A business case for supported Self-supply as service delivery approach to achieve SDGs

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Abstract/Summary

Supported Self-supply is highly relevant as a complementary service delivery model fur rural water supply since conventional water delivery services would simply be too expensive to ensure universal access to safe wate, which is defined as SDG target 6.1. Many rural households invest in improving water supplies of their own as they highly appreciate the convenience of supplies close by their homes, having access to more and safe water, which enables them to improve food security and health standards and start income generating activities. Data from a recent review of supported Self-supply initiatives show that costs for achieving universal access in rural areas of Zambia and Zimbabwe for government can be reduced by about 50% if a mixed approach is followed. However, specific support services designed to the context are needed to trigger uptake of Self-supply. To become a sustainable service delivery approach, even in rural areas, specific support services need to be embedded adequately in government systems utilising the potential of the local private sector and synergies with activities in other sectors.

Introduction

Self-supply can be defined as incremental improvements which are financed by households or small communities with the objective to improve supply of WASH products and services or to improve water quality (Olschewski 2016). Self-supply is common practice in many countries, and in combination with specific support services, it has a great potential for supporting and achieving several SDGs (Olschewski, Waterkeyn, Matimati, 2016). Government has to take on specific roles and tasks so that Supported Self-supply as a service delivery approach complies with the requirements and principles of the Human Right to Water (Heller 2015).

There are many case studies documenting experiences of Self-supply from various countries, and they are available e.g. as RSWN field notes. So far, hwever, there has been no systematic review of former piloting or scaling up of Supported Self-supply looking at costs of implementation and lasting impacts of Supported Self-supply. This paper reflects the findings of a review of Supported Self-supply in Zambia and Zimbabwe which was conducted by UNICEF ESARO in 2015. Particular emphasis is put on the costs of different service delivery approaches, the roles of government and the need for embedding support in existing structures.


Photo left: Upgraded Family Well (UFW) in Zimbabwe; Photo right: Upgraded traditional well in Zambia

Description of the Case Study

In 2015, a review study was conducted in both countries to assess the impact of former piloting and scaling up of Self-supply and to assess the potential of Supported Self-supply as a complementary service delivery approach for achieving the SDG on water. The review included field surveys with household interviews, key informant interviews, workshops at regional and national level for consultation as well as water quality surveys at sources and point of use. The details on data collection methodology and findings on water quality are documented in the country reports for Zam-

bia (Olschewski, Sutton, Ngoma 2016) and Zimbabwe (Olschewski, Waterkeyn, Matimati 2016).

Piloting in Zambia

Supported Self-supply was piloted in Luapula Province in the Northeast of Zambia from 1998 to 2014. Luapula province is a particularly sparsely populated, very remote and difficult to access rural area. The idea of piloting Self-supply in that region was to assess if and how Self-supply supported through specific support services could be a viable service delivery option even under difficult conditions.

Supported Self-supply was piloted in Luapula Province in three successive, relatively short phases of 2-4 years using a project approach:

- 1998-2001 DFID funding to Department for Water Affairs and Ministry of Health in 3 provinces,
- 2007-2010 UNICEF funding to two NGOs, "WaterAid Zambia" and "DAPP", in 3 districts in Luapula, including Milenge West, and
- 2012-2014 Stone Foundation funding to "WaterAid Zambia" in Milenge East.

In the first phase, piloting was implemented jointly by various Ministries. However, due to institutional reforms in a later stages, piloting was implemented by local NGOs. During the process, different support services were provided, which included sensitisation of local leaders and of households to the approach, training of masons in improving traditional wells, and a partly bulk supply of input materials. In a later stage, loans were also provided through a loan scheme to help households investing in improvements (Ngoma and Sutton 2016).

Scaling up of Upgraded Family Wells in Zimbabwe

In Zimbabwe, the Upgraded Family Well (UFW) programme was introduced at national level through government systems in 1995. The government was involved in promoting the approach, improving the technical solutions by Blair Research Laboratory in Harare and through follow-up at local level by Environmental Health Technicians (EHT). Support services were established to take the UFW programme further at local level and included sensitisation of communities and training of masons in upgrading traditional wells. Additionally, families who had dug and fully lined their well at own costs could access an in-kind subsidy for further improving their family well. The investment costs for full lining of wells were about US$ 200-300, and full lining was a conditionality to access subsidy. The in-kind subsidy consisted of a lid, a steel windlass and 2-3 bags of cement for the cover and apron and was worth about US$50-60. In some areas, hygiene education was provided additionally, including training on gardening following the Community Health Club approach (CHC) (Waterkeyn and Cairncross 2005). The training of masons and provision of subsidy was funded by donors and run by local NGOs (Mvuramanzi Trust) and by ZimAHEAD for the CHC training. In 2000, the economic crisis resulted in funding for support services, including in-kind subsidy for the UFW programme, being stopped almost completely. Funding for sensitisation and follow-up by EHTs ended too.

Main results and lessons learnt

Self-supply satisfies needs of people

In household interviews, Self-supply was highly appreciated as the water sources which are often located close to homes provide a high level of convenience. Families stated that they were now more flexible in choosing when to fetch water and that more family members could be involved in fetching water. Additionally, Self-supply sources allow access to more water, which is often used to improve hygiene behaviour, nutrition e.g. through gardening or starting other income-generating activities.

The pilots in **Zambia** showed a high uptake of the solutions, which reflects a strong need of households to improve their water supply as community supplies are not reliable or not close enough to homes. However, to establish sustainable support services in such remote areas, where the local private sector is struggling to take off, there is a need for sufficient and reliable funding of the "software" side of activities, for sensitisation of local leaders, for facilitation of loan schemes or for follow-up, also to improve quality of works (Olschewski, Sutton, Ngoma 2016).

This applies in particular to **Zimbabwe** and areas where special training has been provided, such as that through CHC. In Zambia, gardening was not practised much so far, neither was there so much emphasis on training. In many rural areas, households invested in their own supplies even if public supplies were provided nearby, such as in Zambia. In Zimbabwe, from 1995 to 2015, more than 180,000 wells were upgraded in rural areas, providing about 2-3 million people with water for domestic and productive use (see Figure 1). As after 2000 no more in-kind subsidies and other

support were granted, this uptake represents a real success story of scaling up. However, due to the economic crisis, proper follow-up was no longer provided, and quality and maintenance of assets was decreasing (Olschewski, Waterkeyn, Matimati, 2016).

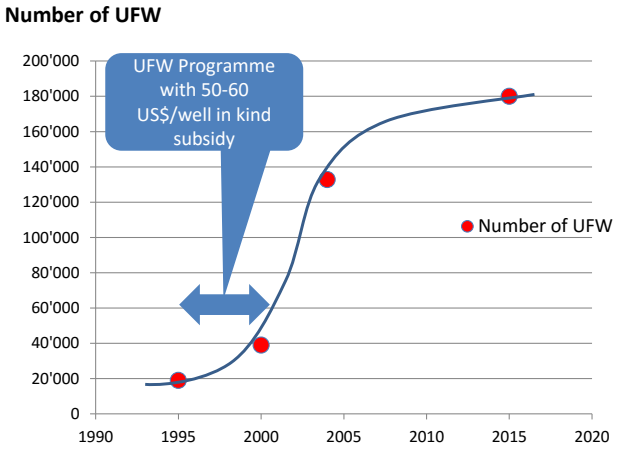

Figure 1: Scaling up of the Upgraded Family Wells (UFWs) in Zimbabwe

Specific support services required for Self-supply

Self-supply activities are embedded in a market-based approach, where support services for Self-supply should systematically strengthen the demand side, the supply side as well as the enabling environment. Figure 2 shows core elements of Supported Self-supply interventions as a systematic approach which needs to be in place to stimulate market development, to improve the level of services and to ensure that Human Right principles are adhered to (Olschewski 2016).

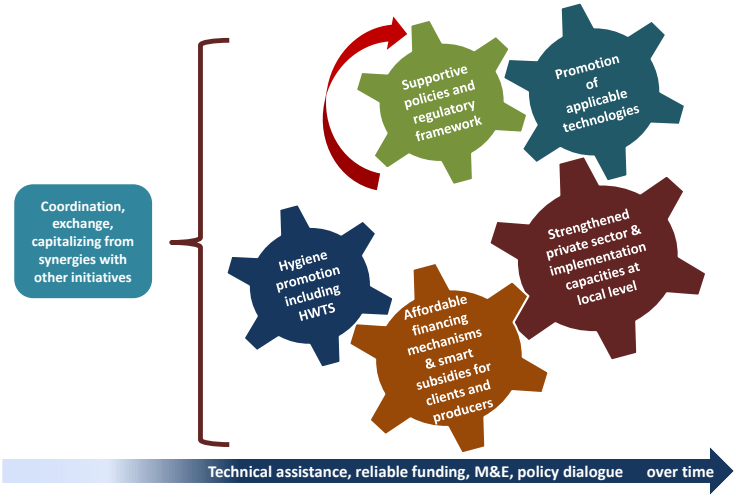

Figure 2: Support services for Self-supply

The range of support services includes technology development, sensitisation of local leaders and community members, training of masons in technical and business skills, facilitation of loan schemes or follow-up. The art in supporting Self-supply is to design context specifically and to embed these support services in government systems or in private sector cooperation in a way which allows for a viable and sustainable support of Self-supply. In Zambia, this effort was hampered by changing institutional set-ups (in particular, different Ministries and NGOs were involved) and by a rather short phase of piloting. In Zimbabwe, a strong set-up was in place up to 2000 with well-established procedures and strong linkages to the national, regional and local levels when scaling up started.

In establishing support services, one needs to bear the context in mind, in particular what people's needs are, capacities of the sector and physical and socio-economic conditions. Promotion of new technologies has to consider previous attempts to avoid supporting stigmatised technologies, such as the Elephant pump in Zimbabwe. Activities should be coordinated with those in other sectors such as sanitation, hygiene, nutrition, microfinance and income

generation in order to capitalise synergies.

Champion(s) and government's roles in supported Self-supply

In Supported Self-supply, government has to take on specific roles to ensure that universal access to safe water for all is finally ensured (Heller 2015). Depending on the context, specific roles of government include recognition of the approach and integration in policies, assessing potential and applicability, financial support including "smart" subsidies that do not lead to market distortions, sensitisation, technical advice, and monitoring and evaluation (M&E). Government should also link different initiatives, e.g. for health promotion, to create synergies, e.g. with initiatives for sanitation marketing and Community approaches to Total Sanitation (CATS), and should trigger vertical and horizontal sharing and learning. Sufficient time and reliable funding and follow-up are needed to allow Self-supply to grow. However, to bring all components together and to push the agenda, at least one committed champion is needed!

In **Zambia**, Self-supply was piloted in project approaches after rather a short time; however, it did not become part of a formal national strategy. During the projects, various Ministries were involved and acknowledged the relevance of the approach. However, at the end of the pilot projects, a clear institutional ownership was missing to take findings up to the national level.

In **Zimbabwe**, the UFW programme started as part of the national programme, mainly driven through the Ministry of Health and Child Care. Additionally, strong actors were in place developing the technology and providing high-quality training. Champions within these organisations created a critical mass of actors which were actively supporting the UFW and were vital to take the UFW programme further even after 2000, when funding decreased dramatically. Based on the results of the review, much more energy came into the sector so that recommendations were taken up in the national road map in 2016.

Need for holistic approaches and intersectoral cooperation

Community managed water supplies such as piped schemes follow a mono-sectoral approach as they focus mostly on providing water. However, for supported Self-supply, a more holistic approach is needed to also address issues of hygiene and safe water and to capitalise on opportunities such as from gardening for nutrition, vocational training or income generation. Combined support approaches and proper follow-up have a wide range of positive impacts, including better health and nutrition status and a higher level of income-generating activities (Olschewski, Waterkeyn and Matimati 2015). Holistic approaches call for the involvement of key actors from various sectors and Ministries. The experiences from Zambia and Zimbabwe show that cross-sectoral approaches with different Ministries participating at local level strongly increased the performance of Supported Self-supply and through this fostered the achievement of several SDGs, e.g. for health, nutrition or water.

Water quality and need for hygiene education and promotion of household water treatment

Water quality samples from 200 water points [with handpump, improved traditional wells (ITW), semi-improved traditional wells and unimproved traditional wells] were taken during the dry season and were analysed onsite on various parameters including Thermo Tolerant Coliforms (TTC) as an indicator of bacteriological contamination.
In **Zambia** 95% having less than 10TTC/100ml and 83% with none (see Fig 3). The review confirmed earlier findings that minor improvements in well head protection can significantly reduce faecal contamination at source (Sutton, Butterworth, Mekonta 2012; Sutton 2015).

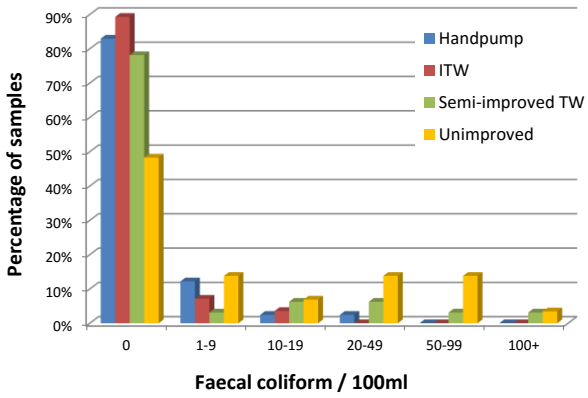

Figure 3: Water quality in wells in Zambia (n=200)

In **Zimbabwe**, a slightly higher level of contamination was observed, even in improved wells, as was a high Nitrate level. Also, in some examples from community water points using deep boreholes and handpumps had some faecal contamination and high Nitrate level. It looks as if the heavy use of fertiliser over years could explain the high level of Nitrate in the area. More follow-up is needed to verify the water quality data, including on causes of bacteriological contamination.
As recommended by WHO for any rural water supply, intervention programmes for supported Self-supply should also include hygiene education, water safety plan and promotion of use of household water treatment as a standard component (WHO 2015).

"Business case" for supported Self-supply – costs for government and for households
Based on the data from the review of supported Self-supply in Zambia and Zimbabwe, a cost analysis using the Life Cycle Costs (LCC) method was performed for achieving universal access for rural population in Zambia and Zimbabwe in 2030. Two scenarios for service delivery options were compared and discussed: a) the community managed approach using boreholes and handpumps (CWP) and b) the mixed approach, which combines community supply and supported Self-supply where applicable.

Life Cycle cost for government	Cost components considered in LCC (life time over 10 years) for government	Specific costs for government	Specific costs for households (owner)
Community Water supply using a community water point (CWP) e.g. borehole with handpump for 250 persons)	- CapEx: 100% investment of a community water point - aggregated costs for major repairs and maintenance - Support costs: specific costs for sensitisation, hygiene training and follow-up	**40 US$/cap**	**In kind contribution**
Supported Self-supply (Upgraded family well with 15-20 users)	- CapEx: no investment except subsidy of about 50-60 US$/well - Support costs: specific costs for sensitisation, hygiene training, training of masons, and for follow-up including sensitisation;	**10 US$/cap**	**250-300 US$**

Table 1: Cost comparison between community water supply and supported Self-supply (cost data from Zimbabwe)

The specific LCC cost for government is around 40 US$/cap for community water points using borehole and handpump and about 10 US$/cap for supported Self-supply for improved wells. The support services for Self-supply in Zimbabwe included an in-kind subsidy worth 2-3 US$/cap as well as costs for sensitisation, training of masons and follow-up. Experiences from Zambia show that if support services are embedded in government systems, the costs can be reduced.
Household water treatment and safe storage (HWTS) should be included in any water supply service as many supplies including community supplies don't provide safe water at all times (Bain et al 2014, WHO 2015). If a water filter were included as part of a support package, the capital costs per person would increase by around 5-10 US$/cap.
Based on these data, the estimated costs to reach universal access for water in rural areas in Zambia and Zimbabwe are very high, also because remote and sparsely populated areas need to be reached (Figure 4). This cost calculation considers the fact that Self-supply is not applicable in all regions of Zambia and Zimbabwe owing to geological and hydrogeological conditions.

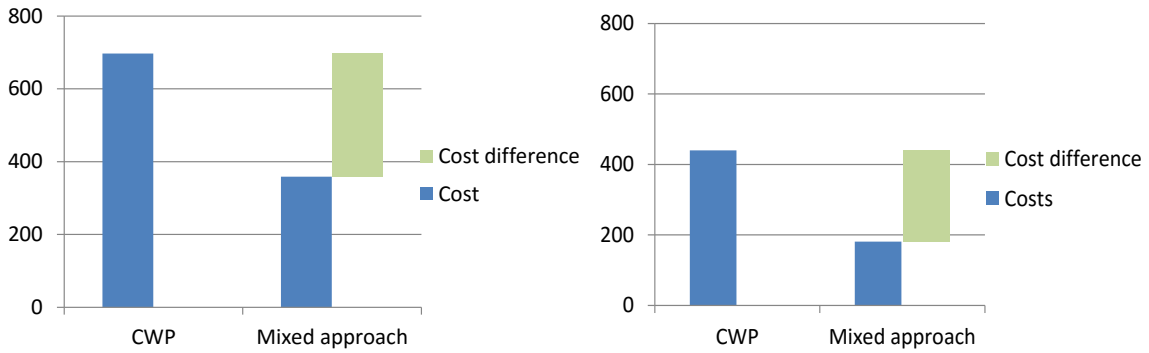

Figure 4 LCC Costs for government to achieve universal access in 2030 for Zambia (left) and Zimbabwe (right) through a community water point (CWP) equipped with a handpump on a borehole or a mixed approach.

However, there are huge differences in costs between the two scenarios which could be followed. If a mixed approach is used (CWP and Supported Self-supply where feasible), the costs for government will be 200-300 million US$ less compared to the option where only community water supplies are used. This translates into reduced costs for government for achieving universal access in rural areas of about 50% in Zambia and about 60% for Zimbabwe. Part of the huge cost difference can be explained by major parts of the investment costs in the mixed approach being covered by the households (by definition for Self-supply). However, the biggest part of the reduction is due to the choice of more cost efficient solutions in supported Self-supply. Serving households in remote scattered settlements with CWPs is extremely costly as the specific costs increase the less people can be served additionally.

Conclusions and Recommendations

The SDGs for water can only be achieved using a mixed approach combining community supplies and supported Self-supply where feasible. Supported Self-supply should be recognised by more governments and development partners as a viable complementary service delivery model for water which also supports achieving other SDGs, such as those for health and nutrition. Supported Self-supply is not a way to exempt government from its duties. Moreover, following it as a gradual approach or a mixed approach is the only way for government to ensure that people have access to safe water finally.

For a successful uptake of Self-supply, specific support services need to be established with sufficient funding. However,
there is no silver bullet solution. Design and implementation of support services very much depend on the context.

In remote rural areas, government needs to take on a strong lead and promote and support Self-supply and open up synergies with other sectors, such as with CATS in sanitation. Contexts with more favourable hydrogeological conditions and a vibrant private business sector might offer good opportunities to involve the local private sector more actively in providing some of the support services, such as around bigger villages and in peri-urban parts of Zambia, Tanzania or Sierra Leone The review confirmed earlier findings that minor improvements in well head protection can significantly reduce faecal contamination at source (Olschewski, van Donk, Mallio 2015). However, government should always participate (Heller 2015).

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