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LOCAL ACTION WITH INTERNATIONAL COOPERATION TO IMPROVE AND SUSTAIN WATER, SANITATION AND HYGIENE SERVICES

**Asset creation versus sustaining services:
institutionalizing VL0M to deliver SDG-6.1 target in Nigeria**

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Despite investments in water supply infrastructure, functionality remains low owing to a variety of factors including poor Operation & Maintenance regime and low community ownership. To overcome these challenges, a robust Village Level Operation and Maintenance (VL0M) approach was piloted. The approach is institutionalized within the State Rural Water Supply and Sanitation Agencies (RUWASSAs) by shifting agencies' focus from mere asset creation towards sustained service delivery. The VL0M units established in the twelve RUWASSAs work with trained local area mechanics (LAMs), parts dealers and community caretakers towards ensuring 100% functionality of schemes. The LAMs charge communities for their services against agreed rates. This is linked to the Facility Tracking System resulting in 11% increase in functionality since inception of the pilot project. Once scaled up and sustained, this approach will optimize investments needed to achieve WASH SDG-6.1 target in Nigeria.

Background

In Nigeria access to improved water supply in rural areas is 57%. This implies almost half of the rural communities in the country without access to an improved water source. Findings from the National Hand pump Functionality survey carried out by UNICEF-Tulsi Chanrai Foundation (TCF) indicated that only 56.22% of the hand pumps were functional at any given time. Broken down hand pump as seen in photograph-1 is a common occurrence. As per the survey, the most common cause of breakdown was reportedly pipe leakage followed by problems with cylinders/rubberized parts.



Photograph 1. Broken-down hand pump

Source: UNICEF, Nigeria



Photograph 2. School Children fetching unsafe water from a pond.

Source: UNICEF, Nigeria

Poor access coupled with low functionality means just about a third of rural Nigerians have reliable access to safe water. Low water coverage coupled with sub-optimal functionality of water facilities adversely impact the lives of women and children who often have to trek long distances to fetch water from streams,

rivers, and ponds (see photograph-2). Incidences of cholera, diarrhoea and dysentery are therefore common and exacerbate the malnutrition risk, especially among children under-5.

The Federal Ministry of Water Resources (FMWR) supported by the WASH Development Partner's Group (comprising UNICEF (chair), AfDB (co-chair), EU, UK Aid, USAID, JICA, AfD, Water Aid, etc.) formulated the 2016-2030 Partnership for Expanded WASH (PEWASH) program. PEWASH is a multi-stakeholder collaboration aimed at achieving 100% access to basic water and basic sanitation in the rural areas in Nigeria by 2030. PEWASH prioritizes rehabilitation of broken down water facilities over new ones with a view to maximize investments in the sector. Under the umbrella of PEWASH, UNICEF –Nigeria in partnership with TCF in 2016 piloted a comprehensive approach aimed at improving rural water supply sector service delivery by strengthening maintenance culture of state RUWASSAs and Local Government Area (LGA) WASH departments. The emphasis of the pilot is to shift the institutional focus of these agencies from 'asset creation' to ensuring 'sustainable services' in the 41 LGA across 12 States (see figure-1) with the financial support of EU and UKAid.

The approach

The key aspects of the adopted approach include:

Demand driven approach - so that the community takes ownership and responsibility for operation and maintenance (O&M) of their water facility rather than being passive recipients. Under the EU and UKAid funded programs, the communities contribute a part of the capital cost (for new water points) and in terms of materials and labour in case of rehabilitation of their water facility. This approach has played a crucial role in engendering community ownership of water facilities.

Strong institutional structure: VLOM units/sections were established and institutionalized within the LGAs and State RUWASSAs to monitor the process, regulate private sector and ensure regular supply of spare parts. At the community level, Water Sanitation and Hygiene Committees (WASHCOMs) were strengthened to maintain their water facilities. They were mobilized to collect user charges (5 to 30 US cents) on a monthly basis from each of the household who fetch water from the hand pump.

Training and capacity building: A total number of 82 LAMs (two from each Local Government Area (LGA) were trained on repair and rehabilitation of hand pumps. 41 local traders (one from each LGA) were also trained on VLOM aspects. The mechanics were provided tool boxes for installation and repair work. A community caretaker from each facility was also oriented on preventive maintenance and minor repair work.

Integrated approach: A package of interventions necessary for sustained use of facilities is adopted comprising - rehabilitation of broken down hand pump boreholes, replacing Non-VLOM pumps with VLOM pumps, community mobilization, community based planning and monitoring, gender mainstreaming by involving women mechanics and capacity building.

Public-Private Partnership: Private mechanics and entrepreneurs/traders were engaged for O & M and rehabilitation of water facility. The VLOM unit established a schedule of rate for each kind of repair work in consultation with the mechanics and traders taking into consideration the prevailing market price. **The rates vary in the different LGAs, due to various factors such as distance, cost of transportation, whole sale price of spare parts in the area, labour cost and critical mass of hand pumps in the specified area.** The VLOM unit/sections then acted as a monitor and regulator to ensure that quality work was done at agreed price. The VLOM units gave seed stocks to the traders to start their business and revolve it.

Mobile based monitoring system: The assessment of boreholes and rehabilitation/repair activities were captured on mobile phones and reported in real time. Pre-and post-rehabilitation pictures were taken and geo



Figure 1. Map showing 41 Project LGAs

Source: UNICEF, Nigeria

tagged for proper recording of rehabilitation work. Besides a sms-based real-time facility tracking system is in place to track functionality leading to prompt action for repair of broken down hand pumps.

Sustainability: No rehabilitation work was considered if: there were no WASHCOMs; or WASHCOMS were not functional; no evidence that the users are willing to contribute (they must have some funds available in the WASHCOM bank account). Apart from that the communities were expected to have achieved open defecation free status before getting their water facilities rehabilitated.

The roll-out

The project started with the collection and analysis of the baseline data on total number of hand pump boreholes, disaggregated by functional and broken down boreholes from each of the LGAs. Inception meetings took place with State RUWASSA officers to finalize action plan for the implementation of the pilot project. The action plans laid down the vision and a plan, including resource requirement to achieve the 100% functionality over the next 3 years. VLOM Monitoring units were established and officially notified and existing staff (Directors of Water Supply, Maintenance, Planning, Monitoring and Evaluation (PME) were deputed. Similarly VLOM units were also constituted at the LGA level. Capacities were built through State level VLOM workshops. During the workshops, 100% Functionality Roadmaps were developed for each LGA with specific time-lines. The VLOM units identified two Local Area Mechanics (LAMs) and a Local Trader (LT) from each LGA with support from TCF. TCF developed the capacities of LAMs and LTs through theoretical and hands-on trainings. Radio Jingles, posters, brochures were developed for the publicity of VLOM in rural communities. VLOM units sought applications from interested WASHCOMs for rehabilitation of their water points through posters, radio jingles and community announcements. 1,895 applications were received by the VLOM units. The VLOM unit reviewed each application against a pre-defined criteria such as – Open Defecation Free (ODF) community, functional WASHCOM (a functional WASHCOM is one that is formally registered, holds records of all activities, creates awareness on WASH issues within the community, and mobilize community members to contribute money towards operation and maintenance of WASH facilities), population over 500 and existing savings by WASHCOM's in their bank accounts and willingness to contribute. Eligible communities were accordingly selected.

UNICEF supplied spare parts for some of the rehabilitation work. The rehabilitation work was carried out by trained mechanics under the supervision of VLOM unit and TCF (see photograph-3). Non-VLOM (India Mark II) hand pumps were replaced by VLOM (India Mark III and Afridev) hand pumps. WASHCOMs contributed about Naira 20,000 (US\$ 64 based on 1US\$ = 315 Naira) in terms of materials and labour for repair/reconstruction of apron and drainage around the hand pump. This represented approximately 10% of the cost of spare parts required for rehabilitation of India Mark III hand pump borehole. The rehabilitation work was documented through photographs and data on the water facility including its geo-tag was uploaded into the WASH Information Management System (WASHIMS) and the community caretakers were trained on reporting on facility tracking using SMS.

The VLOM unit has signed agreements with the mechanics and local traders to repair work at scheduled price and regular supply of spare parts respectively (see photograph-4). LAMs are allocated communities based on their proximity and were eligible to repair the broken-down hand pump boreholes within these communities with involvement of community caretakers. LAMs are required to repair broken down hand pumps within a fixed time. VLOM units are responsible to monitor that the mechanics are repairing broken down hand pumps within 48 hours, though there are some challenges in meeting the time lines in some cases due to the time taken by the mechanic to reach the remotest communities. Each facility caretaker is oriented on preventive maintenance and minor repair work. They are given basic spare parts and a tool box to undertake basic O& M at regular intervals. The communities are now aware of the schedule of rates and are able to approach trained mechanics on their own. This has helped streamline the cost of repairs besides reducing downtime to within 48 hours.



Photograph 3. Women Mechanics undertaking rehabilitation

Source: UNICEF, Nigeria



Photograph 4. Trader receiving seed stock and signing agreement with VLOM unit

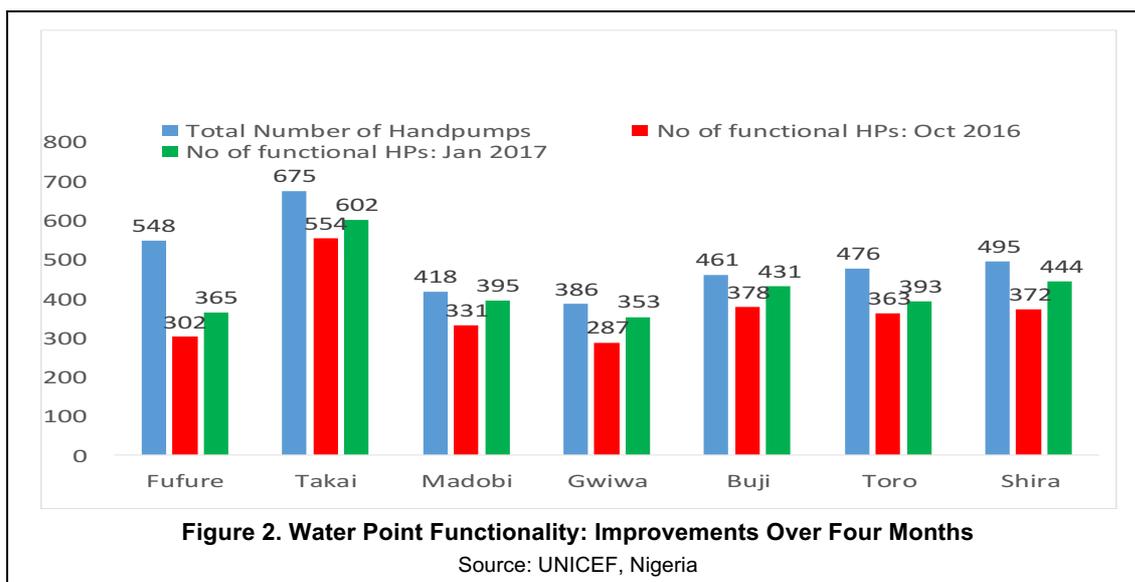
Source: UNICEF, Nigeria

Reporting process

The caretakers were trained on real time tracking of water point functionality using their mobile phones. In case of any breakdown, the caretaker sends a SMS through his/her mobile phone to a specified number. The database of water facility at the LGA level gets updated and a SMS alert is sent to the catchment LAM. The VLOM unit members also access that information and initiate action for repair by contacting the LAM and the community. The mechanic assesses the problem in the facility, prepares an estimate of the repair work and submits it to the WASHCOM for approval. Post approval from WASHCOM, the LAM gets in touch with the Local Trader for spare parts, purchases the spare parts as per the scheduled price, repairs the borehole and collects repair charges from WASHCOM as per agreed schedule of rates. Thereafter they report back to the VLOM unit. The VLOM unit members check the facility and quality of work done by the mechanic during their routine field visits and report to State VLOM unit. Routine field visits are usually carried out on a weekly basis by VLOM unit members. The LGA VLOM units maintain a register of repaired water facilities carried out by the mechanics during the month and submit that report to the State unit. State VLOM unit members also conduct routine monitoring visit to assess the quality of works done by the LGA VLOM units and LAMs. WASHCOMs are also mobilized to collect nominal user charges, varying from 20 to 100 Naira (5-30 cents)/ month/households fetching water from the water point. The money thus collected is deposited in the WASHCOM bank accounts for future repairs.

Results

Improvement in functionality of hand pump boreholes: A good improvement in the functionality of hand pumps has been seen within a short period across LGAs as shown in figure-2. Highest rise in functionality of hand pumps of 17% has been achieved in Gwiwa LGA followed by a 15% rise in the functionality of hand pumps in Madobi and Shira LGAs over the last four months. Overall there is an increase of 11% in the functionality of hand pumps, rising from the baseline of 75% to 86%. 42% of the non-functional boreholes with minor problems (e.g.: problems with rubberized parts, bearings, plunger, foot valves, etc.) were repaired through the VLOM arrangement. The remaining 58% of the hand pumps with major problems (e.g.: broken risers, damaged cylinders, damaged head assembly etc.) were rehabilitated with support from UNICEF.



Spurt in business of the Local Traders: Mallam Kabiru Ibrahim Bala, a Local Trader from Toro Local Government Area of Bauchi State received seed stock from the VLOM unit to start his business in water sector. According to him, Afridev and India Mark III spare parts are the major parts he sells. He gets his spare parts from the wholesaler based in Kano Market. The price that he sells to the mechanics are already fixed by the VLOM unit to avoid people being exploited. The mechanic sometimes pays money to purchase spare parts, at other times, the spare parts are taken on credit and paid after the completion of work. There is a credit based mechanism in place between the local trader and the mechanics. There are 40 more local traders like Mr Kabiru who are dealing in supply of hand pump spare parts in the LGAs.

Increased engagement of women: One of the major reason behind the long treks taken by women to fetch water is the broken-down water facility within their community. The pilot project therefore focussed on engaging women as hand pump mechanic and caretakers, so that they are in a position to address any minor repairs within a short time. Despite the predominantly conservative culture in the project areas, 12 female mechanics were trained and engaged for repair and rehabilitation work. Comparatively there are more women mechanics in the North than South. Besides 25% of all scheme caretakers are women as well. The project also ensures sufficient women representation in the WASHCOM (at least 40%).

Ownership of water facilities: In rural areas communities expect the Government to repair their non-functional borehole. It was therefore considered imperative that request for the rehabilitation comes from community and they agreed to the modalities of this partnership approach. Communities agreed to pay for/or manage all civil works (apron, drainage, etc.) while UNICEF/TCF would provide parts. Photograph-5 shows community repairing the apron and drainage works.



Photograph 5: Community repairing apron and drainage as part of their contribution
Source: UNICEF Nigeria

Preventive Maintenance: Preventive maintenance is another key element of ensuring 100% functionality of water facilities. In remote communities of Nigeria most of the hand pumps operate for nearly ten hours a day. Due to this load, the pumps require frequent maintenance.

Lack of preventive maintenance leads to major breakdown in the pump. Under this project, the caretakers are identified from the community, oriented and given tools for preventive maintenance of their hand pump borehole. Women are preferred as caretakers, wherever possible.

VLOM units: The innovation under the project is the institutionalization of VLOM through the setting-up of VLOM units at the State and Local Government level and shifting the focus from drilling new boreholes only to also maintaining the existing facilities. After the formation of VLOM units and necessary capacity

building support, the RUWASSA and LGAs have begun to assign more resources to the maintenance aspects. Almost all RUWASSAs have started to prioritise achieving 100% functionality of existing hand pumps in their budgetary allocations. For example, RUWASSA in Kano State has stopped construction of new water points and have diverted most of their budget to repair/rehabilitation of non-functional boreholes. Similarly, RUWASSA in Bauchi is planning to replicate this model in other LGAs of the State. RUWASSA in Adamawa has increased budgetary allocations to repair all defunct boreholes to achieve 100% functionality. The private mechanics and local traders were linked to the VLOM units to ensure uninterrupted and affordable quality supplies within the LGA. VLOM units are playing a key role in regulating the mechanics, traders; monitoring the repair work and ensuring smooth supply of spare parts.

Lessons learned

Communities are ready to contribute towards repair of their water facility if properly mobilized and demand for safe water supply is created. This also furthers decentralization with communities more aware of their responsibilities and less dependent on Government or other donors for minor repairs. Community contributions has been found to be a key determinant of sustainability. The early results demonstrate that the approach is sustainable due to interplay of a strong spare parts supply chain operated by the private enterprises with local entrepreneurs for profit; trained local area mechanics, who earn a living out of repairs following approved schedule of rates; trained caretakers who carry out preventive maintenance and small repairs besides SMS reporting to VLOM unit in case of any major breakdown; system of routine savings by WASHCOM to cover the cost of any major repair when needed; and lastly a government VLOM unit with dedicated mandate to improve functionality to above 95% and reduce downtime to less than 48 hours.

Recommendations

The recently launched PEWASH program lays down the government's vision to achieve SDG-6.1 and 6.2 in the rural areas. A National roadmap for "Making Nigeria Open Defecation Free by 2025" has been developed to support the achievement of sanitation under the PEWASH program. On similar lines, there is a need to develop a roadmap for "Sustainable access to Water Supply through VLOM in rural areas". Once such a roadmap is launched, the State RUWASSAs will be compelled to have a comprehensive approach (elucidated above) around the rehabilitation of defunct hand pump boreholes; create an enabling environment for private sector engagement in the provision of spare parts and quality services; with the government largely playing the role of a regulator. Specific recommendations include:

- Development of a revised VLOM strategy taking into consideration this successful pilot project for scaling up VLOM nationwide. In the immediate term, extend this pilot to cover additional six states and 30 LGAs by 2018 and thereafter in a phased manner cover all the states and LGAs by 2025.
- Advocacy with Federal and state Government to ensure that all water facilities have a trained caretaker to ensure preventive maintenance and minor repair work. This should be a mandatory requirement for service providers to include training of community caretaker for any hand pump borehole installed or repaired in a community using government/ donor resources.
- The non-VLOM hand pumps to be gradually replaced by VLOM pumps for ease of maintenance. Only VLOM pumps to be adopted for new hand pump boreholes. Severe punitive measures need to be put-in place to thwart contractors on installing non-VLOM pumps.
- WASHCOMs should be encouraged to organize themselves into credit and savings group using the water supply agenda. The surplus resources generated could be deployed to offer affordable loans to households within their communities for developmental/ economic activities.
- Strengthening supply and maintenance service networks and working with vocational education institutions to reinforce the technical capacity of stakeholders with specific training modules in preventative maintenance and repair of hand pumps;
- Position Nigeria as a manufacturing hub for VLOM hand pumps and other spare parts in Nigeria.

References

- FEDERAL MINISTRY OF WATER RESOURCES, Nigeria 2016 *"Partnership for Expanded Water Supply, Sanitation & Hygiene (PEWASH)" Program*
- Federal Ministry of Water Resources, Nigeria, January 2017 *Water Sanitation and Hygiene Information Management System*, <http://www.washims.com.ng>
- Federal Government of Nigeria-UNICEF 2017 *Promising Practices – some case studies of Nigeria*.
- Federal Government of Nigeria - UNICEF 2015 *Expanded WASHCOM Guideline - Nigeria*.

Federal Government of Nigeria - UNICEF 2015 *Expanded WASHCOM Guideline - Nigeria*.

K.NADAR, R.Nwozor 2016 “ICT enabled monitoring fosters greater accountability and improves WASH Services in communities”: Proceedings of the 39th WEDC International Conference towards Ensuring Availability and Sustainable Management of water and sanitation for all: WEDC, 11-15 July 2016, Kumasi, Ghana.

UNICEF-Tulsi Chanrai Foundation 2011 *National Hand pump Functionality Survey - Nigeria*.
WHO-UNICEF, 2015, *Joint Monitoring Program Report*

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