looking for the type of technology users are willing to pay for most.

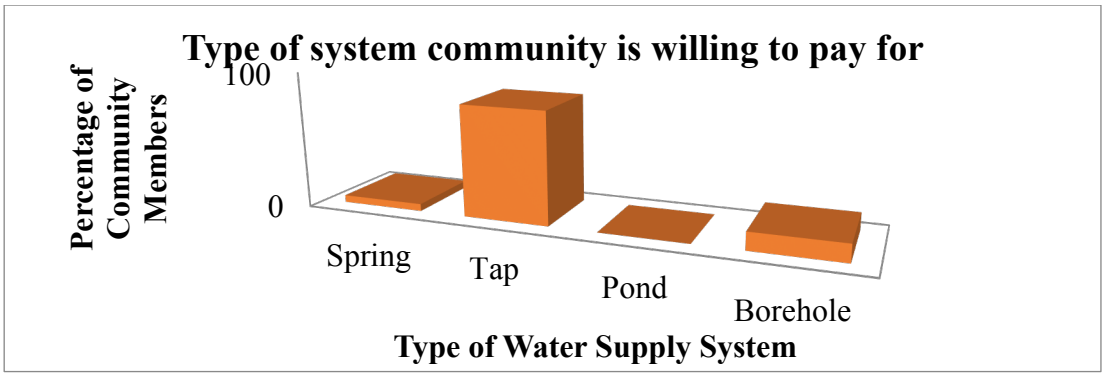

Figure 3. System community is willing to pay for

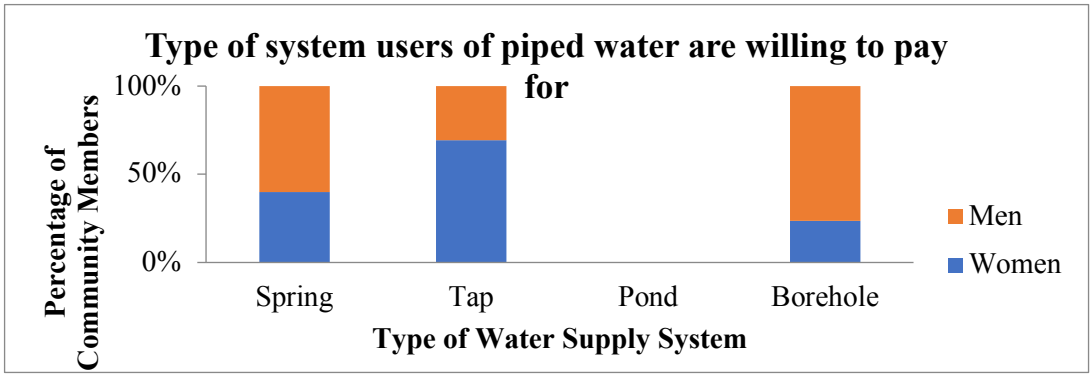

Figure 4. Type of system users of piped water are willing to pay for

Source: Research Findings

Operational costs and how they can be raised

Literature revealed that costs required to sustainably maintain a system include Operation & Maintenance Expenditure (OpEx), Capital Maintenance Expenditure (CapManEx), Capital Expenditure (CapEx), Direct Costs and Indirect Costs but community members and their leaders are not fully aware of these costs. Only 20% of the respondents are aware of CapManEx, Expenditure on Direct and Indirect support. Respondents cited a need for communities to have mechanisms of sustaining their water sources. The fees collected meet 100% OpEx; - CapManEx is considered a role of the Government through the District Water Office (DWO). The DWO indicated that the funding received for CapManEx is limited compared to the high number of water points and systems in need of it and one sure way of raising money is though tariffs. 50% of the community members expressed the ability to pay 100UGX per 20litre jerry can. Further discussions indicated that the users willing to pay 50UGX (27%) when educated about why and what they have to pay for are more likely to pay 100UGX or more for a 20litre jerry can.

Tariff setting

Politicians revealed that tariffs are set basing on the income of the beneficiary community or just mutual agreement. They cited the lack of a model that can be adopted nationally for setting tariffs for rural areas. The technical staff indicated setting tariffs, they consider type of service being delivered and requirements for O&M. Others use tools that have been developed by partners such as the AtWhatCost (Water for People)

and the Washcost (IRC). Three modes of payments for water used were preferred by the community members. 69% prefer to pay for a quantified service as and when it is provided, 23% are willing to pay a flat monthly fee and 8% want to pay when a system breaks. Politicians should also be engaged in tariff setting because communities where tariffs have been set with well-educated politicians are currently implementing sufficient tariffs.

Table 1. Modes of payment preferred by the community members

		Amount of Tariff per 20litre jerrycan	
Type of Tariff	**Percentage**	**Tariff**	**Percentage**
Per 20 litre Jerrycan / Metered Tariff	69%	200UGX	4%
Monthly / Flat fee	23%	100UGX	50%
When system breaks down	8%	50UGX	27%
		25UGX	19%

Subsidies

Currently, no subsidies are being implemented on the point water sources due to the nature of the mechanisms being used to collect user fees. The most common form of subsidy is the contribution the government makes to the rehabilitation of sources. An NGO in Kamwenge gives subsidies through reduced cost for connection fees such as giving out free meters, or asking the first 100 users to pay a small flat fee for a house connection. Respondents also indicated that the Government can subsidize rural water supply by ensuring 100% funding for CapEx and contribution to CapManEx.

Management of collected revenue

Respondents indicated that the revenue collected is used mainly for payment for the operation and maintenance of the water systems such as payment of the hand pump mechanics, the caretakers and buying spare parts etc. A few save part of the money for capital replacement at the Sub County Level on an "escrow account". Most communities do not have the zeal to pay for water maintenance due to the mismanagement of funds by the water user committee members. They all consider the bank as the safest option for saving their money and would want to always receive accountabilities for the money they pool every now and then. More so, operation and maintenance of sources was suggested to be done best by the private sector and not the community due to the failure of water user committees to manage and mobilise fees.

Monitoring and evaluation

This is done by the District Water Office every 3 months. Politicians also monitor the status of water sources when they visit communities alongside mobilisation and sensitisation. Users expressed the need to always be informed about the collections they have made and how these collections are being used.

Recommendations

This research recommends that:

1. There is immediate need for the politicians to be educated about the requirements for water supply system operation and maintenance, engage them in community education and tariff setting to improve the levels of tariffs set in the rural areas.
2. Community based management should be strengthened to include tariff setting for efficient systems operations and maintenance. Private sector management expanded from the urban to the rural sector based on the improved levels of functionality of urban water systems.
3. Investments in rural water supply should in the long-term shift from point water sources to piped water supply systems that are either solar powered or gravity fed systems. Communities are willing to pay for a higher level of service. Additionally, higher willingness to pay for a piped system more than offsets the additional life-cycle costs and technical complexity and fragility of piped systems compared to handpump or gravity-fed point-sources.

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