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**SUSTAINABLE WATER AND SANITATION SERVICES
FOR ALL IN A FAST CHANGING WORLD**

**Stimulating private sector to provide SMART
solutions for rural water supply**

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After limited success with supply-driven approaches, government of Uganda is pursuing a self supply approach to water, sanitation and hygiene (WASH) services through the private sector. This paper highlights the strategies and lessons learned by World Vision Uganda (WVU) in implementing a comprehensive self supply market-based approach to water services that encompassed all the four pillars of self supply. Private enterprises were identified in a competitive and fun process and trained to provide sustainable market-based appropriate and reliable technologies (SMART) for water supply. WVU conducted awareness and demand creation campaigns on self supply using low-cost water technologies. Private enterprises and households signed contracts. Low cost technologies promoted were Baptist drilling and rope pumps for boreholes. The results showed that households are willing to pay for their own water supply if there are appropriate and affordable water supply technologies.

Introduction

The access to improved water supplies in rural areas of Uganda has stagnated at 65% since 2008 (MoWE 2013), resulting in a large gap in accessing safe water that will not be adequately addressed through the fully subsidized approaches. Universal safe sustainable water coverage will be a dream unless a market-based, self-supply approach to water provision is implemented (Kiwauka, 2011).

Despite many challenges, a number of rural households and small groups invest in convenient water supplies which they manage and maintain by themselves; referred to as self supply (MoWE, 2013). A self supply model is needed for the purpose of increasing access to and achieving sustainable water, sanitation and hygiene (WASH) services. In Uganda, over 75% of all privately owned wells are still shared by neighbouring households (MoWE, 2011), thereby increasing access to safe water for neighbouring households. Self Supply involves responding to demands from consumers that form the market. Market-based approaches use the market economy to engage low-income people by offering products they can afford (Kubzansky et al., 2011).

Background of the project

World Vision implemented a two-year market-based self supply pilot project in Gulu district in northern Uganda between 2011 and 2013. The project aimed at significantly increase access to sustainable safe water in target communities in northern Uganda. This was achieved through stimulating and strengthening the private-sector to deliver SMART water services. A market-based solution relies on the ability of the private sector enterprises to provide the desired water supply products and services at affordable prices.

Approach and methodology

The approach used involved partnering with the private sector through a market-based approach to provide sustainable low-cost WASH services. The methodology used included:

District-level feasibility study

World Vision undertook a feasibility study on factors favouring self-supply and manual-drilling (Baptist method) in the seven districts where WASH is implemented. These are Oyam, Gulu, Hoima, Buliisa,

Bundibugyo, Nakasongola and Amuru districts. Gulu district scored the highest and piloted the project. Baptist drilling involves percussion action by lifting the drill stem with a rope over a pulley, attached to a simple derrick, made with whatever available wood or bamboo poles. It is a hybrid between sludging and percussion drilling but unlike hand sludging that relies on a person’s hand at the top of the drill pipe as a valve; the Baptist method uses a valve, incorporated into the bit at the bottom of the drill stem.

The project site was selected with technical guidance from the District Water Office (DWO) of Gulu while using an assessment tool developed by WVU (Table 1). As a result Koro and Bobi subcounties that form Koro-Bobi Area Development Programmes (ADP) were selected.

Table 1. Tool for selection of project sites for the manual drilling and rope pump production					
District Name:			ADP Name:		
Environmental	Political	Socio-economical	Technical	Community	Operation
Ground Water (GW) depth <30m; % of area with GW<30m. Soft formation to 30m. % of area with soft formation	DWO support? WVU committed to area?	Access to loans? Limited access to water? Functional Hand Pump Mechanics?	Functional water sources? Water used for MUS? Access to road and electricity?	Self Help projects? Is Community Management a problem? Demand for water? Ability to pay?	WASH NGOs in area?
Yes/No	Yes/No	Yes/No	Percent ; Yes/No	Yes/No	Yes/No

Awareness creation for district leadership

Two meetings were held at the DWO to introduce and obtain support from the Gulu district leadership on the new self supply strategy under which the pilot project was going to be implemented. Interactions with the DWO provided baseline information about private enterprises engaged in manual well drilling, hand well digging, hand pump mechanics (HPM) and other related activities.

Selection of Private Sector partners

1. Media campaigns, competitions and assessment

Market research and assessment of existing enterprises was conducted through site visits and interviews which resulted in identification of enterprises that could be supported so as to deliver low cost water services. In fact one of the enterprises had experience in manual drilling (rota sludge method) but was not doing any drilling due to lack of business creativity. An inception workshop was conducted during which the criteria and selection processes were agreed upon by identified enterprises. World Vision ran a contest involving responding to three quizzes, and submission of business plans and demonstration of relevant WASH skills and commitment by potential enterprises. A meticulous and competitive fun-filled selection process was conducted over a period of three days.

Based on its wider listenership, MEGA 102 FM a local radio station was selected and aired out the three quizzes, which were simultaneously sent to participants through phone short-message-services (sms). Responses were received through phone sms to contacts provided by responsible WVU staff. Each quiz was aired and sent to the phones twice each day – in the morning and evening. The quizzes tested creativity, motivation and sustainable business idea; aspects that are essential for sustainability of market-based services (table 2). The best nine enterprises out of 16 respondents were selected and requested to submit business plans for operating a manual drilling or rope pump fabrication business. The selected enterprises were given feedback through the same radio station and by phone sms.

2. Assessment of business plans

A second workshop was organised to train participants on how to develop a business plan and to disseminate the evaluation criteria to be used. The business plans received were scored and the top five out of the nine were selected. Project staff visited the premises of these five selected enterprises to assess their organisation, equipment and staffing capacities. A pre-training meeting was held for successful enterprises to address the draft agreement and any expectations. A memorandum of understanding (MoU) was signed that specified the roles, responsibilities, service delivery and regulatory mechanisms before conducting any training.

Table 2. Assessment tool for private sector partners				
Day	Questions	Maximum score	Name of enterprise	Marks scored by.....
1	How can safe water be provided for everyone without waiting for government or NGOs? <i>(To search for innovativeness of the individual)</i>	10		
2	Why are you driven to change the lives of people in your community? <i>(search for awareness on impact of lack of water on communities)</i>	10		
3	What business idea do you have to continuously provide communities with safe water in your area? <i>(search for sustainable business ideas)</i>	10		
	SCORES ACHIEVED	30		
	Average Score	10		

Identification of master trainers

Three consultative meetings with the DWO of Gulu and with the Appropriate Technology Centre (ATC) of Uganda revealed that there was lack of in-country competency in Baptist drilling method. Therefore Southern Highland Participatory Organisation (SHIPO) from Tanzania was selected and hired for this training.

Capacity building of local private sector

World Vision Uganda conducted three separate trainings. These included technical skills, business management skills and capacity improvement/follow-up training. The technical training was conducted in July 2012 and took 15 days, benefiting 22 participants (10 from the five enterprises, one from local government of Gulu, and two were from partner NGO, and nine from WVU). Both drillers and fabricators were trained on technical aspects including hydro-geology for manual (Baptist) drilling, well construction, drilling tool manufacture, hand pump manufacture and fabrication, hand pump installation and repair, water filters, etc. Two wells of 22meters and 11meters deep respectively were drilled during the practical training.

A contract was signed with each of the five enterprises. World Vision provided one set of drilling equipment to each drilling enterprise on a “rent-to-own” arrangement allowing for the recovery of the equipment cost valued at one million shillings (USD 400) only after drilling 10 wells. After six month of field practice in the business, a three-days training on business management skills improvement was conducted by WVU. The capacity improvement/follow-up training was conducted by SHIPO eight month after the first technical training to monitor and mentor the private enterprises.

The selection process was a novel approach and resulted in well prepared and committed training participants – no wonder the trainees are all very practical.

Advocacy and market-demand creation

Community sensitization and advocacy meetings were supported by sub county leadership who emphasised the role low cost technologies play in market-based self supply approaches. Demand was created through conducting demonstration, use of early adopters as champions, market & community fairs, exhibition at conferences, foras and fairs and distribution of leaflets and newsletters.



Photograph 1. Drillers receive drilling equipment after training from World Vision



Photograph 2. Trainees drilling their very first well of 22m deep during training



Photograph 3. Practical training in a workshop (Second from left is the Fabrication trainer)



Photograph 4. Installing Rope Pump during training (Squatting is the Drilling trainer).

Regulating the quality of products and services

WVU has collaborated with Gulu district water office (DWO) to mentor, supervise and monitor the private sector entrepreneurs. Water quality testing was undertaken in collaboration with the District Water Officer. The test results on the physical, chemical and micro-biological parameters showed that water quality for the constructed low cost wells met the national standards (MoWE, 2013 pg. 62). The Ministry is supporting selected district local governments to promote self supply and has recently completed a 3-day learning visit to this pilot project in December 2013 to help develop a national strategy. To improve standards, welding jigs were given to fabricators and training handouts/manuals were given to trainees to use as reference materials.

Financing of WASH services

WVU established linkages between micro-finance institution and trained enterprises and households. Vision Fund Uganda (VFU), a micro-financing institution implemented a WASH loan for vulnerable households and private enterprises. The interested beneficiaries were sensitised and appraised before loans were given. Households that did not qualify as individuals were encouraged to form groups to meet minimum requirements. WVU then assessed the feasibility of the proposed site for manual drilling.

The appraisal entails finding out the clients ability to pay, collateral (for instance goats, equipments, etc) and income generating ability. Before a loan is given, the client is expected to pay 30% of the required loan amount as commitment contribution. Out of twelve members who attended the training, eight clients bought application forms and returned them. After carrying out appraisals, five enterprises met these requirements however, only three clients went further to pay the 30% (USD 240) commitment contribution; and benefitted from the WASH loans amounting to USD 560.

Affordability and acceptability of the low cost technologies

It is evident from table 3 below that these costs are affordable by households since 33 wells were drilled within just nine months, at an average depth of 25meters (100mm diameter casing) each costing USD 800 compared to a machined drilled well of the same depth that costed USD 4,500. Eleven of these benefitted from a subsidy of USD 200 meant to demonstrate the new technologies in the area. These technologies reduce the cost per beneficiary of rural water supply from USD 24 to only USD 4. A fabricator can make one rope pump within every hour and hence up to 10 rope pumps (worth USD 648) can be fabricated in a day.



Photograph 5. Gulu District Water Officer (first right) and during water sampling



Photograph 6. The Master trainer (third right) during follow-up training

Item	Costs Uganda Shillings	Costs (USD)	Remarks
Rope pumps (Family model)	136,000	54.40	Serving about 10 people
Rope pumps (Community Model)	162,100	64.84	Serving up to 200 people
Rope pumps (Short base)	125,250	50.10	For hand dug wells
Manual drilling set	587,200	234.88	For Baptist method
Well drilled to 21m depth	989,000	395.60	

Sustainability of the private sector business

The government is in support of this approach and has established an Appropriate Technology Centre (ATC) to develop and promote appropriate low cost water and sanitation technologies (Danert and Carpenter, 2013). With the rapid increase in demand for WASH services, more private sector enterprises will venture into this business resulting in competition for the market. This would lower the costs of service delivery while improving the quality. The locally-made rope pumps and drilling equipments can now be produced from any trading centre with access to a mobile welding set or access to electricity grid. Sustainability of private sector initiatives is guaranteed by the profit the business realizes. All the input

materials are found in any village markets, there is a rise in demand for low cost WASH services and therefore WVU believes this approach will be sustainable.

Key achievements

- Capacity exist amongst 19 private sector enterprises to provide SMART options for WASH; manual (Baptist) drilling (17) and locally-made rope pump fabrication (02).
- There has been an increased demand for manually-drilled water sources due to the reduced costs of services provided: The 40 low cost wells were drilled in communities that were most difficult to reach with mechanized drilling rig in terms of accessibility.
- Low-cost rope pumps are now available in Uganda as an alternative to India Mark II hand pumps for shallow wells up to 40m depth.
- Partnerships have developed amongst others institution e.g. Vision Fund that provide WASH loans and dissemination of technologies. Training of students from Gulu University and Uganda Technical College, Lira during industrial training to learn about low-cost WASH technologies.

Lessons learnt

- A demand driven training incorporating a competitive process to identify committed participants is an effective approach to scaling up a new technology across the country.
- As markets expand, an association of certified drillers and fabricators will be required to regulate the business and avoid fake entrepreneurs joining the business without proper training. Greed amongst entrepreneurs is still a challenge.
- For a quick acceptance of new technologies, the cost of initial investment is a key determinant for the private sector entrepreneurs.
- The low-cost technologies promoted have resulted in job creation for both graduates and non-graduates who first join as employees and later move out to become business owners, hence employing more unemployed youth.
- Collaboration with the local leaders is vital for acceptability but many leaders altered the promotional packages for personal gains that resulted in a temporary reduction in demand.
- Convincing interested beneficiaries that a self supplied water source at their home is a sustainable source of wealth is one of the success factors for promoting self supply approaches.
- The private sector entrepreneurs need to understand the huge potential business opportunities in provision of WASH services for the majority low-income earners, and design products and services accordingly.
- One needs evidence to build acceptance amongst stakeholders. Technocrats are now convinced of the water quality and are advocating to politicians for manually drilled wells to be used e.g. in Gulu.

Conclusion

The market-demand and advocacy activities by WVU have created significant interest and demand in promoting market-based WASH services in Uganda. The SMART solutions for WASH are continuously expanding the WASH private sector opportunities in Uganda. Functional private-sector enterprises now exist in communities to provide affordable low-cost WASH services supported by a micro-financing agency that provides micro loans to vulnerable households for their wells.

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