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## **Effectiveness of the community-based maintenance system for rural water supply facilities in Uganda**

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*CBMS was introduced in Uganda in 1986 to address challenges of functionality of rural water facilities. However functionality has stagnated for the last 5 years at 85% as opposed to the national target of 90% by 2015. The paper assesses the performance of the CBMS in Uganda, outlining the factors that affect it including the legal status of WSC, voluntary nature of the WSC members, willingness and ability of water users to contribute to O&M, availability of back-up support to WSCs, functionality of community support water artisans, the Supply Chain for Spare-parts, vandalism of water source parts, and women participation in CBMS. Analysis is made to the emerging community approaches and innovations in management of RWS facilities. Conclusions and recommendations are made to address the challenges identified.*

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### **Introduction**

Operation and Maintenance (O&M) of rural water facilities in Uganda is largely based on the Community Based Maintenance System (CBMS). The concept of CBMS has a strong emphasis on community responsibility and authority over the development and management of rural water supplies. There are various actors that make up the CBMS work with each of them designated to play or perform certain functions. The community of water users through their WSCs is the primary actor in CBMS, tasked to oversee the O&M of the community water source by cleaning the surroundings, carrying out preventive maintenance and minor repairs of the water facility. This task on the community users requires transparency and accountability, active involvement of women in O&M and ensuring sustainability of O&M activities. Yet for the community to effectively play its functions in CBMS, it is dependent on a number of secondary stakeholders to execute their designated functions in the provision of RWSS as well as hygiene promotion. These actors include Sub-counties that identify Hand Pump Mechanics and train them to support communities; District Local Governments and Non-Government Organisations (NGOs) that provide financial and technical support to community; the Private Sector that is responsible for provision of spare parts and the Central Government that provide financial and technical support.

CBMS was introduced in Uganda in 1986 and has continued to receive considerable support at all levels, the functionality of rural water supply facilities for the last five years has stagnated at 85% making it difficult for the sector to achieve the national target of 90% by 2015. This necessitated the water sector to carry out an assessment of the performance of CBMS in Uganda. The assessment was undertaken by the authors with assistance of a consultant between July and October 2014 to review the rural water supply and sanitation (RWSS) sub-sector policies, strategies and guidelines developed since 2000. The study also assessed the extent stakeholders in CBMS perform their functions, factors at national and sub-national levels that affect the effectiveness of CBMS, good practices and innovations in management of RWSS facilities. The study findings would help generate new approaches for strengthening the CBMS approach to manage rural water sources in Uganda.

## **Performance of the CBMS**

The number of improved water sources that were functional as of June 2014 stands at 85%. The trend in functionality shows a gradual increase from 81% in 2009 to 85% in 2014 which is short of the 2015 target of 90%. The increase is attributed to various initiatives to improve O&M; creation of hand-pump mechanic associations (HPMAs), emphasis by districts on conducting advocacy meetings for water programmes both at district and sub-county levels and holding quarterly sub-county extension workers meetings (MWE 2014b).

Similarly the functionality of WSCs has stagnated at 71% for the last five years as opposed to the sub-sector target of 95% by 2015 (MWE 2014).

For the past five years, the proportion of WSCs with women occupying key positions; Chairperson, Treasurer, Secretary; ranges between 80% and 85%. For the year 2014, data from 103 districts (out of a total of 112) indicates that 83% of the water sources have women occupying key positions (MWE 2014)). Despite this impressive performance, the current status of 83% is short of the 2015 target of 95%.

## **Factors affecting the effectiveness of CBMS**

The factors affecting the effectiveness of CBMS in Uganda include the following among others:

### **Legal status of WSC**

WSC lack a firm legal ground to effectively operate. Whereas The Water Act, Cap. 152, provides for the formation of the WSC, it does not set clear and detailed guidelines for their operation, including defining their obligations and limits of their power. As actors increasingly seek greater involvement of the community through WSCs, clarity of the mandate of this structure limits its effectiveness. A clear legal framework also serves to protect members of the WSC, in case of legal conflicts that arise from performing their role. Some WSC members have been assaulted and others have reneged on their responsibilities out of fear from uncooperative members of the water user community.

Management and maintenance of communal water facilities is affected by lack of understanding of ownership. Whereas the law recognizes a water user group (on whose behalf the WSC operates) as the overall in-charge of the water source, the water user group is not clearly defined. Short of this, the ground for accountability, transparency, strong O&M and sustainability is seriously compromised.

### **Voluntary nature of the WSC members**

A study by the Africa Development Bank (AfDB) on O&M of rural water services noted that the assumption of voluntarism on which membership to WSCs depends on the number of activities competing for the time of such persons needed to volunteer. It was noted that in most cases the potential volunteer is already an active member of the community with other roles that compete for his time. (AfDB, 2013).

The existing law does not mention length of tenure of service on the committee for its members and the consistent reduction in the number of competent people willing to volunteer on WSCs has resulted into members of the WSC overstaying their tenure of office. It is reported that some members of the WSCs have stayed for over 15 years; while for others their tenure ends when they died, migrate or abandoned work.

Overstaying of WSC membership coupled with the voluntary nature of their tasks leads to burning out and eventually poor performance.

### **Willingness and ability of water users to contribute to O&M**

The 2011 CBMS study showed that 57.8% of the WSCs collected O&M funds whenever the source needed repair (MWE, 2011) and a 2013 verification exercise carried out in 12 districts, showed that only 23% of user communities made contributions towards O&M of their installed water facilities. The key factors identified for poor contributions towards O&M includes; mismanagement of funds by WSCs, poor record management practices and unwillingness by users to pay.

Community contribution; cash, labour and locally available construction materials; towards construction has been assumed as one of the indicators of a good foundation for sustainability of O&M and functionality of water sources. Although fulfilment of this critical requirement is a prerequisite for O&M and sustainable functionality of water facilities, communities take it as a condition for receiving a new water source; while its continued functionality becomes secondary.

### **Availability of back-up support to WSCs**

Rural water sub-sector guidelines stipulates that District Local Governments (DLGs) facilitate communities to select and train WSCs on their roles and responsibilities before a water facility is constructed. The DLGs are supposed to provide technical back-up support to the sub-county extension staff and HPMs in terms of capacity building and major repairs. In turn, the sub-county extension staff provide follow-up to support communities and WSCs.

It is noted that there is limited support to WSCs by DLGs and sub-county extension staff. Pre-construction and post-construction community mobilization and training is not effectively carried out due to short timeframes allocated for implementation, inappropriate methods, inadequate funding and lack of prioritization of software activities. Consequently, management committees that are responsible for overseeing the management of water facilities are inadequately prepared to take on their roles.

### **Functionality of community support water artisans**

Community based water artisans play a critical role in CBMS by undertaking routine preventive maintenance and minor repairs of rural water sources, they do not have work-plans and schedule from WSCs for servicing the water sources; they invariably respond when the water sources break down. They encounter various problems, mostly revolving around the difficulties of WSCs to raise sufficient funds to pay for; spare-parts, repairs and preventive works, lack of transport and insufficient toolkits.

### **The supply chain for spare-parts**

CBMS presupposes the availability, accessibility and affordability of spare-parts, however, this is not the case within the communities. The reasons cited for lack of spare-parts outlets is the fact that dealing in hand pump spare-parts is not commercially viable. It was noted that there is almost a total absence of spare-parts dealers in all surveyed up-country towns and DLGs (CBMS, 2011). Efforts to establish water facilities spare-parts dealers at sub-county level failed because of the huge capital required and low demand/ returns. The communities are therefore obliged to buy the spare parts from the capital city; making it untimely and costly due to additional transport costs.

### **Vandalism of water source parts**

One of the factors that affect CBMS of water sources is vandalizing of water source parts particularly for hand-pumps awaiting repair. The vandalized components are sold off as scrap.

### **Women participation in CBMS**

The proportion of WSCs with women occupying key positions ranges between 80% and 85%. The drive to increase involvement of women in WSC activities is undermined by the revelation that many women are unable to effectively perform these roles as a result of inadequate preparation and support to take them up. Women continue to have an enormous load of household duties, which do not allow them adequate time to participate in meetings and trainings. For the women trained as artisans; their husbands are reluctant to let them do this work as it involves them spending a lot of time out of home in the company of men in isolated areas. Further, the tool kits are heavy and many of the tasks require enormous energy that women may lack.

### **Emerging community approaches and innovations in management of RWS facilities**

Ministry of Water and Environment (MWE) in partnership with NGOs has supported communities' innovative approaches intended to strengthen O&M of rural water facilities and ultimately increase access to safe water.

### **Sub-county water supply and sanitation boards**

A formal institutional structure at the Sub-county level to support O&M activities of point water supply sources in rural areas does not exist (MWE, 2014). MWE is testing out the concept of the Sub County Water and Sanitation Board (SCWSSB) approach in a handful of districts. The idea behind this approach is a shift from source-based management (characteristic of the existing CBMS O&M management regime) to area-based management. This is expected to create a pool of financial resources for a multitude of small and struggling WSCs in the sub-county. The money collected by these organs is expected to run a loan scheme for members to motivate WSCs to mobilize their members to pay O&M fees in order to keep in good

standing and eligible for a loan. It was established that in all districts where SWSSB are being used, high functionality rates of water sources were reported (AfDB, 2013).

### **Mobile phone for water (M4W)**

Mobile phone for water (M4W) was started in 2012 to bridge the communication gap between the Hand Pump mechanics (HPMs) and the water users to reduce the time HPMs take to respond to reports of water source break down. In the event of a water source breakdown, the water source caretaker sends a short message (SMS) to a relay system, which forwards the SMS to a particular HPM for his attention and action. A review of the M4W revealed that the system has led to efficiency in conducting repairs of water sources. The system is still being experimented especially tracking its cost implications, reliability of telephone connections and possible software glitches. Nevertheless, M4W holds a potential in improvement of O&M and can potentially be used in data collection for functionality of RWS.

### **Hand-pump Mechanics' Associations (HMPAs)**

Since 2012, MWE has adopted HPMAs as an O&M strategy and rolled it across the country. HPMAs are intended to improve effectiveness of HPMs in responding to breakdown of water facilities. Before the formation of HPMAs, HPMs used to work in isolation of each other. The formation of HPMAs improved cooperation, learning and working together amongst HPMs, access to tools, finance, spare parts and knowledge, ability to receive service contracts, coordination and accountability with the District Water Offices (DWO) and communities, discipline and responsiveness of HPMs. These outcomes have been observed in districts where HPMAs have been active for at least last five years.

### **Water as a Business (WAAB)**

MWE in cooperation with other sector actors have piloted the “Water as a Business” (WAAB) Approach; a market-based strategy intended to explore different methodologies for catalyzing and facilitating water businesses in Uganda. Water for People-Uganda in partnership with SNV are working with trained hand-pump mechanics that have organized themselves into associations to undertake maintenance services of pumps as a business in two districts. The HPMs have been trained in carrying out borehole assessments, installation as well as repair of broken down facilities. Water for People has introduced a “pay as you fetch” basis on boreholes by installing water meters on the hand pumps and sensitizing the communities on the approach.

### **WSCs as Village Savings and Credit Associations (VSCA)**

The policy environment in Uganda, in the past five years has encouraged community members to form savings and loan groups. WSCs in various parts of the country added a VSCA function to their mandate. WSCs have created their own by-laws and through this they are expected to raise money for maintenance and it is some of this money that they are supposed to borrow and lend in the VSCA. The new function helps to motivate WSCs to collect, keep and invest the money (by giving out loans to members and non-members) that would otherwise lie waiting for the water source to break down, or is misused

## **Conclusions and recommendations**

CBMS remains central to programming for RWSS as an O&M approach aimed at ensuring increased functionality, sustainability and ultimately access to safe water. Despite its main advantage, CBMS has limitations in its current form.

CBMS needs to be strengthened by adopting innovations and approaches that are proving to be viable and effective especially those that treat water as a business. These approaches include:

- Hand Pump Mechanic Associations (HPMAs) for providing preventive, repair and installation services
- Village Loan and Savings Associations with the water source as a rallying point
- Mobile Phones for improved Water access (M4W) initiative for improving water facilities by reducing the down time and the Operations and Maintenance (O&M) support system
- Clustering of water sources and professionalize the management
- Capitalize on privatized management; Water as a Business (WAAB), “Pay As You Fetch” Approaches
- Transformation of technology like bulk water supply and consider centralized management
- Establishment of Sub-county Water Boards to be responsible for providing technical support supervision on O&M aspects to HPMs and WSCs in the following aspects/areas; empower Sub-county Water Board

to work with sub-county extension workers in monitoring and reporting on all water facilities within its jurisdiction on a regular basis

- Identification of NGOs/CSOs with an O&M focus to partner with the MWE in the implementation of O&M related software activities. There is need to integrate M&E in all activities undertaken whether during planning, implementation of O&M. The importance of M&E should be promoted at different levels
- Setting term limits for WSC members and quickly replacing members who become inactive or pass on.
- Instituting a registration mechanism of all scrap buyers in the districts where they operate, and stores of registered scrap dealers need to be inspected regularly by relevant authorities to ensure that the content does not include vandalized water source components.
- In view of the redefined mandate of community O&M structures, community mobilization, formation and training of WSC should incorporate issues of legal ownership of the water sources, which should clearly indicate (by register) the individuals that constitute the community of water users for that particular water source
- WSCs be registered, continuously supervised and monitored by the Sub-county and DLG and DWD in accordance with the Water Act.

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### References

- AfDB (2013) *Effectiveness and Efficiency of the Operation and Maintenance System for Sustainability of Rural Water Supply Services in Uganda and Tanzania*. The Water and Sanitation Department, African Development Bank, Tunisia, December 2013
- MWE (2011), *Assessment of the Effectiveness of the Community Based Maintenance System for Rural Water Supply Facilities*. Ministry of Water and Environment 2011
- MWE et al (April 2012), *Briefing Note Hand Pump Mechanic Associations, Improving Rural Water Service Delivery*. Ministry of Water and Environment 2012
- MWE (2014) *Water and Environment Sector Performance Report*. Ministry of Water and Environment 2014
- MWE (2014b), *Assessment of the Effectiveness of the Community Based Maintenance System for Rural Water Supply Facility*. Ministry of Water and Environment
- SNV (2010) *Assessment of the Private Sector (Hand Pump Mechanics and local artisan) Engagement in improving functionality and the status of spare parts supply chain in Kiboga, Mpigi and Rakai districts*. Netherlands Development Agency (2010)

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