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Community management of water points in the Democratic Republic of the Congo: identifying success factors

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In the Democratic Republic of the Congo, the DRC WASH Consortium has been applying a modified Life-Cycle cost approach to improve the sustainability of rural WASH services. In particular, limited community capacity to collect funds to cover operation and maintenance costs threatens the long-term functionality of installed infrastructure: the Consortium has been supporting, since 2013, communities to develop business plans to improve the sustainability of their water points over time. This paper investigates factors characterising communities and committees that are able to reach three defined levels of financial self-sufficiency. The levels are based on the calculated costs of sustaining services over the short, medium, and long term. The factors investigated include structural factors - community size, type of water point, committee composition – and also factors associated with the operational approach of the committees – method of revenue generation, exemption of vulnerable people, and professionalisation of the committee.

Background

The DRC WASH Consortium was established in 2013 to support rural water, sanitation and hygiene (WASH) access in the Democratic Republic of the Congo (DRC) while testing approaches to foster sustainability. Scale and sustainability are both significant challenges in DRC's rural WASH sector (Black, 2013). 2015 estimates point to 31% use of improved water source in rural areas and 29% use of improved sanitation facilities (WHO/UNICEF JMP 2015), compared to the Sustainable Development Goal 6 target to ensure availability and sustainable management of water and sanitation for all (UN, no date). The Consortium adapts the Life-Cycle cost approach proposed by the WASHCost project (Fonseca et al., 2011) to apply an “economic approach”, supporting communities to develop the needed capacities to raise and manage funds for sustaining their water infrastructure (Jones, 2015). The Consortium comprises five international NGOs: Concern Worldwide¹ (lead agency), Action contre la Faim (ACF), ACTED, Catholic Relief Services (CRS), and Solidarités International, with funding by UK Aid, and aims to support 645 communities and 640,000 beneficiaries from 2013 to 2018.

Methodology

After nearly five years of implementation of the Consortium project in rural DRC, a key question is about what factors associate with successful performance of rural water committees, and therefore in what cases the “economic approach” is effective. Addressing this question may also cast light on whether community management of water points in contexts like rural DRC is possible and to what extent.

To attempt answers to those questions, the Consortium is analysing project data collected in the intervention communities, with a particular interest in finding factors that foster or limit sustainability. This analysis, whose first set of results is presented in this paper, is focused on attributes of communities and committees that succeeded in reaching marked levels of financial self-sufficiency in managing their local water point(s). It follows a previous analysis of early data carried out in 2016 (Jones & Melloni, 2016).

The Consortium collects, as part of regular project monitoring and evaluation, a set of endline surveys in each community once activities are completed there (after about 18 months of work), followed, around six

months later, by a set of post-endline surveys which aim to gauge a community's capacity to maintain the achieved results. These surveys collect information to meet the needs of UK Aid as the funder, the DRC national rural WASH programme "*Ecole et Village Assainis*" (Healthy Schools and Villages), as well as the programme requirements and questions of interest to the Consortium. Data are collected digitally by staff of the Consortium agencies, centralised in an online database, and further analysed by the Consortium Coordination Unit (Melloni & Jones, 2017).

Between November 2016 (when the current monitoring and evaluation system came fully into use) and January 2018, a total of 237 endline surveys of community water management committees were conducted, along with 140 post-endline surveys. 62 of the post-endline surveys done to date are matched with a comparable endline survey. The data from endline and post-endline surveys were analysed to see how responses to various survey questions matched with success in reaching some degree of sustainability.

The three "levels of sustainability"

In order to improve sustainability, the Consortium's "economic approach" considers users of water services not as beneficiaries but as customers who pay for certain levels of services. Community water management committees develop a business plan outlining the costs of sustaining services over the short, medium, and long term, and develop strategies to cover these costs and reach marked levels of financial self-sufficiency:

- Level 1: the community will be able to cover operations and minor maintenance costs;
- Level 2: the community will be able to cover operations, minor maintenance costs and major repairs;
- Level 3: the community will be able to cover operations, minor maintenance costs, major repairs and full rehabilitation of the water point (Jones, 2015).

Findings and discussion

Prevalence of the three "levels"

In evaluating the Consortium's approach, a key question is to what extent community management of water points in rural DRC is possible. Table 1 shows most community committees are able to reach some level of financial self-sufficiency for managing their water point(s). Project endline surveys of committees show 67% were able to reach a level of financial self-sufficiency while 33% did not. The project's post-endline surveys show a similar distribution, with 72% reaching a level of financial self-sufficiency.

Time of survey	Not able to cover even operation & minor maintenance	Level 1: able to cover operation & minor maintenance	Level 2: also able to cover major repairs	Level 3: also able to cover full rehabilitation
Project endline (n=237)	33%	50%	14%	3%
Project post-endline (n=140)	28%	56%	10%	6%

Further analysis of the number of committees reaching a degree of financial self-sufficiency over time shows the Consortium overall has been improving in assisting rural committees to succeed. Communities reaching Level 1 in particular, and to some degree also those reaching Level 2, have been increasing in prevalence.

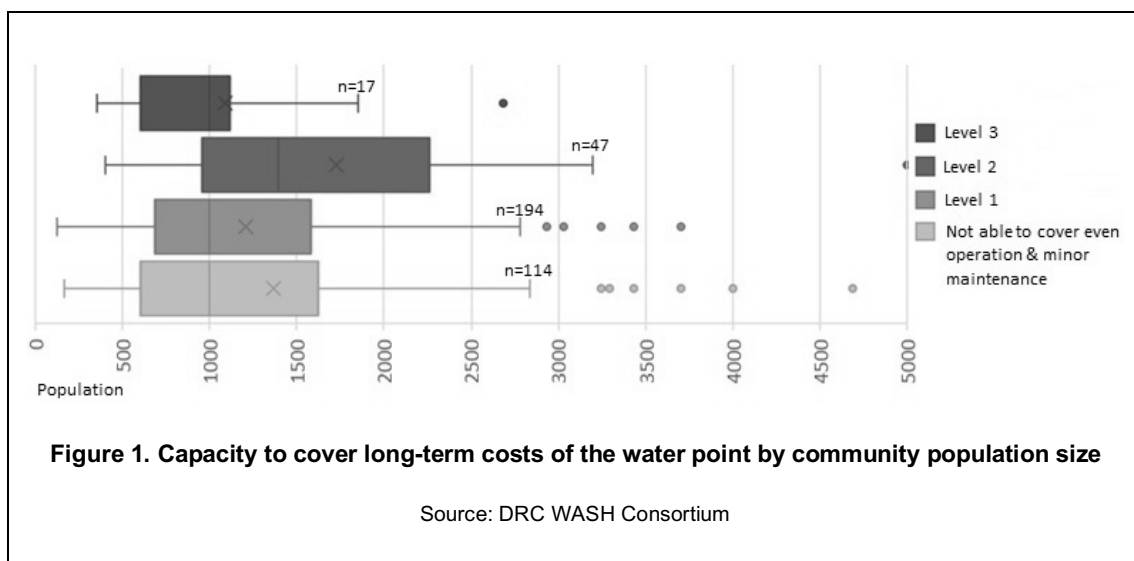
The Consortium's data as of January 2018 includes 62 committees who completed both endline and post-endline surveys of the same format. While this data set will increase considerably in the coming months, initial results shows most committees (53%) maintained their previous ability to cover costs over the 6 months until the post-endline survey. Of those that changed, slightly more improved in their degree of financial self-sufficiency (27%) than fell back (19%). While the numbers involved are currently small, this is an area of interest to follow up on as more Consortium data become available by the end of 2018.

Factors associated with successful water management committees

To understand how community management of water points in rural DRC can best succeed, the Consortium analysed how different factors might match with reaching different levels of financial self-sufficiency. This can suggest factors which might foster or limit the financial self-sufficiency of community water management committees. This could inform the selection of communities and choice of project approaches.

Community and committee characteristics

Comparing the populations of project communities with the level of financial self-sufficiency they reached suggests the “economic approach” has better chances of success in communities above a certain population size, particularly when aiming for the higher levels of financial self-sufficiency. Figure 1 shows the level of financial self-sufficiency reached compared to community population. While not yet indicating a clear size requirement, it suggests fewer villages with less than 500 people reached Level 1 or higher, and communities with populations around or above 1000 seem more likely to reach higher levels.



Different environmental conditions in different communities led to the installation of different types of water points, with widely varying costs for operation and minor maintenance, for major repairs, and for full rehabilitation. Across tap stands linked to small piped networks³, protected springs, and manual and mechanical boreholes with pumps, all water point types seem to show a similar distribution of success in reaching the progressive levels of financial self-sufficiency.

Analysis of the structure of committees shows most have between 6 and 10 members, though a few have up to 20: no clear connection between the number of committee members and the level of financial self-sufficiency reached seems observable in the Consortium data. There is also no clear advantage of mixed gender representation on committees: most committees have between 20% and 50% women members, and all seem to reach the different levels of financial self-sufficiency at about the same ratios. Higher representation of women among the four executive positions (president, vice president, secretary, and treasurer) established in the committees shows signs of possibly matching with a slight improvement in financial self-sufficiency: further analysis will be needed as more data become available.

Operational approaches of committees

Committees established under the Consortium project selected different fundraising approaches to support the longer-term costs of their water points, summarised in Table 2. Nearly all committees (88%) use some form of collection from households, with most of these choosing fixed monthly payments per household but a few choosing other methods, including payments per bucket or jerry-can. The data show all payment types to be about equally successful. Many committees established small commercial activities (gardens, raising livestock, micro-credit schemes, or small resale businesses) to generate proceeds to finance management of their water point. The data show all commercial activities to be about equally successful. Many committees

use a mixture of household collections and commercial activities: with two revenue streams, these committees seem more successful in reaching higher levels of financial self-sufficiency.

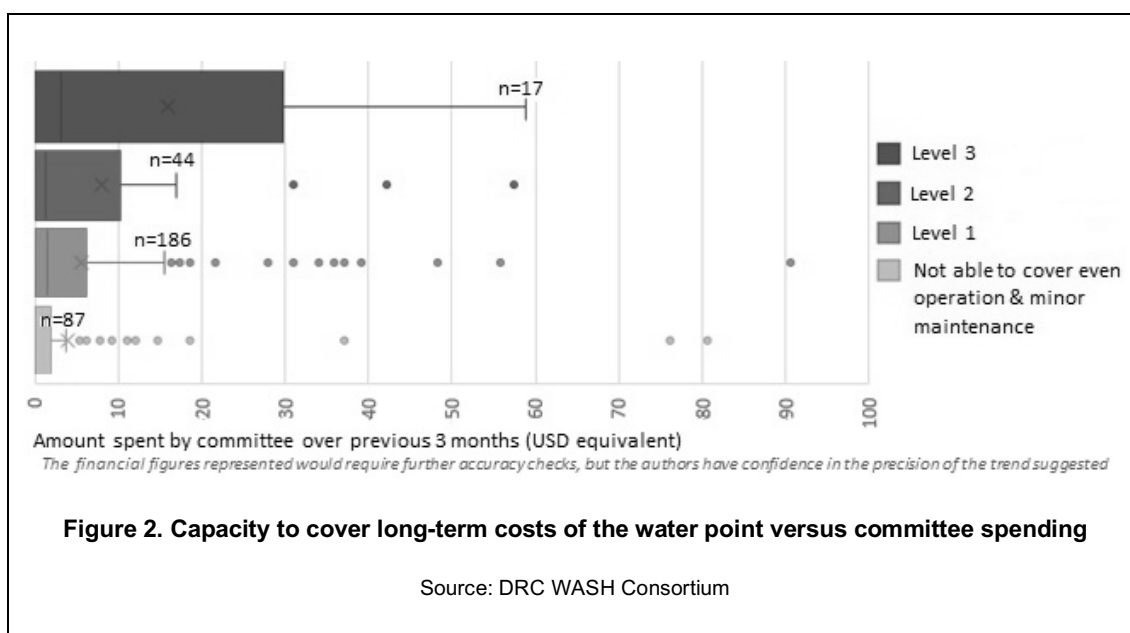
Combinations of revenue source	Not able to cover even operation & minor maintenance	Level 1: able to cover operation & minor maintenance	Level 2: also able to cover major repairs	Level 3: also able to cover full rehabilitation
Both household collections & commercial activity proceeds (n=202)	16%	65%	16%	2%
Only household collections (n=130)	40%	42%	9%	9%
Only commercial activity proceeds (n=10)	20%	60%	20%	-
No revenue sources (n=35)	86%	11%	3% ²	-

Though the Consortium did not predefine a set of vulnerability criteria, most committees (n=280) chose to specifically exempt certain groups of people they consider vulnerable from paying towards the costs of water, based on own criteria. Exemptions from committees' fund collections are most commonly offered for households having disabled or chronically ill (n=201 committees) or elderly members (n=212 committees), very poor households (n=90 committees), or female-headed households (n=67 committees), with most combining exemptions based on particular local contexts. Committees offering exemptions reached a level of financial self-sufficiency in 76% of cases, compared to 66% of committees that did not.

Though community management of water points tends typically to be seen as happening on a voluntary basis, an interesting minority of committees (n=56) opted to include in their business plans measures to provide themselves or some of their members with some degree of regular remuneration for their work. Of these partly 'professionalised' committees, 82% were able to reach at least a minimum level of financial self-sufficiency, compared to the 66% rate of those that did not. The Consortium's approach does not systematically include remuneration of committee members, therefore such initiatives are predominantly community-driven. Committees which had proof of having met at least once in the previous 2 months (n=300) reached a level of financial self-sufficiency in 74% of cases, compared to the 49% of those that had not. As well, committees using a notebook over at least the previous 3 months for basic bookkeeping (tracking committee income and expenses) (n=269) reached a level of financial self-sufficiency in 79% of cases, compared to 43% where they have no notebook.

These three factors also seem to overlap with reaching higher levels of financial self-sufficiency: 29% of professionalised committees (versus 15% of strictly voluntary committees), 20% of committees having met in the previous two months (versus 4% of committees who had not), and 21% of committees logging income and expenses (versus 6% of committees not keeping these records), reached Level 2 or higher.

Committees reaching a level of financial self-sufficiency, unsurprisingly, reported a higher accumulation of cash over the previous 3 months, but were also more likely to report having spent and having used handpump spare parts over the previous 3 months. Figure 2 suggests higher committee spending is not detrimental to achieving a level of financial self-sufficiency. Those committees which reported at least one previous experience in accessing and using spare parts (n=50) were at a level of financial self-sufficiency in 92% of cases, compared to those committees without this experience, who achieved self-sufficiency in 65% of cases. This is also encouraging as it suggests some kind of water point maintenance or repair is not a debilitating event for these committees, which would seriously call into question the feasibility of community management of water points.



Six months after the project had ended in communities, post-endline surveys show 69% of committees (n=97) report having been visited at least once by local government staff over the previous three months. Those being visited by the authorities achieved a level of financial self-sufficiency in 81% of cases, while those not visited achieved a level of financial self-sufficiency in 51% of cases. While any possible direction of causality is difficult to establish, and other factors including distance from centres might also be contributing to any differences, it is encouraging to note that even in an impoverished and sometimes unstable context, some degree of support from local government authorities continued outside of the project context in 69% of cases.

Conclusions and recommendations

Based on the findings presented in this paper, some conclusion can be drawn:

- Encouraging the combination of different revenue streams for community committees (payment per volume, fixed rate payment and proceeds from commercial activities) is a successful measure to gather adequate resources for costs associated with running a water point.
- The practice of exempting the most vulnerable from water payment does not seem to jeopardise a committee's financial performance, and therefore a fine balance between financial viability and pro-poor policies can be achieved.
- Committees having a form of remuneration for some of their members tend to meet more regularly and to achieve better performance compared to committees based exclusively on volunteering. This may indicate 'professionalisation' (or semi-professionalisation) as an effective alternative to unpaid water management work in local committees.
- Higher degrees of financial turnover -even when it is associated with higher spending and use of handpump spare parts- seems to match with higher committee performance. This suggests strategically emphasising the financial side of sustainability carries positive results. It also suggests access to spare parts, as well as stronger supply chains, are success factors.
- Overall, the data show the core assumptions of the Consortium's "economic approach" appear valid: practices the Consortium's approach encourages match with increased capacity to achieve self-sufficiency in community-led water management.
- Indirectly, this confirms community-led water management in rural DRC is not unyielding of results given the right kind of investment and the right kind of approach.

Therefore, some recommendations can be proposed:

- Implementing agencies should consider adopting financial sustainability in rural water management as a core aspect of their action, even in difficult settings such as rural DRC. In the same way, they could

factor in mechanisms of basic remuneration for community work, and operate towards accessibility of handpump spare parts by strengthening local supply chains.

- Donor agencies should consider promoting a culture of longer-term results over immediate achievements whenever feasible and including in settings where the boundaries between humanitarian crisis and longer-term development tend to be blurred.
- While ensuring the most vulnerable population strata remain adequately protected, national and local governments could assume water payment by users as integral to enhancing sustainable access to drinking water, and include this principle in their policies and practices. Governments may shift their focus from capital investment in water infrastructure to investment in viable systems that ensure well-functioning water services over time, and involve local communities in doing so.

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Notes

¹ The views expressed by the authors do not necessarily reflect the views of Concern Worldwide or of the other agencies mentioned in the paper.

² This is a single data point and probably a data collection error.

³ Tap stands linked to small piped networks represent a tiny minority of water supply solutions adopted.

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