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TRANSFORMATION TOWARDS SUSTAINABLE
AND RESILIENT WASH SERVICES

Ensuring sustainability and improving functionality of water supply facilities through VLOM in Nigeria – from pilot to national strategy

F. Khan, M. Niang, Z. Jurji & G. Mahato (Nigeria)

PAPER 3047

It is estimated that by 2030 only 72% of the rural population in Nigeria will have access to improved water supply. Alarmingly however are the high estimates (~50%) of nonfunctional rural hand pumps at any given time. Achieving the SDG targets will not only require huge investment in extending the improved water coverage to currently unserved but more importantly current investments in hand pump boreholes must be sustained. From the experience of the pilot project carried out by UNICEF and Tulsi Chanrai Foundation, 80% of the non-functional hand pumps were found to be repairable and state and local government service providers able to transform their O&M culture to ensure functionality at or above 90% at any given time. The challenge for Nigeria therefore lies in affecting a national VLOM strategy and to ensure its meticulous implementation.

Background

Nigeria has an estimated population of 178 million and 54.6% of its rural population has access to improved sources of water. Hand pump boreholes are the key sources of improved water supply and constitutes 56% of all the improved water sources in rural areas. With rural population growth rate of 2.1%[2], the projected rural population in Nigeria will be about 110 million in 2030. Projecting the growth in access to improved water supply for rural areas in Nigeria we estimate that in 2030 only 72% of the rural population will have access. More alarmingly it is estimated that almost 50%[3] of these rural hand pumps remain nonfunctional at any given time. It is therefore evident that to achieve the SDG targets the existing water supply facilities must be maintained and sustained in addition to construction of new facilities. From the experience of the pilot project carried out by UNICEF and Tulsi Chanrai Foundation in 41 LGAs of 12 states 80% of the non-functional facilities are repairable.

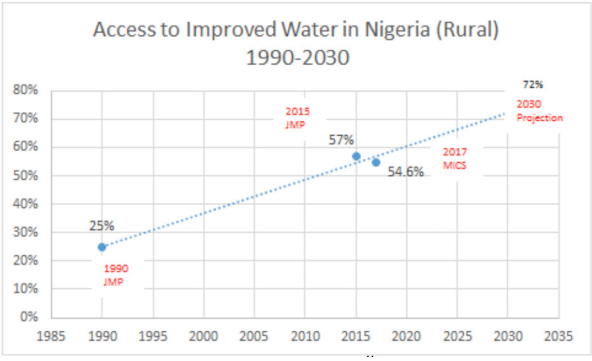


Figure 1. Access to improved water

The functionality challenge

Water sources and systems are maintained such that appropriate quantities of water are available consistently or on a regular basis. On an average, a water source functions well within the first three years, after which it starts breaking down. Most the current rural water sources in Nigeria are over 5 years old, not regularly maintained and hence at risk of regular breakdowns. Findings from the National Hand pump Functionality survey carried out by UNICEF-Tulsi Chanrai Foundation (TCF) in January 2011 indicated that only 56.22% of the hand pumps were functional at any given time. As per the survey, the most common cause of breakdown was reportedly due to poor workmanship followed by problems with poor quality of supplies and spare parts. The Federal Ministry of Water Resources, based on a survey completed in 2015, confirmed that over 58% of the completed water facilities in the country are non-functional.



Photograph 1. Broken-down hand pump
Source: UNI*CEF, Nigeria*



Photograph 2. Broken-down hand pump
Source: UNI*CEF, Nigeria*

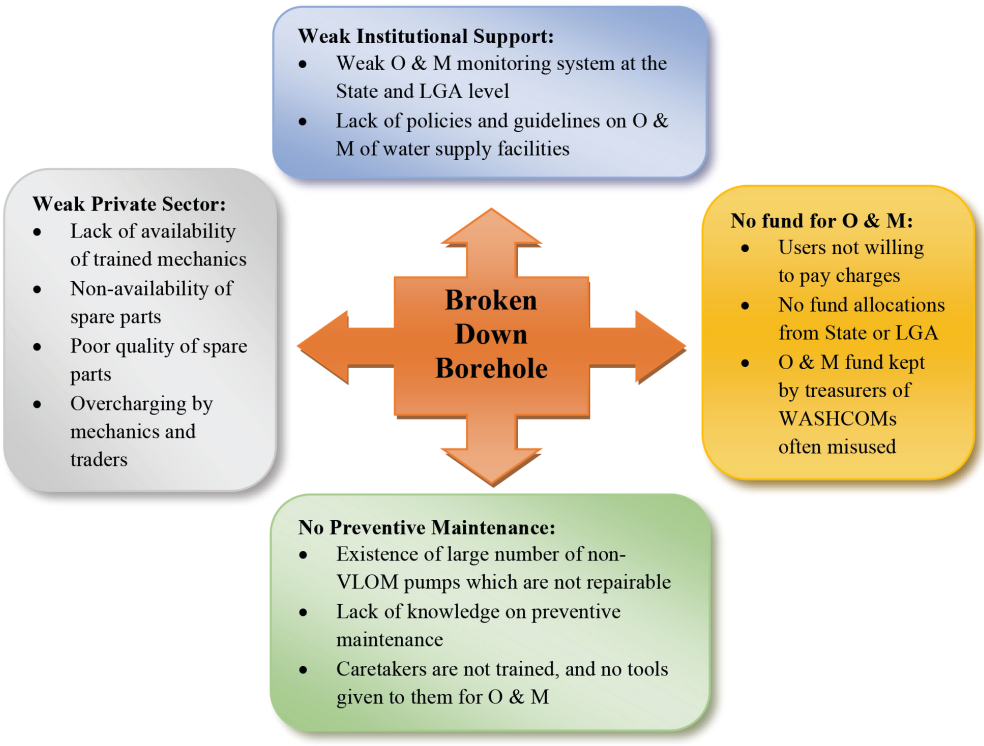


Figure 2. Broken borehole

The pilot project

A pilot project on VLOM was designed and implemented across 41 focused LGAs of 12 states of Nigeria by UNICEF and Tulsi Chanrai Foundation during the year 2016-17. The pilot project was supported by European Union and UKAID. Overall 14.17% improvement in the functionality of hand pumps had been recorded within a short period of 01 year across 41 LGAs of 12 states, rising from the baseline of 75% to 89%. 30% (991) 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 70% (2238) of the hand pumps with major problems (e.g.: broken risers, damaged cylinders, damaged head assembly etc.) were rehabilitated with support from UNICEF. Following are the key learning's from the pilot project:

- **Institutional Arrangement can lead to improve functionality:** Proper institutional arrangement is one of the key factors during the implementation of any project. One of the key learning of this project is 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. VLOM units are playing a key role in monitoring functionality, regulating the mechanics, traders; monitoring the repair work and ensuring smooth supply of spare parts.
- **Presence of trained mechanics and local traders:** Training of local area mechanics and local traders on repair and maintenance of water supply facilities and allocating them communities is another key learning of the project. These mechanics are regularly purchasing spare parts from the local traders and repairing the broken-down boreholes.
- **Women engaged as LAMs are more effective:** The pilot project therefore focused on engaging women as hand pump mechanic and caretakers, so that they can address any minor repairs within a short time. Despite the predominantly conservative culture in the project areas, 13 female mechanics were trained and engaged for repair and rehabilitation work. Comparatively there are more women mechanics in the North than South.
- **Sense of ownership contributes to sustainable operation**: 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.
- **Preventive Maintenance can lead to reduce break down:** 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 10 hours in a day. Due to this load, the pumps require frequent maintenance. Major breakdowns take place due to lack of preventive maintenance. Under the pilot project, the facility caretakers were identified from the community, oriented and given tools for preventive maintenance of their hand pump borehole. Women were preferred as caretakers, wherever possible. They are also responsible for cleaning the water facilities and maintaining a hygienic environment regularly.
- **Facility Tracking System is key improve functionality:** 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[4]) and the community caretakers were trained on reporting on facility tracking using SMS. In case of breakdown they report to the LGA VLOM unit through SMS.
- **Wrong choice of pump types leads to higher rates of breakdown and failures:** A huge number of hand pumps in Nigeria are broken down because of wrong choice of pumps. VLOM pumps i.e. India Mark III (R1) and Afridev (R2) were used to rehabilitate the broken-down pumps. It was ensured that best quality of materials was supplied. Preference was given to install more number of Afridev pumps due to ease of maintenance.
- **Active WASHCOMs:** The WASHCOMs played a major role in the establishment of VLOM system. They were mobilized to collect tariffs/user charges from each of the households on monthly/weekly basis. In some of the communities they contributed through grains and other materials. The system of routine savings by WASHCOM to cover the cost of any major repair when needed is one of the key factors for the success of VLOM system.
- **Sense of competition and recognition:** Sense of competition and recognition played a big role in improving functionality. The best VLOM units, Local Area mechanics; local traders, caretakers and WASHCOMs were given incentives by the State Government. This system of recognition and competition motivate others to perform well.



Photograph 3. Meeting of VLOM unit in Jigawa State

Source: UNI*CEF, Nigeria*



Photograph 4. Female Mechanics repairing handpumps

Source: UNI*CEF, Nigeria*

The strategy

Federal Ministry of Water Resources in consultation with UNICEF, Nigeria is in the process of developing a strategy based on the above pilot project to ensure sustainability and increase functionality of the water facilities in rural areas of the Nigeria.

Goal of the strategy

Ensure sustainability and 100% functionality of water supply facilities in all rural communities of Nigeria.

Overall objective

- To establish and operationalize an effective VLOM system in all the States and LGAs across the country.

Specific objectives

- To establish and operationalize State and LGA level VLOM units with dedicated budget lines and manpower.
- To develop a culture of regular operation and management of water facilities by mobilizing WASHCOMs/communities for ownership and collection of user charges.
- To establish an effective supply chain of spare parts by promoting local level production and distribution.
- To train and mobilize mechanics and facility caretakers on repair and O & M of water facilities.
- To monitor functionality of water facilities by establishing an effective facility tracking system and reduce downtime to 48 hours.

Key principles

- **Community led Management of water supply facilities:** the water supply facilities shall be owned and managed by the WASHCOMs/Community.
- **Transfer of responsibilities shall go along with requisite resources:** Proper institutional and financial arrangements needs to be done at the State and LGA level before transferring Management responsibilities to the communities. VLOM unit members, Local Area Mechanics, local traders, WASHCOM members and facility caretakers needs to be trained well.
- **User Charges:** In Nigeria water is considered as a social as well as economic good but delivering water supply shall accompany with commensurate cost recovery options. There is a need to collect user charges[1] to pay for cost of managing the system which is otherwise is free.

- **Whatever is monitored gets done:** Continuous monitoring needs to be done through WASHIMs and facility tracking system. It will help in achieving the desired results.

Key requirements of the strategy

- WASHCOMs shall be the owner of the water supply facilities within their community. They are responsible for operation and management of the water facilities.
- As per the National Water Policy 2000, 10% of the total cost of any new scheme shall be allocated to VLOM unit for O & M.
- Necessary guidance and support will be provided from the Federal Ministry level to the States that are willing to implement the VLOM strategy.
- Matching grant shall be allocated from Federal Ministry of Water Resources to the States.
- Strong advocacy with the Policy makers, legislature (Senate and House Committee on water) both at National and State level on VLOM related aspects.
- Market will be developed with the private sector to ensure supply chain of spare parts. Tax relief will be given to produce spare parts at the local level.
- LGA legislation Department shall promote WASHCOMs to become small scale service provider.

Key stages for the implementation of the VLOM strategy

For effective implementation of the VLOM strategy, there are few key stages that are described below:

1. **Institutional Arrangements:** RUWASSAs shall be established in States where it is not in existence. Thereafter, VLOM Monitoring unit shall be established under RUWASSA to monitor the process, regulate private sector and ensure regular supply of spare parts. State Ministry of Water Resources shall issue notification on creation of VLOM Monitoring Unit. The composition of State level VLOM Monitoring unit shall be: Deputy Director – Water Supply – as Secretary, Sr. Technical Officer - O&M, Officer in Charge WASHIM, Community Mobilization Officer and any other officer approved by the steering committee. VLOM Monitoring Unit shall be a part of RUWASSA with dedicated budget line, office space, vehicle, furniture and fixtures to be provided by RUWASSA for VLOM Monitoring Unit. LGA VLOM Unit will be established at the LGA level with following composition: Water Supply Officer – as Secretary, Maintenance Officer, Officer in Charge – WASHIM, Community Mobilization Officer and any other officer approved by LGA Chairman. Notification to be issued by LGA Chairman on creation of VLOM unit. Detailed roles and responsibilities of VLOM units are provided in
2. **Technical Support to VLOM Unit:** FMWR supported by development partners shall provide technical support to the State and LGA VLOM units.
3. **Data Collection:** Baseline survey of all the water supply facilities shall be done and data uploaded in WASHIMs. The data collection shall be done by trained enumerators. The data shall be verified by designated officers before uploading into the system.
4. **State Roadmap development:** After the completion of baseline survey the State Roadmap on VLOM shall be developed for achieving 100% functionality of all the existing and new water facilities. Data collected during the baseline survey shall be the basis for the roadmap. The roadmap shall comprise of Mission, core objectives, key Strategies and key activities on VLOM with budget and time line. A template shall be developed and circulated by the Federal Ministry to guide states for the development of State Roadmap
5. **Social mobilization:** WASHCOMs shall be formed and trained in all the communities. They shall be mobilized to take ownership of the water supply facility. The demand for rehabilitation of old facility or installation of new facility shall come from the WASHCOMs. The WASHCOMs shall pay part of the capital cost in terms of labour and kind.
6. **Establishment of Facility Tracking System:** Facility caretakers shall be identified for each of water supply facilities within the community. They shall be oriented on operation, preventive maintenance, minor repair work and facility tracking system. They shall submit monthly information to the VLOM unit on functionality of the water facility. The VLOM unit at the LGA level shall analyse the data and act in case of any breakdown. The VLOM unit shall also provide monthly information on functionality to the Local Government Area Council.
7. **Capacity Building:** Each LGA shall select required number of mechanics and Local Trader depending upon the business prospects. The selection shall be done based on their eligibility and willingness. Eligible female candidates shall be given preference during the selection process. They shall be properly trained (both theoretical and practical) to undertake any repair work on the water facility. The trainings shall be undertaken by State RUWASSAs with support from Federal Ministry and Development Partners. Standard training modules approved by FMWR shall be followed during the training

programme. The mechanics shall be given standard and special tools and the local traders shall receive seed stock from the State level. The Facility Caretakers shall be properly oriented on preventive maintenance and minor repair of the borehole. The caretaker shall be able to change the rubber cup washers, bearings, foot valve, bushings, bobbins etc. He/she shall be given a set of tools along with rubberized spare parts for undertaking the preventive maintenance and repair work.

8. **Enumerators for baseline survey:** The enumerators for baseline survey to be identified from the LGA WASH Unit. They shall be properly trained on the use of tools for baseline assessment.
9. **WASHIM Training:** The WASH unit members, mechanics, WASHCOMs and facility caretakers shall be properly trained on how to use WASHIM to track the functionality of water facilities.
10. **Building markets/partnership with the private sector:** Supply chain of spare parts is one of the critical component for VLOM. Private sector manufacturers shall be promoted to start manufacturing of hand pump spare parts.
11. **Legislation:** Necessary legislation shall be provided to institutionalize the WASHCOM role in WASH service provision at State and LGA level. They shall be eligible to take loans for the repair, rehabilitation, extension or installation of their own water supply facilities and subject to regulations/auditing by State RUWASSA and/or LGAs.
12. **Operationalization of VLOM:** The VLOM system shall be operationalized with support from an effective monitoring system from the State and LGA level. The target shall be to reduce break down time of any water supply facility to 48 hours and ensure 100% functionality always.

Conclusion

The PEWASH program lays down the government's vision to achieve SDG-6.1 and 6.2 in the rural areas. This strategy will guide the State RUWASSAs to have a comprehensive approach the for repair/rehabilitation of defunct hand pump boreholes; developing a culture of ownership and regular operation and maintenance by community; 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.

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Notes

[1] The tariff structure shall include cost of repair, operational cost and capital cost of pump replacement over 10-year period.

[2] Source: PEWASH

[3] National Hand pump Functionality survey carried out by UNICEF-Tulsi Chanrai Foundation (TCF), January 2011

[4] Water, Sanitation and Hygiene Information Management System-WASHIMS, January 2018, www.washims.com.ng

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