UNICEF Eastern and Southern Africa Regional Office (ESARO)

Review of Self-supply and its support services in African countries

With findings from Zambia, Zimbabwe and Malawi

Synthesis Report

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### Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>CapEx</td>
<td>Capital Expenditure</td>
</tr>
<tr>
<td>CHC</td>
<td>Community Health Club</td>
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<tr>
<td>CWP</td>
<td>Community Water Points</td>
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<tr>
<td>CWS</td>
<td>Community Water Supplies</td>
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<tr>
<td>EHT</td>
<td>Environmental Health Technician</td>
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<td>ESARO</td>
<td>Eastern and Southern Africa Regional Office (UNICEF)</td>
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<tr>
<td>FGD</td>
<td>Focus Group Discussion</td>
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<tr>
<td>HWTS</td>
<td>Household water treatment and safe storage</td>
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<td>ITW</td>
<td>Improved traditional well</td>
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<td>JMP</td>
<td>Joint Monitoring Programme of WHO/UNICEF</td>
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<td>KII</td>
<td>Key informant interview</td>
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<td>LCC</td>
<td>Life Cycle Cost</td>
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<tr>
<td>M&amp;E</td>
<td>Monitoring and Evaluation</td>
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<tr>
<td>ODF</td>
<td>Open defecation free</td>
</tr>
<tr>
<td>O&amp;M</td>
<td>Operation and maintenance</td>
</tr>
<tr>
<td>OpEx</td>
<td>Operational Expenditure</td>
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<tr>
<td>RWH</td>
<td>Rainwater harvesting</td>
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<td>RWSN</td>
<td>Rural Water Supply Network</td>
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<tr>
<td>SDG</td>
<td>Sustainable Development Goals</td>
</tr>
<tr>
<td>TA</td>
<td>Technical advice</td>
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<tr>
<td>TTC</td>
<td>Thermo-tolerant coliforms</td>
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Executive Summary

Over the past decades, in many countries, significant progress has been achieved in improving access to rural water supplies. However, it will be almost impossible to reach universal access by using community supply models alone, as this approach will simply be too costly. For achieving the Sustainable Development Goals (SDGs) and ensuring universal access to water for all, new approaches and a shift in mindset and policies are needed. Supported Self-supply is a very cost effective service delivery approach which is complementary to communal supplies, is aligned with Human Rights principles, supports equity and inclusiveness and achieving several SDGs.

This Synthesis report summarises the results of the review of supported Self-supply in Zambia and in Zimbabwe which was conducted in 2015 and reflects on findings from discussions at national workshops in Zambia, Zimbabwe and Malawi and from a webinar on supported Self-supply and Human Rights to Water organized by the Rural Water Supply Network (RWSN).

Specific findings from reviews in Zimbabwe and Zambia (details in Annex 1 and in country reports)

Zambia
- Between 2008-2014, supported Self-supply was piloted in three projects using different support services such loan schemes and training of local masons in remote rural and peri-urban areas of Luapula Province. Despite the rather short duration of each of the the pilots and the remoteness of some pilot areas, there was considerable uptake of self-financed well improvements in all of them. Investment in own sources was even significant in areas where community water supplies using handpumps were installed recently.
- Small steps in well head protection showed a massive improvement of water quality in the wells.
- Households listed high convenience as the most important factor leading to household investments in own water supplies.
- Findings from the review emphasise the need to embed support services in existing support systems of government and for cross-sectoral involvement of ministerial entities at local level to ensure sustainable support and follow-up.
- As many rural areas are sparsely populated supported, Self-supply offers a very cost effective option as a service delivery approach in areas where communal supplies will just not be affordable.
- Supported Self-supply will be integrated in coming programmes by different actors to improve rural water supply delivery.

Zimbabwe
- The Upgraded Family Well (UFW) Programme was implemented in Zimbabwe as supported Self-supply by local NGOs and with support by government as part of the formal government strategy.
- Between 1995 and 2000, the UFW programme was implemented using a set of support services such as sensitisation, technical training of masons, follow-up and an in-kind subsidy worth 60 US$ per well. In-kind subsidy was only provided after the owner had improved the well up to a certain standard. In some areas, the UFW programme was implemented together with the Community Health Club approach, which resulted in a further improvement of hygiene and health status and in an improved level of food security and income generation.
By 2000, up to 50,000 wells had been upgraded in rural areas. After 2000, the uptake went on even without provision of the in-kind subsidy and less external support, which shows that there was real scaling up. However, the quality of works was decreasing also due to economic crisis. In 2015, around 180,000 wells were upgraded in rural areas already providing water to more than 2-3 million people. For about 50-70% of the unserved living in rural areas, supported Self-supply can be a very cost effective and complementary service delivery option.

Households regard convenience and access to more water which can be used for gardening and income generating activities as the most important factors triggering household investments in own water supplies.

In 2016, supported Self-supply through UFW was incorporated into the national sector roadmap by government to improve water supply delivery in rural areas.

More generic key findings:

Reach and benefits:
- Self-supply is practised by millions of rural households in Sub-Saharan Africa as well as in Europe, USA and other areas of the world.
- Benefits reported from having access to Self-supply water sources include convenience, less time spent for fetching water and access to more and better quality water. In some areas, Self-supply sources offer important added values such as water for productive use, income generation, family safety and improved food security.
- Sustainability of services from Self-supply is high as there is strong ownership by people investing in own sources.

As Self-supply sources are shared sources, many people, including poor and vulnerable households, benefit from investments in Self-supply, often at no costs. This means that Self-supply can be effective in reaching the hard-to-reach.

For millions of people in rural areas of Africa, supported Self-supply will be the most cost effective service delivery model to provide access to safe water. This also includes those parts of the population which actually have poor access as they e.g. cannot afford water from communal supplies.

However, in areas where external support for Self-supply is lacking, only marginal improvements can usually be achieved, and the quality of services is lower than in areas where a dedicated support effort was made.

Costs and business model for supported Self-supply
- In many rural contexts, supported Self-supply is the most cost effective approach for water service delivery. However, as it is not applicable in all contexts, a blended approach combining communal water supply and supported Self-supply models should be followed.

Based on a Life Cycle Cost (LCC) analysis of different service delivery approaches, the LCC for communal supplies are about 40 US$/capita served in the study countries, whereas the LCC for supported Self-supply is about 10 US$/capita.
In sparsely populated areas, communal supplies (e.g. handpumps) are even more costly (up to 100 US$/capita served) as only few people can be served with one additional unit. Serving all rural people with communal supply is therefore not financially viable.

Considering the applicability of Self-supply technologies, in Zambia and Zimbabwe, the cost saving of following a blended approach using both communal supplies and supported Self-supply is almost 50% of the total LCC for reaching 100% of the population by 2030. These cost savings are equivalent to more than 330 million US$ in Zambia and more than 260 million US$ in Zimbabwe.

Support services needed

- Supported Self-supply is a service delivery model putting support services in place to improve Self-supply, so it is not about a particular technology.
- Supported Self-supply is aligned with the Human Rights to Water and Sanitation, which allows a progressive realisation of the universal access to safe water. However, supported Self-supply is not a way to exempt government from its duties: Government has specific roles to play to ensure that everybody will have access to safe water finally.
- To sustain and to take Self-supply to scale there is need for contextualised support as well as long-term engagement, capacity development at all levels, M&E and technical support, reliable funding and learning and sharing.
- Interministerial cooperation and champions within government agencies are needed to ensure sustainable embedding and for taking Self-supply further, particularly in remote rural areas.
- There is no-one-size-fits-all solution for supported Self-supply – for each programme, it needs a contextualized design and follow-up to achieve desired impact.
- Hygiene promotion, including Household Water Treatment and Safe Storage (HWTS), is highly recommended for any non-piped water supply services, including Self-supply water sources.

The huge potential for substantially improving the level of water supply for millions of people in rural areas should be accessed through supported Self-supply. Some countries have endorsed supported Self-supply as service delivery model, such as Zimbabwe or Sierra Leone, and in Ethiopia, Self-supply is now being scaled up at national level.

For many countries, a blended approach is the only feasible way to achieve universal access, also in rural areas. However, much wider recognition and stronger support are needed for supported Self-supply as a service delivery model and as part of a blended approach for rural water supply to ensure that no-one is left behind!
1. **Background**

1.1 **Achievements and challenges**

There are huge success stories to present by the end of 2015, the deadline of the Millennium Development Goals (MDGs). Indeed, in many countries, millions of people have achieved access to safe water. However, despite all the huge efforts and investments, millions are still left behind without access to safe water in rural areas of many countries. According to current JMP figures, about 44% of the rural population in Sub-Sahara Africa, around 250 million people, continue to lack access to safe water (JMP/WHO 2015). Considering the growing population in most developing countries, it will be an even bigger challenge to reach the Sustainable Development Goals (SDG) in the coming 15 years. More effective approaches are needed to achieve the SDG targets and to tackle poverty, such as through providing universal access to water (SDG No 6), improved health (SDG No 3), improved food security (SDG No 2) or skills for work (SDG No 8).

So far, the common approach followed by government to provide water to rural people has been mainly through community managed water supply systems funded predominantly by government and external donors. Technically, most of the community managed systems include boreholes and handpumps or piped schemes. After construction, the system is handed over to communities who are in charge of operation and management of the schemes. Due to poor capacities and lack of ownership, communities are often unable to properly manage their systems, leading to dysfunctional service or even breakdowns. Data from recent surveys clearly show that the functionality rate of community supplies using handpumps is between 70% and 80% and has improved slightly in some countries compared to 10 years ago, although >20% of handpumps are still not working. To address this issue, different efforts have been started to improve sustainability of services more systematically. Apart from challenges concerning sustainability, there are additional issues which need to be addressed when community managed system are further promoted for achieving the SDGs:

- Even in areas with high coverage provided by community systems, some people are still using traditional wells which might not always provide safe water. In these cases, a high figure for coverage does not automatically translate into actual use of safe water sources. The reasons for this differ, are very context specific and can include affordability to pay the tariff or poor levels of service, long walking distances, waiting time or poor water quality in boreholes.

- In many countries where coverage is already high, such as in Malawi or Columbia, where >80% of rural people are served with water, there seems to be a “ceiling” for reaching the remaining 10-20%. One reason could be that population growth eats up all progress in terms of access. Another possible reason is that many of the unserved live in remote rural areas or in dispersed settlements where it will be very costly to provide adequate services using the common approaches and technologies. No major progress can be expected unless there is a mind and policy shift to include new approaches and ensure sufficient funding for providing water to people living in rural areas.

Self-financed approaches for water supply are common practice for millions of rural households as they invest in their own water supplies as a basis for domestic and productive water uses. They have huge potential to contribute substantially to improving food security, livelihood and income generation. Self-supply water sources are complementary to communal supplies and provide a safety net in case these supplies are no longer available.

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1 Progress on Sanitation and water – update 2015; JMP/WHO [www.wssinfo.org](http://www.wssinfo.org)


4 Tapping the market, World Bank; [http://hdl.handle.net/10986/16538](http://hdl.handle.net/10986/16538); (Sy et al, 2014)
They are part of building up resilience to external shocks and play a crucial role for households concerning their water security. Achieving the Sustainable Development Goals (SDGs) requires a better understanding of how to attain sustainability of specific service approaches and technologies used to provide water supply in specific contexts, how to harness their potential for achieving the SDGs and how to best support service provision.

1.2 Scope and objective of the review

Supported Self-supply has a huge potential as a service delivery model to provide water to millions of rural households and to support achieving several SDG including access to safe water for all. Future strategic options for providing safe water to rural areas need to follow more holistic approaches, including supported Self-supply, to address current challenges and to contribute to achieving the SDGs. Particular efforts are needed to better understand where Self-supply is a viable option and how to improve and support Self-supply in different rural contexts.

Self-supply is not limited to rural areas, it is often found in peri-urban areas where public supply cannot properly satisfy the demand. Self-supply is even practised at a community level, such as in Mali, where parts of the community invest their own funds, including remittances, to extend an existing community piped network at their own costs to cover more households which have not been connected so far. Still, household initiatives form the majority of Self-supply. One reason might be that supporting community Self-supply is more demanding and difficult to sustain. Therefore, the focus in this review and report is on Self-supply of households in rural areas.

The objective of this review study is to prepare a basis to support or negate supported Self-supply as a service delivery approach in rural areas. To answer this question, detailed reviews have been conducted in rural districts of Zambia and Zimbabwe where supported Self-supply had been piloted (in Zambia) or even scaled up (in Zimbabwe). The detailed results of the reviews and the conclusion from national consultation are documented in separate document such as the country reports. This Synthesis Report summarises the findings and presents generic recommendations which also draw from other experiences on supported Self-supply from other countries.

2. Concept of Self-supply

2.1 Incremental improvements along the water ladder

Self-supply is practised by millions of people all over the world, including Europe and the USA, and can be just an initiative of households or a result of a supported process, e.g. triggered by government.

<table>
<thead>
<tr>
<th>Definition: Self-supply</th>
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<tbody>
<tr>
<td>Self-supply can be defined as incremental improvements in the supply of WASH products, e.g. water supply and sanitation structures, by a household or a small group of households, chiefly financed by themselves.</td>
</tr>
</tbody>
</table>

Self-supply allows households to move up the water ladder through incremental improvements according to their needs, their capacities and financial resources (Sutton 2012). This implies that moving up from an unimproved source, e.g. a traditional well, up to an improved level according to JMP standards might take some time.

However, lifting households from unimproved supply up to an improved level in one go, e.g. as communal supply through piped schemes, implies huge investments which are so far provided mostly by donors. There are growing concerns that this massive external support will not continue to be available in the future. New funding sources are required, such as from domestic sources.

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Sadoff et al, 2015
Key features of Self-supply include:

<table>
<thead>
<tr>
<th>Key feature</th>
<th>Particular impact</th>
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<tbody>
<tr>
<td>Broad range of benefits</td>
<td>Households investing in improving their own water sources do list a broad range of benefits of having their own source close to their home. First of all, there is the aspect of convenience, saving time for fetching water and having less of a burden. Further benefits include having more water available for income generation and improving food security, more water with better quality, a high level of service (24/7), reliability, privacy and security.</td>
</tr>
<tr>
<td>Strong ownership</td>
<td>Self-supply is based on household initiative. It is fully demand driven. As almost all investments are covered by households, there is strong ownership.</td>
</tr>
<tr>
<td>High potential for sustainability</td>
<td>There is inherent knowledge on how to operate Self-supply sources or where to go to ask for support. Households care for their assets and do proper maintenance, so that the functionality of their supply is very high. Sustainability of Self-supply is very high as long as water quality and resources are managed properly.</td>
</tr>
<tr>
<td>Self-supply sources as shared supply</td>
<td>In most regions, Self-supply sources are shared with neighbours at no additional cost for the well owner and no cost for sharer. These sources serve several families, including the most vulnerable and poorest ones.</td>
</tr>
<tr>
<td>Multiple uses of water</td>
<td>Self-supply sources are mostly used for domestic purposes. In many areas, there is a huge potential to expand the use of water also for productive purposes, such as gardening, cattle, or brick making, which provides opportunities for income generation. Self-supply sources have a huge role to play in terms of water security.</td>
</tr>
<tr>
<td>Demand driven</td>
<td>The number of Self-supply systems is growing in many countries as people see the benefit and start investing in their own sources.</td>
</tr>
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</table>

For rural households, investment in a water source of one’s own is a huge investment. In most cases, rural households depend on subsistence farming, and have only little and unreliable cash income. Only few have some small cash income from petty trading and other income generating. Therefore, in most cases, investments by rural households in their own water sources are for multiple purposes, for providing drinking water as well as for productive uses.

The decision on the level of investment and technical improvement of peoples’ own water sources depends not only on the water-related needs, but also on aspiration and financial capacities of the households, as well as on the feasibility of applying certain technologies in a specific context. Depending on the context, different technologies might be suitable for Self-supply. A selection of well-known technologies applied in Self-supply and their advantages and disadvantages are described in various resource documents and sources.

### 2.2 Technologies used in Self-supply

Supported Self-supply is a specific service delivery approach for providing water services to people. It is not about a specific technology. Technologies used for Self-supply in rural areas are often rather low cost. This is required as people have to pay the full investment costs and are frequently short of cash. These technologies need to be robust, very cost effective and affordable, and therefore fit for the self-financed approach. However, many technologies often used in Self-supply, such as manual drilling or rope pumps, are also used in projects following a community centred approach which are often subsidised.
Examples of Self-supply solutions
Left: upgraded family well; middle: EMAS pump with overhead tank for shower; right: Rope pump

There is a need to offer different technologies applicable for Self-supply which fit different contexts but also cater for different purchasing power and aspirations of people.

3. Human rights to water and Self-supply

3.1 Requirements of the human rights approach

In September 2015, the UN Assembly endorsed the Sustainable Development Goals (SDG), which are also based on the approach of Human Rights to Water and Sanitation (HRTWS). In terms of access to water, the HRTWS approach entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses.

There are five underlying core principles of a human rights based approach which also need to be applied to any water supply approach:\(vi, vii:\)

- Equality and non-discrimination
- Participation and inclusion
- Access to information and transparency
- Accountability
- Sustainability (long-term financial and physical sustainability)

The HRTWS approach allows for a progressive realisation of the human right to water as envisaged in the supported Self-supply approach. However the government of any country is obliged to take steps to ensure that everyone is able to access safe, affordable, culturally acceptable water services, wherever they live and however the service is provided. This means that the supported Self-supply approach does not allow government to abandon its obligation to provide access for all. However, the government does not have to provide the water supply services directly but must ensure that the suitable ‘enabling environment’ is in place that safeguards human rights standards.

The human right to water increases pressure on the government to meet the needs of the hardest to reach by specifically requiring governments to prioritise the needs of those who have been left behind.

For many people living in remote rural areas, Self-supply is often the only option available for water supply. The key question is how to best support Self-supply services so that the principles and standards of HRTWS are adhered to. Relevant challenges anticipated include affordability for households, water quality, monitoring of construction and maintenance and sustainability (in particular in terms of water resources). Government has an obligation to safeguard human rights standards through regulation and support.

\(^{vi}\) http://www.ohchr.org/EN/Issues/WaterAndSanitation/SRWater/Pages/AnnualReports.aspx

\(^{vii}\) For more detail see Handbook on Realisation of Human Rights to Water and Sanitation www.righttowater.info.
The specific roles of government for supporting Self-supply include:

<table>
<thead>
<tr>
<th>Roles of government in supported Self-supply</th>
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<tr>
<td>1) Identifying when/where Self-supply is applicable</td>
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<tr>
<td>2) Creating and establishing the right enabling environment by providing:</td>
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<tr>
<td>a. Technical support</td>
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<tr>
<td>b. Monitoring of water quality and other standards</td>
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<tr>
<td>c. Financial support where Self-supply is costly and unaffordable</td>
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</table>

3.2 **Recommendation for Self-supply from the human rights perspective**

Reflecting the potential challenges of Self-supply in terms of HRtWS, a set of recommendations should be followed in the design and implementation of Self-supply programmes and interventions:

- The HRtWS does not favour or exclude any management model for provision of safe water to all.
- The important objective is that eventually, all people have universal access, that core principles are adhered to and that there is no difference in quality and access no matter which supply approach is used.
- Self-supply is aligned and compatible with the concept of progressive realisation of the Human Right to Water.
- Government’s role in Self-supply is to identify where and when Self-supply is an appropriate option to provide access to safe water. Additionally, government should provide technical support, monitoring, and financial support (e.g. subsidies), establish an enabling environment and recognise Self-supply as one viable option to achieve the Human Right to Water.
- In Self-supply, like in other approaches, challenges might occur around affordability, water quality, monitoring, and long-term sustainability. The government must support people moving up the water ladder but must also take preventive measures to address challenges from Self-supply.
- To further scale up Self-supply, well-designed subsidies might be an adequate means to allow poor people to move up the water ladder in incremental steps. Subsidies such as support to loan schemes of targeted in kind support avoid distortion of the local economy. If subsidies are provided, there is need to find sustainable funding sources.
- Even people who cannot afford to improve their own wells benefit from supported Self-supply as in most cases, Self-supply sources are shared and poor households do not have to pay for water.
- In most regions, supported Self-supply will be an option to improve the level of water service together with communal supplies, so for most rural regions a **blended approach** using both service delivery approaches will be the best way to go for achieving and sustaining universal access in rural areas.

**Supported Self-supply complies with the principles of the HRtWS approach. Only if supported Self-supply is included in strategies for rural water supply can the SDGs be achieved in many countries as the community supply model alone will not be affordable and not feasible. Government is in charge to ensure that well designed support services are in place so that people have the opportunity to reach acceptable standards.**

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4. **Concept of Self-supply support services**

4.1 **Support services for Self-supply**

Based on the experiences from piloting and rolling out Self-supply in different countries (Sutton 2012, Olschewski et al 2015), a set of generic core components were identified which should be in place to accelerate Self-supply (see Figure 4.1).

![Diagram showing key support services for Self-supply](image)

**Figure 4.1: Key support services for Self-supply**

These core components for supported Self-supply are aligned with the more generic building blocks for sustainable service provision. They consider the particular characteristics and challenges which are relevant for Self-supply, e.g. on provision of services through market interaction in areas with low purchasing power. For each application in a specific region, they need to be contextualised in terms of actors, roles, and sequencing and are followed up over time. For some common scenarios, a more detailed description of the core components is provided in Chapter 8.

4.2 **Different ways of supporting Self-supply**

Various countries have piloted supported Self-supply on a larger scale (e.g. Zambia) or even rolled it out on a national scale (e.g. Nicaragua, Zimbabwe, currently in Ethiopia). Others have included supported Self-supply as a way to go for serving the rural population living in scattered areas such as in Sierra Leone. Even middle-income countries such as Colombia consider supported Self-supply as an option to serve the “last mile”. A wealth of experience has been gathered on how best to accelerate Self-supply and to roll it out on a national scale.

**Definition: Supported Self-supply**

By providing specific support services, supported Self-supply enables people to choose and improve their water supply according to their own means and needs. Supporting Self-supply is the process of actively establishing the support services and the enabling environment needed.

There is no silver bullet or one-size-fits-all approach for supporting Self-supply. In different countries which have piloted or rolled out supported Self-supply, such as Ethiopia, Zambia, Sierra Leone, Zimbabwe, Uganda or Nicaragua, different ministries took the lead during the process for taking Self-supply further. There was also a different sequence of steps in the processes. More research is needed to follow up the different efforts and to see the impact of the different approaches.

*Building blocks see: [http://www.waterservicesthatlast.org/](http://www.waterservicesthatlast.org/)*
4.3 Characteristics and challenges of supporting Self-supply

Due to the particular characteristics of Self-supply, a couple of particular challenges should be addressed when scaling up of Self-supply is planned:

<table>
<thead>
<tr>
<th>Characteristics and challenges</th>
<th>Particular impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uptake of Self-supply cannot be planned and promoted as communal supplies</td>
<td>Supported Self-supply is a complementary service approach which might reduce pressure from communal supplies. However, as it is demand driven, the resulting level of activities and impact cannot be predicted as is the case with a communal water supply approach.</td>
</tr>
<tr>
<td>So far, little understanding and visibility of Self-supply as an approach</td>
<td>Many actors in governments and within development agencies are not at all familiar with the concept of Self-supply. As the roles of actors involved in Self-supply are quite different from commonly known approaches (e.g. as community managed systems), actors such as government initially often feel reluctant to buy in the Self-supply approach as they don’t see their role.</td>
</tr>
<tr>
<td>Self-supply often not visible in formal M&amp;E Systems</td>
<td>Despite the fact that Self-supply is common practice all over, little is documented and followed up. In most countries, Self-supply water sources are not captured in formal monitoring systems. One exception is Zimbabwe, where Self-supply water sources are captured in formal inventories and monitoring.</td>
</tr>
<tr>
<td>Interferences and market distortion</td>
<td>Market interaction such as for supporting Self-supply is prone to distortions which can be introduced through other projects providing similar services and products with heavy subsidy. Conflicting approaches are a major threat to supporting Self-supply.</td>
</tr>
<tr>
<td>Not all Self-supply sources provide safe water throughout the year</td>
<td>Technologies used in Self-supply are often simple, and their performance is limited if there is no proper maintenance. There are concerns over water quality in Self-supply sources as well over uncontrolled abstraction. However, even improved sources as communal supplies do not consistently provide safe water⁶. There is need for hygiene promotion, sanitary inspections, also for Self-supply water sources and including promotion of HWTS, and for regular follow-up including assessing water quality of all water sources.</td>
</tr>
<tr>
<td>Limited financing capacities of rural households</td>
<td>The income of rural households often does not allow huge investments in one go. Due to lack of regular income and collateral, they are frequently not eligible for accessing MFI or bank credits. Therefore, rural households need particular financing mechanisms to help them invest in their own water sources. Keeping the saving schemes in remote rural areas going requires ongoing external support over years, such as auditing or topping up revolving fund schemes.</td>
</tr>
<tr>
<td>Costly context to set up and sustain support services</td>
<td>The low number of households per areas leads to high transaction costs for supporting services such as costs of operating a saving scheme.</td>
</tr>
</tbody>
</table>

⁶ http://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1001644
4.4 Roles of actors

Compared to the implementation of community water supplies, the roles of actors involved in supporting Self-supply are very different.

- **Self-supply** is based on market interaction between households as clients (demand side) and the local private sector which is providing products and services (supply side). Households choose the level of improvement of their water supply, cover all investment and operation and maintenance costs and manage the supply.

- The **government’s role** is the identification of areas where Self-supply is a viable option and the establishment of an enabling environment. In particular, it is about coordination with other activities such as health promotion, CLTS of for food security, providing support, supervision and monitoring e.g. of water quality as well as quality control of specific products. Support by government can include financial support such as smart subsidies, technical support, advocacy and regulation.

- **Support organisations** such as NGOs can be involved to facilitate the scaling up process, to provide technical support and support in sensitisation and follow-up. The role of supportive institutions might change over time, and they might pull out once the process is fully facilitated by the local private sector and government.

Figure 4.3 presents a generic organisational set-up for supporting Self-supply including key actors involved and their interaction.

![Diagram of roles of actors involved in supporting Self-supply]

**Figure 4.3: Generic picture of roles of actors involved in supporting Self-supply**

For each Self-supply programme, the specific roles of each of the actors, in particular of government and of supporting organisations such as NGOs, need to be specified according to the context and the phase of scaling up. As Figure 4.3 shows, the roles of actors within the process of supported Self-supply might not be static. Factors within and outside the supported Self-supply process might influence progress of uptake, e.g. good harvest, prices of products. Therefore, a periodical assessment of the roles of actors, in particular the role of government and of supporting organisations, is required to optimally support the acceleration of Self-supply. It should be highlighted that government should always play a role in supported Self-supply in each stage of scaling up. For more on the role of government, please also see Chapter 8.
4.5 Role of subsidies

Self-supply is implemented based on market interaction between households and the local private sector as the supply side, e.g. local masons. Usually, no direct cash or in kind subsidies are provided in supported Self-supply. This is mostly to avoid a dependency syndrome and market distortions but is also due to a lack of sustainable funding. However, as practice shows, there might be specific situations where some targeted subsidies are needed in particular to ensure equitable access to all segments of the population, e.g. by supporting loan systems in rural areas to poorer households.

<table>
<thead>
<tr>
<th>Type of subsidy</th>
<th>Government contribution</th>
<th>Household contribution</th>
<th>Possible application</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Indirect</td>
<td>Technology research Training Advisory services Social marketing Monitoring</td>
<td>All capital costs All running costs</td>
<td>1. Country-wide</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2. Households already served</td>
</tr>
<tr>
<td>Largely indirect</td>
<td>Seed money for MFIs, and periodic top-ups Demonstration sites HWTS equipment</td>
<td>Most capital costs Loan repayments Consumables</td>
<td>One option for unserved leveraging maximum HH input</td>
</tr>
<tr>
<td>Direct subsidy/ incentives</td>
<td>Materials e.g. cement Items e.g. low cost pump or windlass Or simple per capita payment towards costs</td>
<td>Well digging/ lining Labour</td>
<td>For communities not qualifying for CWP</td>
</tr>
</tbody>
</table>

Subsidies should be provided in a smart way by government so that the targeted part of the population actually does benefit and there are no market distortions.

If subsidies are to be provided over a long period, sustainable funding sources need to be secured. Smart subsidies can include an in kind contribution of material once a household has accomplished a certain level of improvement or indirectly, e.g. through subsidies for lowering costs for accessing finance. In remote rural areas where technologies might not be well-known and where financial capacities are often weak, some in kind subsidy may be required if households have contributed their share as an investment upfront.

In terms of the implementation approach through household investments, Self-supply for water has strong similarities with sanitation approaches which are based on household investments as well, such as Community Led Total Sanitation (CLTS). Usually, CLTS approaches do not consider subsidies for hardware investments. However, recent research has shown that in specific contexts, hardware subsidy provided in a smart way can significantly increase uptake of sanitation interventions if combined with complementary well-designed and sequenced interventions without jeopardising the CLTS approach as such \(^{10}\). Actually, providing subsidies for a rural population is not special for Self-supply. If ones considers a communal rural water supply scheme where government covers 90-100% of investment costs, there are indirect subsidies of 50-100 US$/capita. So far, this level of subsidy is not provided systematically to ensure that people living in remote rural areas which will not be served by community supply in the near future can improve their own supplies.

\(^{10}\) https://waterinstitute.unc.edu/files/2015/06/WaSH-Policy-Digest-july2015.pdf
5. Findings from scaling up in Zimbabwe and piloting in Zambia

5.1 Review of former piloting and rolling out

In 2015, a review was conducted of former rolling out of supported Self-supply in Zimbabwe and piloting in Zambia. Data for the review was collected in field surveys including Key Informant interviews (KII) and Focus Group Discussion (FGD) with relevant key stakeholders, source inspection and water quality analysis of different water sources. The results are documented in an inception report and the two country reports and were presented and discussed with key actors at national level (for Executive summaries of country reports, see Annex 1).

5.2 Zimbabwe

5.2.1 Background of the Upgraded Family Well Programme

After Zimbabwe’s independence in 1980, many rural areas were lacking any functioning water supply. At the Joint Sector Review in 1995, the country’s relevant ministries approved a blended approach to increase coverage in rural areas by using both community water points (mainly provided through boreholes and handpumps) as well as by promoting upgraded family wells (UFW).

The original design of the UFW, which was developed by the Blair Research Laboratory, consisted of a brick-lined well, brick supported columns, a sanitary seal in the form of a concrete apron with run-off, a lockable tin lid and a steel windlass with bucket and chain.

[UFW in Manicaland province, October 2015]

The UFWs were promoted using a supported Self-supply approach. However, in the initial phase between 1995 and 2000, an in kind subsidy was provided to each household willing to invest in the UFW. This in kind subsidy consisted of 3 bags of cement, a steel windlass and a tin lid. At the time, the total value of this subsidy (excluding transport and administration costs) amounted to just US$ 50-60 (which is about 2-3 US$/capita). The subsidy was only provided after the well-owners had deepened and fully lined their well with burnt clay bricks and had made arrangements to pay the local builders who were trained in headwork construction by the programme. In this way, the subsidy amounted to about 25% of the total cost of the well, with the balance (i.e. 75%) being paid by the well owner.

5.2.2 Introduction and uptake

In the area of Zimbabwe, traditional wells have always been used as the main water source in rural areas. As a response to years with droughts, the Zimbabwe-based Blair Research Laboratory developed a robust and cost effective model of an upgraded family well (UFW). After formal adoption by government in 1995, the UFW programme was rolled out intensively, mostly by NGOs (WaterAid, later Mvuramanzi Trust) using funding from development partners.

As part of the support services for Self-supply, these NGOs provided training of local masons and organised logistically the provision of materials for the subsidies. As part of the UFW programme, in kind subsidies were also provided by the programme (worth US$ 50 by that time) for well owners who had dug and had fully lined their wells.

On the ground, Environmental Health Technicians (EHT) under the Ministry of Health supported families through sensitisation, hygiene education and follow-up. For improving health and hygiene at community
level, the Community Health Club (CHC)\(^{46}\) approach was formally included in national policies and rolled out. In many districts, both CHC and UFW were implemented jointly. Through this combined approach of UFW and CHC, communities received comprehensive support for water supply, food security, health and hygiene education and income generation.

By 1995, WaterAid/Mvuramanzi Trust had enabled the construction of about 18,000 UFWs (Morgan, 1996) across at least ten districts. By 2002, the number of UFWs initiated by Mvuramanzi Trust alone had increased to 39,000 UFWs (WSP, 2002). This indicates that within just 5-6 years, the approach had been able to support the provision of sustainable water for drinking, improved hygiene and nutrition, increased food production and sustainable livelihoods for over 800,000 people at a per-capita subsidy cost of less than US$5.

In 2000, an economic crisis hit the country, and the external support to the sector stopped. One consequence was that funding was no longer available for subsidies, the training of masons stopped completely, and also, the level of follow-up decreased significantly.

Despite this shock, the uptake of the UFW by households continued. By 2004, about 150,000 UFW were registered in rural areas alone according to the national inventory. For 2015, the number of UFW is estimated at around 180,000\(^{47}\). This significant uptake between 2000 and 2015 resulting in more than 100,000 new UFW being dug or improved was accomplished mainly by copying the idea from neighbours ("Seeing is believing"), and without any further external support such as for subsidies.

After 2000, there was actually no longer any supported Self-supply, so the uptake continued on its own. This means that further scaling up was mostly achieved by a critical mass of trained masons, a good cost effective technical product and very much by the sheer need to have access to water near the homes for domestic and productive uses and improved resilience.

5.2.3 Impact of supporting Self-supply

Owning an UFW or having access to water by sharing an UFW offers a long list of benefits to users. About 80% of the interviewees ranked convenience as the most important benefit of having a UFW or access to a UFW. Further, they mentioned less burden and less time spent carrying water. Additional benefits reported include access to more water, better water quality, reliability of the source, flexibility to fetch water any time during the day, privacy and less gossip. Particularly in areas where households were triggered by CHC to use water from UFW also for gardening or other income generating activities, such as in Makoni, there was a higher level of food security and and a higher health status compared to areas with no such support.

Another benefit of the Self-supply water sources in Zimbabwe came to light in 1991/92, when the country was hit by the worst drought on record that caused the water-table to drop by an average of 5-10 metres. Rural livelihoods were severely threatened with widespread death of livestock and complete crop failure. Countless Community Water Points (CWPs) dried up totally during the drought, and so it came as quite a revelation that numerous family-owned wells were continuing to supply adequate amounts of water to sustain life, the reason being that these family-owned wells tended to be deepened by their owners as they followed the water-table down as it steadily receded. Additionally, as wells have a much wider diameter, they offered more storage capacity as compared with boreholes. In this way, the UFW demonstrated a far greater resilience to the uncertainty of changing weather patterns and what today is becoming better understood as the impact of climate change.

There is strong ownership by owners of UFWs who care for maintenance if needed. Still today, functionality of UWF is high, with about 90% of all UFW wells used and functional by the end of the dry season compared to the 72% functionality of CWP.

\(^{46}\) Community Health Club (CHC); see [http://www.chcahead.org/](http://www.chcahead.org/)

\(^{47}\) Based on projections from RWIMS figures [www.ncuwash.org](http://www.ncuwash.org)
5.2.4 Costs of implementation
The implementation of the UFW programme included costs for direct support such as training of masons, sensitisation and provision of the in kind subsidy. On average, an UFW provides water for around 15-20 people, so in effect, the gross per capita value of external support, including the subsidy, is around 10 US$ per person. This unit cost compares remarkably well with CWPs (i.e. US$ 40 US$ per capita), especially when most serious challenges around the poor functionality rate of CWPs and long-term maintenance costs (i.e. value for money and sustainability issues) are all taken into account.

Costs for government for UFW will further decrease once the critical mass has been reached in an area and people start copying from neighbours. At that point, government should continue to provide follow-up, also by offering education on hygiene and on HWTS and monitoring the level of sanitary protection of UFWs and of water quality. The costs for households for improve their well and to access the subsidy is about US$ 250 for digging and lining of the well.

5.2.5 Challenges and bottlenecks
Due to the economic crisis, the level of follow-up and support by government to the rural population has decreased dramatically. Currently, there is no sufficient funding to allow government to do proper follow-up and monitoring of any rural water supplies by EHTs or support of new initiatives.

Unless there is significantly more funding and support, the quality of existing and new wells will further decrease, and no new technologies may be introduced which could provide benefits to rural households, such as HWTS, storage tanks or efficient irrigation technologies.

Due to poor demand, some of the trained masons have already moved to other areas to find jobs so that capacity at local level has suffered. And even today, households have fewer resources to spend on maintenance of UFW, so that quality is deteriorating, thus increasing the risk of negative impacts on water quality.

Impacts from climate change might challenge service provision of rural water supplies including by UFWs, as the water table might drop due to lack of rain, poor recharge of aquifers and lack of support to communities in managing natural resources sustainably. However, UFW offer a flexible solution for adaptation to climate change as they can be deepened to follow the groundwater table.

Field data collection of water quality in different sources revealed the fact that, surprisingly, only few sources had zero TTC level (20% of 200 samples). However, about 55% of the samples had TTC level below 10 units per 100 ml, which indicated a low risk according to WHO. Nevertheless, there are quite a number of UFW wells (about 45%) with higher levels of TTC, posing a risk as a drinking water source. In most samples, Nitrate was elevated (> 40 mg/l), which calls for proper follow-up.

In the interviews, 80% of households perceive the UFW as sources providing safe water and see no need for water treatment. However water quality data of different sources show that water from UFW as well as from other sources is not always safe. Particular efforts are needed regarding sensitisation, information, hygiene education and promotion of HWTS.
Therefore, in programmes for supporting Self-supply, there is a need to provide packages of measures which also include HWTS and hygiene education. This recommendation is in line with the WHO recommendation that water from any rural water supply should be treated since even so-called improved sources do not always provide safe water with zero TTC (WHO Ethiopia 2015). Promotion of HWTS could be combined with subsidies to achieve a quicker uptake and lasting impact.

5.2.6 Potential

Today, coverage for improved rural water supply in Zimbabwe is around 67%, which means that upwards of three million people living in rural areas are still not being served. About 25% of coverage is currently contributed by UFW, making them a major sustainable pillar for rural water supply in Zimbabwe. Depending on the hydrogeological conditions within the different provinces, about 50-75% of all the rural people could be served by Self-supply.

As a way forward, supported Self-supply should be further promoted as a complementary service delivery approach for water in rural areas. The CHC concept should be revitalised to ensure a comprehensive approach including water supply, food security, health improvements and income generation. The scope of technologies provided should be widened according to context specific needs and demand and include UFW, affordable lifting devices and even solar-powered pumps. These could be used to move people up the ladder as well to rehabilitate the existing UFWs and CWPs.

More details on the review of the UFW programme in Zimbabwe are documented in Annex 1 or in the country report.

5.3 Zambia

5.3.1 Background of Self-supply piloting

Zambia has made great progress in rural water supply coverage over the past 25 years, increasing the number of people served by over 3.7 million. As a result, some 46.6% now have access to improved water supplies in rural areas (Zambia Demographic Health Survey report 2013-14). However, in the same period, rural population growth has meant that almost a million more people are now using unimproved sources than in 1990. A major reason for this is that conventional approaches using communal supplies are less effective in areas where the rural population is widely scattered. Rural population densities average 12.7/km² nationally, equivalent to only two households/km². Thus a waterpoint designed to serve 200-250 people requires some of them to walk inordinate distances to count as ‘served’. At the same time, surface and groundwater sources are quite easily accessible over the northern half of the country, meaning that for many, unprotected supplies are nearly always nearer to them than a communal handpump. Over time, several attempts have been made in Zambia to look at the feasibility of developing complementary service delivery approaches especially for people living in small, dispersed groups in rural areas. Promoting the up-grading of some of the numerous local traditional supplies and new construction, largely through supported Self-supply, has been piloted in three phases:

1) 1998-2001 DFID funding to Department for Water Affairs and Ministry of Health in 3 provinces,
2) 2007-2010 UNICEF funding to two NGOs “WaterAid Zambia” and “DAPP” in 3 districts in Luapula, including Milenge West, and
3) 2012-2014 Stone Foundation funded WaterAid Zambia in Milenge East.

5.3.2 Introduction and Uptake

During these three phases of piloting, different approaches have been used for the introduction. In particular, in phase 1, there was supported Self-supply led by government including promotion and follow-up of the approach. The piloting in phase 1 covered rural as well as many peri-urban regions, and the response exceeded the support. To see if the approach also works in rural remote areas, supported Self-supply was piloted in Milenge West, too. To take away the burden for government to drive the
implementation in the remote areas, further scaling up of Self-supply in phase 2 was handed over to the NGO WaterAid. Implementation included sensitisation, training of local masons in digging and upgrading of traditional wells and, later, and facilitation of a loan scheme. Despite the fact that Milenge District is a very poor and remote area, uptake and response were promising, and particularly in the loan scheme, there was more demand that could be accommodated. The piloting was moved to Milenge East, whereas in Milenge West it stopped without any follow-up provided. In phase 2 and phase 3, different management models were piloted to facilitate the loan scheme with more lead by the NGO or through the council respectively. The pilot in phase 3 formally ended in May 2014, although the loan schemes are still ongoing unsupported by NGOs or government.

5.3.3 Impact of supporting Self-supply

Uptake of Self-supply was remarkably high, despite the remoteness, poor economy and poor accessibility of the area where piloting took place. Many households constructed or improved their wells even if there was a community water point nearby. Households appreciated the high level of convenience of Self-supply sources. The technical level reached was that of improved wellheads of traditional wells, partial lining, cover, apron and drainage. In some cases, a windlass was installed, too. In more peri-urban areas, where specific technologies have been promoted, there was strong uptake as more private sector actors were also engaged in setting up viable supply chains and businesses.

The study showed that water quality in improved traditional wells reflected the considerable positive impact of wellhead protection, as 85% of all samples had zero TTC. However as contamination may vary from season to season, in supported Self-supply, a package of measures should also include hygiene education and HWTS, maybe even as part of a subsidy. Some well owners used chlorine (Klorin as a commercial brand) for household water treatment. There was no promotion and marketing of filters in the region concerned. Klorin was given away for free by an NGO, which undermined building capacities and efforts of the local private sector to set up a viable supply chain for HWTS products in Milenge.

Now, as the NGO has stopped supply of Klorin, there is a lack of HWTS products in the area.

In the study area, the use of water for productive uses was not common, so no major impacts on income generation were reported. However, there is need to better assess the potential and support needed for multiple use of water e.g. for gardening or other productive uses.

5.3.4 Costs of implementation

For supported Self-supply, there are costs covered by the government, mainly for sensitisation, training and running the loan scheme, and for the households as investments in the water source. The per capita costs for government are around 20 US$ if an NGO is implementing a project during a pilot, and a bit lower (about 10US$/cap) if the pilot is being implemented by the government.

The improvements promoted in Milenge included an apron with a drainage channel, a pole for storing the rope (rope and bucket hanging in the well) and a tin as a cover.

**Upgraded traditional well in Milenge district, Zambia October 2015**

5.3.5 Challenges and bottlenecks and entry points for solutions

The experiences from piloting of supported Self-supply in Milenge highlighted a couple of important aspects in three different ways:

- Setting up support services for Self-supply is particularly challenging in very remote rural areas due to little economic activities there, unreliable income of households, long distances affecting logistics, or efforts needed to inform dispersed people, all of which initially lead to high transaction costs.
To achieve quick gains in scaling up Self-supply, it is more effective to start around bigger villages and in contexts with more socio-economic activities and potential.

Piloting was implemented over a short period, too short to have a sustainable impact, in particular in remote rural areas. For proper scaling up, much longer timelines with reliable funding and specific support services are needed.

In remote rural areas, scaling up of approaches using household investments to improve the level of WASH services is challenging and asks for complementary support which might create synergies (food security, CLTS for sanitation); some of these complementary activities could strengthen linkages to income-generating activities.

So far, Self-supply was not fully embedded in government systems. So far, there was no clear “champion” to take Self-supply further or any programme to hook on.

Monitoring and evaluation was poor, as was systematic sharing and learning. Supported Self-supply should be embedded in government procedures, in particular in areas with low economic activities, as NGOs might not stay active in these areas.

5.3.6 Potential

Self-supply in rural areas of Zambia has a huge potential as many people are unserved or enjoy only a low level of service and live in areas which will not be served by community supplies in the near future. People are actually asking for support to further improve their supplies, and in many areas, they are investing in improving their own water sources as hydrogeological conditions are favourable for Self-supply in many provinces of the country.

Zambia has quite a long tradition and good experiences with intersectoral cooperation in WASH, which implies a favourable supportive environment for supported Self-supply. It has well-established bodies and procedures, although funds are lacking to sustain and expand efforts on the ground.

However, people in rural areas often struggle to afford investments, so they need adequate financing mechanisms. Linkages between improving their own water sources and use of water for gardening or income generation have been week so far, mostly for lack of a market for increased productivity. But these aspects should be explored much more strongly in the future to ensure better supporting of Self-supply in remote rural areas.

6. Business case for supported Self-supply

6.1 Live cycle cost analysis

For the two water supply delivery models “Supported Self-supply” and “Community managed water supply”, so-called Life Cycle Costs (LCC) were estimated based on data available from Zimbabwe and Zambia (see Annex 2). Using cost data based on the LCC approach ensures that more appropriate cost estimates are considered when decisions are taken on services and related technology options.

In the LCC approach, all cost components should be considered which might occur over the life-time of the infrastructure and service (see WASHCost\textsuperscript{\textregistered}). This includes costs such as those for direct support for the sensitisation of water user committees, planning of infrastructure, investment costs for implementation, costs for minor repairs and operation of the service or follow-up costs. Recurrent costs are summed up over the life-time to calculate one cost figure. For boreholes and handpumps as community water supplies, a typical life-time of about 20 years has been assumed as well as a standard 250 persons using one community water point (CWP).

Due to different settlement patterns, attitudes and density of water sources, the number of users of a Self-supply source is about 50 in Zambia and roughly 15 to 20 in Zimbabwe. The investment costs for similar Self-supply sources in the two countries are in the same magnitude of costs but differ slightly due

\textsuperscript{\textregistered} See www.ircwash.org
to different standards and prices of raw materials available. Based on these assumptions, the specific LCC costs for government for following community water supply and for supported Self-supply using the UFW approach have been calculated (for more details see Annex 2):

<table>
<thead>
<tr>
<th>Life Cycle Cost for government</th>
<th>Cost components considered in LCC for government (life time 20 years)</th>
<th>Specific costs for government</th>
</tr>
</thead>
</table>
| Community Water Supply approach (borehole with handpump for 250 people) | - CapEx: 100% investment of a community water point  
- OpEx: aggregated costs for minor repairs and maintenance  
- Support costs: specific costs for sensitisisation, hygiene training and follow up | 40 US$/cap |
| Supported Self-supply (Upgraded Family Well with 15-20 users) | - CapEx: no investment except subsidy of about 50 US$/well  
- Support costs: specific costs for sensitisisation, hygiene training, training of masons, and for follow-up including sensitisisation; and follow-up | 10 US$/cap |

Legend:
CapEx: Capital Expenditure; mainly investments  
OpEx: Operational Expenditure; mainly for minor repairs and maintenance

For each CWP constructed in the community water supply approach, the unit cost stays the same, although in areas with scattered population patterns, the specific costs per capita go up exponentially the less people are using one unit. In scattered populated areas with only 50-100 people using one CWP, the specific costs for a CWP can go up above 100 US$/cap whereas for supported Self-supply, they remain almost constant. In supported Self-supply, the costs do not depend much on settlement pattern. However there is a multiplying effect once sufficient critical mass has built up and even new wells are dug even without active promotion by government as people start copying from neighbours.

### 6.2 Costs to achieve universal access in Zambia and Zimbabwe

Based on national census data, cost estimates to achieve universal access in 2030 have been developed for Zambia and Zimbabwe following two scenarios: In scenario 1, the only technical option is community water supplies using boreholes and handpumps for all people no matter which settlement patterns they live in, whereas in scenario 2, a blended approach is followed also using supported Self-supply for remote areas with less population. As Figures 6.1a and 6.1b show, huge absolute costs are incurred for government to provide safe water for all if only communal water supply options are used (scenario CWP only). The costs estimation reflects the fact that costs are higher in areas where population density is below 250 persons per CWP, which might often be the case in remote rural areas. The costs for following a blended approach combining both community water supply services and supported Self-supply are much lower.

**Figure 6.1a/b: LCC Costs to achieve universal access in 2030 for Zambia (left) and Zimbabwe (right) through community water supply (using CWP) only or a blended approach**
The cost savings between the two scenarios are in the range of about 45-60%! In absolute terms, if the blended approach is used, more than 260 million US$ could be saved in the case of Zimbabwe and even about 330 million in the case of Zambia.

For the areas where supported Self-supply is an option, the leverage factor of government investment (for training, triggering and facilitation) is about 2.5, which means that for every dollar invested by government, the households invest about 2 - 3 US$ in Self-supply themselves. In the communal water supply approach, there is hardly any leverage effect of domestic funding at household level as almost all capital expenditure is provided by external sources.

6.3 Additional benefits

Apart from direct financial benefits, from a government point of view, following a blended approach offers a set of additional benefits, some of which also have direct monetary values, while others are more qualitative but also very important. Key benefits include

- better health leading to reduced health costs of rural households and reduced pressure on health centres,
- improved food security and improved nutrition status,
- resilience against external shocks such as from climate change,
- income generated for families and for local private sector,
- resilience against shocks concerning water supply,
- less burden for women for fetching water,
- greater role for women in decision-making,
- family security.

7. Generic findings

7.1 Reasons to support Self-supply

For some people, Self-supply will merely be one stepping stone on their way up the water ladder. However, for millions of people, water sources improved through supported Self-supply will be the only water supply for decades. In particular, the hard to reach living in remote areas will not be served by communal supplies in the future as the costs will be prohibitively high.

Without supporting Self-supply actively, governments will not achieve the SDGs. Considering the challenges and comparative advantages of supported Self-supply as a service delivery approach for water supply in rural areas, a set of good reasons is presented below:

- Self-supply is a complementary service model for providing rural water supply in particular in remote rural areas and with a scattered population where communal supplies do not provide cost efficient services.
- Self-supply satisfies core needs of people such as convenience, a high level of service, saving time and less burden, more privacy and security.
- Self-supply water sources allow using greater volumes of water for both domestic purposes as well as for productive uses, such as gardening or for other income generating activities.
- The supported Self-supply approach complies with all normative criteria for the human rights to water approach and supports achieving several of the 17 Sustainable Development Goals.
- To ensure equal access to safe water a strong focus is needed on hygiene education including HWTS in any water service delivery approach including supported Self-supply. For supporting Self-supply in remote areas, a package of different measure is needed which should include HWTS, maybe provided as part of a subsidy.
Proper follow up is needed to ensure that water abstraction does not have a negative impact on water resources.

Supported Self-supply is the only option and a very cost effective approach to reach the unreached. It offers a backup where level of service through communal service is low or erratic.

Key messages on why to consider supported Self-supply as a complementary service delivery model are summarised along key aspects of the Human Rights to water and sanitation:

<table>
<thead>
<tr>
<th>Topics</th>
<th>From government perspective</th>
<th>From user perspective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access and level of service</td>
<td>Complementary service delivery for areas where community supply is not feasible, particularly in remote areas; or where communal services are inadequate or inefficient</td>
<td>Back-up supply particular if communal supply offers limited service or is non-existent Provides high service level as it is 24/7 and near households</td>
</tr>
<tr>
<td>Water Quality</td>
<td>Need to ensure access to safe water e.g. through strong effort on hygiene promotion, water safety plans including use of HWTS, support and follow-up for Self-supply and communal supplies</td>
<td>Behavioural change needed to follow good hygiene practices, use of HWTS and proper maintenance of well head protection</td>
</tr>
<tr>
<td>Participation, equity and inclusion</td>
<td>Ensures equitable access also for marginalised and deprived people</td>
<td>Shared wells allow other people to access water who might not have access otherwise, mostly at no costs</td>
</tr>
<tr>
<td>Access to information, transparency</td>
<td>Government to take on its roles and responsibilities to ensure equitable access to unbiased information on technologies Ensure that water quality of shared wells is known to all users and actions are taken by owners and users</td>
<td>Highly accountable as household takes responsibility Ensures that water quality of shared wells is known to all users</td>
</tr>
<tr>
<td>Accountability</td>
<td>Government to take on its roles and responsibilities to ensure equitable access to safe water</td>
<td>Highly accountable as household takes responsibility</td>
</tr>
<tr>
<td>Sustainability</td>
<td>High sustainability and functionality</td>
<td>Thanks to strong ownership high level of functionality</td>
</tr>
<tr>
<td>Costs</td>
<td>Very cost effective compared to community supply; actually gets more out of formal support services Might need subsidies, e.g. loan schemes, to ensure equitable access; link to potential for income generation</td>
<td>Affordability defines level of incremental improvements Might need loan schemes to bridge cash flow gaps; link to potential for income generation</td>
</tr>
<tr>
<td>Additional factors</td>
<td>Strongly supports achieving other SDGs such as those for health, food security and women empowerment</td>
<td>Access to greater quality of water used for gardening, personal hygiene, improving food security and income-generating activities Approach allows empowering individual to improve without depending on others and external support to progress</td>
</tr>
</tbody>
</table>

7.2 Government’s role in supporting Self-supply

As supported Self-supply has a huge potential as service delivery model, but is not yet very well-known to government and development partners, it needs further information and advocacy in the sector. In particular, there is need to clarify roles and responsibilities of government within supported Self-supply.

According to the UN Special Rapporteur for Human Rights to Water and Sanitation (HRtWS), the government is generally obliged to ensure equitable access to safe water. This does not imply that the government has to deliver the services directly, but it has to ensure that there is an ‘enabling environment’ that safeguards human rights standards. This means that the government of any country
is obliged to take steps to ensure that everyone is able to access safe, affordable, culturally acceptable water services, wherever they live and however the service is provided.

The HRtWS approach allows progressive realisation of the targets, so Self-Supply is one possible supply approach which government can follow to ensure equitable access for water, but Self-supply does not exempt government from its duties. Government should not ignore Self-supply but rather support ongoing activities. Figure 7.2 highlights the roles of government in supporting Self-supply:

![Figure 7.2: Roles of government in various stages of supported Self-supply](image)

As the context for Self-supply is dynamic and might change over time, it needs adjustments of the roles and actors involved from time to time.

7.3 The need for contextualised approaches

As discussed from the case studies in Zambia and Zimbabwe, supported Self-supply in remote rural areas needs specific support services which should be embedded in existing systems to sustain support, to create a critical mass and synergies. Promising linkages to realise synergies include initiatives from the areas of health and hygiene education, food security, private sector development, microfinance or rural development. However, experiences from other countries and contexts (e.g. Tanzania) show that support to Self-supply could be in a more light way from government point of view if the context is conducive to local private sector activities. In these contexts, the local private sector, e.g. masons or retailers, could engage more e.g. in promotion, capacity building, service delivery and funding of technologies and services which fit in with Self-supply.

In the rural WASH Sector, there is growing recognition of the need to promote more holistic approaches to address the complex issues related to reaching the unserved, sustainability of water services, and improving food security and livelihood in rural areas (Bery et al 2015). Particularly in regions with difficult hydrogeological conditions and challenging socio economic conditions, more holistic approaches involving different sectors are needed to achieve water security and sustainable growth (Sadoff et al 2015). To overcome the hindering impacts of challenging hydrogeology and weak economic power, a mix of measures including investments in infrastructure as well as in building up institutional capacities are needed. Self-supply and approaches fostering multiple uses of water (MUS) have gained strong...
recognition as a viable option for providing safe water and to contribute to achieving other targets of the SDGs.

Based on these findings, two main clusters of supported Self-supply approaches can be identified which reflect the different level of socio-economic potential and water security which influence the way supported Self-supply might be implemented. There are relevant differences in the way government should support Self-supply (see Figure 7.2) in the two clusters. The clusters can be described by two defining dimensions:

- **The level of socio-economic activities** which, as an integral indicator, reflects the existing level of market interactions, resources and human capacities in a region where Self-supply should be accelerated, also considering potential synergies that can be used for scaling up activities in a particular context.

- **The level of water security** very much depends on the hydrogeology, rain fall patterns in the region considered and management and land use patterns, all of which also determines the scope of technologies which are applicable at all.

![Figure 7.2: Roles of government in supporting Self-supply in different contexts and following specific approaches](image)

Rolling out supported Self-supply in areas with a low or medium level of socio-economic activities and applicability requires a lot of specific government support. In these contexts, there is a need to provide links with income-generating activities as well as to offer specific financing schemes for households willing to invest in WASH.

The higher the cash income within large parts of the target population, the higher the aspirations, the better the overall economic context will most likely be, the easier it will be to promote and scale up WASH products for Self-supply, e.g. through MFI systems. Better-off households also appreciate having a choice of products, as convenience and status play an even more important role.

Examples of government-led approaches apart from Zambia include the rolling out of Self-supply in Ethiopia within the One WASH national programme\textsuperscript{xxv}. More private sector-led approaches are known from Tanzania, where the SMART Centre SHIP provides capacity development of local masons\textsuperscript{xxvi}, or

\textsuperscript{xxv} Ethiopia One WASH Programme: [www.cmpethiopia.org](http://www.cmpethiopia.org)

\textsuperscript{xxvi} SMART Centre SHIPO, Tanzania: [www.shipo-tz.org](http://www.shipo-tz.org)
from Kenya, where water.org promotes a particular credit scheme for WASH products together with MicroSave\textsuperscript{xvii}.

The clusters model presented in Figure 7.2 provides only a rough approximation, as in reality there might be overlapping approaches as segments within the population have different needs and aspirations which have to be addressed separately. For each single Self-supply implementation, the approaches need to be contextualised more specifically, such as in terms of roles of actors involved, applicable technologies, pricing or promotion.

Annex 3 provides links to a few tools which have been developed and shared so far to support the planning and implementation of supported Self-supply. These tools were developed and tested in tangible implementation projects, although they might not answer all questions related to implementing Self-supply programmes.

More details on the two clusters for supported Self-supply are provided in Chapter 8. Future research should further develop specific measures and tools in all clusters, including for the difficult areas where socio-economic potential and applicability are rather weak.

7.4 Conducive policy and organisational set up

No matter which approach for supported Self-supply is followed, there is need at policy level to take clear steps to enable Self-supply to take off in reasonable time, which include but are not limited to:

1) Recognition and formal endorsement of supported Self-supply as a service delivery approach

Supported Self-supply is a very cost effective service delivery approach, particularly in remote rural areas. It needs to be fully endorsed and embedded in government systems and policies as a complementary service delivery approach and for achieving universal access, also in remote areas. This means that Self-supply needs

- to be approved formally at policy level as a viable service delivery option for rural water supply; it needs to be included in formal planning and budgeting procedures at national and local level,
- identifying of potential areas where Self-supply is applicable at all,
- technology standards that should be defined to reflect requirements for supplies at household level.
- Supporting Self-supply needs to be embedded in curriculum and TOR for key actors at provincial/regional level and at district level, in particular for District Water Officers and for Environmental Health.
- Planning and follow up should be coordinated in an inter-sectoral group including Ministries of Health, for rural water supply, extension and farming, and rural development.
- Self-supply sources should be included in formal mapping and M&E procedures of government.

2) Reliable funding for supported Self-supply

Supporting Self-supply is about establishing the support services and enabling environment and facilitation scaling up mostly through software measures. This is mostly soft support from government side, no hardware investments are needed, except for segments of the population where specific well designed subsidies might be needed to ensure equitable access. As the approach is still not yet broadly known and understood by many government staff, e.g. in Ministries for Finance, securing sustained and sufficient funding for supported Self-supply requires a particular effort.

\textsuperscript{xvii} WASH credits in Kenya: \url{www.water.org}
3) **Clearly defined roles and development of capacity at all levels**

The concept of supported Self-supply, its benefits, challenges and in particular the role of government and other actors in accelerating Self-supply are not well-known to government agencies so far. Accelerating Self-supply at local level might involve staff from different Ministries which include District Water Officers and District Health Staff. Specific capacity development is needed, as is information for key actors within government at national and local level as well political leaders, local leaders, NGOs and private sector on the benefits of the approach, its characteristics and its limitations.

Conflicting project approaches should be identified and potential impacts addressed as early as possible, e.g. where similar rural water supply services are provided using an approach providing heavy subsidies.

4) **Champions**

Taking supported Self-supply forward within government programmes requires (a) champion(s) within one of the leading Ministries. Also a champion at local level is needed to take Self-supply forward in a particular region, though this person does not necessarily need to be part of the government structure. She or he could be a dedicated local leader or a respected member of the community. Unless it is strongly picked up by the private sector, supported Self-supply will move only with government support, and slowly if there is no champion.

5) **Subsidies**

As Self-supply is based on market interaction between households and the local private sector, accelerating Self-supply needs to take into consideration the needs and dynamics of the local private sector. Without its growth, scaling up will be slow and limited. Different push and pull efforts might be needed to stimulate demand and create a critical mass to take up. As one measure smart subsidies might be needed to foster uptake in particular in remote areas with little economic activity so far. Smart subsidies can include targeted in-kind contribution provided only upon an upfront effort of households or as soft support to saving schemes. Smart subsidies can also be included in the approach to ensure equitable access also of the vulnerable and marginalised.

6) **Knowledge management**

Accelerating Self-supply is linked to households which are at the “Bottom of the pyramid” (BoP) in terms of wealth and income. Development approaches also targeting the BoP are very sensitive to context specific characteristics; the need to develop solutions in a context with often little data, informal structures and frequently in a highly dynamic environment. Standard solutions will hardly work, so that contextualisation might be needed for every single effort. Particular efforts are needed to document experiences, for sharing and joint learning to support scaling up in other areas of a country.
## 8. Generic building blocks for supported Self-supply

<table>
<thead>
<tr>
<th>Building blocks</th>
<th>Government-led approach</th>
<th>Private Sector-led approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Context</td>
<td></td>
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<tr>
<td></td>
<td>Low level of activities, often in remote rural areas, little cash economy, weak private sector, little potential to trigger growth quickly</td>
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<tr>
<td></td>
<td>Low level of water security</td>
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<tr>
<td>Adequate institutional set-up for implementation and follow-up</td>
<td>Government in the lead; maybe with support from some supportive institutions; government’s roles include:</td>
<td></td>
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<tr>
<td></td>
<td>- to do feasibility assessments including basic market research</td>
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<td></td>
<td>- To support sensitisation and follow up through existing mechanisms working at the community level, e.g. health officers, extension worker,</td>
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<td></td>
<td>- to support training of local masons through vocational training institutions</td>
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<tr>
<td></td>
<td>- to ensure coordination through interministerial working group at district level and full embedding in government systems including with ongoing reliable funding</td>
<td></td>
</tr>
<tr>
<td>Adequate institutional set-up for implementation and follow-up</td>
<td>Private sector in the lead producing and promoting their products and services</td>
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<tr>
<td></td>
<td>Government might be involved with facilitation of uptake with focus on quality, equality and water resources</td>
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<tr>
<td></td>
<td>Government in charge of ensuring access to safe water for all, with supervision and monitoring of uptake process; quality control of sources and of quality of specific products and on monitoring of water quality and water resource management</td>
<td></td>
</tr>
<tr>
<td>Applicable technologies and services</td>
<td>Limited range of rather simple, low cost technologies that can be repaired by owner themselves (e.g. upgraded family wells, upgradable wells, simple hand pump, chlorine)</td>
<td></td>
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<tr>
<td></td>
<td>Technologies should allow multiple use of water</td>
<td></td>
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<tr>
<td></td>
<td>Capacity development of local masons and follow-up needed</td>
<td></td>
</tr>
<tr>
<td>Applicable technologies and services</td>
<td>Wide range of WASH technologies to allow a choice, and cater for aspirations and status</td>
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</tr>
<tr>
<td></td>
<td>Multipurpose products including solar pumps</td>
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<tr>
<td></td>
<td>Provision of services such as O&amp;M</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lease/rent options provided by private sector</td>
<td></td>
</tr>
<tr>
<td>Conducive regulatory framework</td>
<td>Adopted as one option for rural water service delivery, with focus on areas with little population density</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Need to ensure access to safe water for all</td>
<td></td>
</tr>
<tr>
<td>Conducive regulatory framework</td>
<td>Adopted as one option for rural water supply service delivery</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Need to ensure that quality of water complies with standards and avoids negative impacts on natural resources</td>
<td></td>
</tr>
<tr>
<td>Capacities at local level</td>
<td>Strong need to develop capacities at all levels, in particular at local level (government, leaders, local private sector)</td>
<td></td>
</tr>
<tr>
<td>Capacities at local level</td>
<td>Filling specific gaps where needed and where not provided by local private sector</td>
<td></td>
</tr>
<tr>
<td>Affordable financing mechanisms for HH and supplier</td>
<td>For households:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- full investment or at least major core contribution before any in kind of subsidy is provided</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- For most deprived consider providing subsidies</td>
<td></td>
</tr>
<tr>
<td>Affordable financing mechanisms for HH and supplier</td>
<td>Supporting financing schemes which help rural households to purchase WASH products and masons and workshops to buy stock of spares</td>
<td></td>
</tr>
<tr>
<td>For supplier: Provide basic tools to start business</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Building Blocks

<table>
<thead>
<tr>
<th>Building blocks</th>
<th>Government-led approach</th>
<th>Private Sector-led approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promotion of Self-supply, hygiene education and HWTS</td>
<td>Needs to be major and integral part of any Self-supply intervention, in particular on HWTS</td>
<td>Promotion of Self-supply as one viable approach for water supply service delivery if combined with HWTS</td>
</tr>
<tr>
<td></td>
<td>Need to push for food security, gardening and personal hygiene</td>
<td>Focus on technologies and added value such as convenience and status</td>
</tr>
<tr>
<td>Smart subsidies</td>
<td>Direct and indirect; well targeted</td>
<td>Mostly indirect, e.g. support in promotion</td>
</tr>
<tr>
<td>Sensitisation and promotion</td>
<td>Need to get local leaders engaged</td>
<td>“Seeing is believing”, demonstration plots</td>
</tr>
<tr>
<td>Coordination, sharing and learning</td>
<td>High need for coordination (capacity development) and support (behavioural change, food production, income generation) and to capitalise from synergies as from CHC, CLTS / CATS</td>
<td>Need for documentation, and horizontal and vertical sharing (between districts, region and national level)</td>
</tr>
<tr>
<td></td>
<td>to coordinate with other initiatives on approaches, subsidies, technical issues, supply chain</td>
<td>Support of associations to improve their performance</td>
</tr>
<tr>
<td></td>
<td>Need for documentation, and horizontal and vertical sharing (between districts, region and national level)</td>
<td>Focus on monitoring of water quality and water resources</td>
</tr>
<tr>
<td>Technical assistance (TA), reliable funding, M&amp;E and policy dialogue</td>
<td>TA and financial support needed; maybe including smart subsidies to ensure equitable access for all</td>
<td>TA needed; financial support needed for targeted smart subsidies and to kick off market and uptake in new regions</td>
</tr>
<tr>
<td></td>
<td>Information on technical options, costs and need for O&amp;M</td>
<td>Information on technical options, costs and need for O&amp;M</td>
</tr>
<tr>
<td>Role of government</td>
<td>Identifying potential areas and suitable technologies, sensitisation, hygiene education including HWTS, Developing capacities of local actors including local masons Driving actively scaling up, comprehensive support including smart subsidies, Coordination of core group for supported Self-supply (from different Ministries) Coordination with other programmes to create synergies Close follow up, triggering sharing and learning Ensure universal access to safe water</td>
<td>Facilitation, supervision, promotion of HWTS, Monitoring of water quality, Triggering exchange Ensure universal access to safe water, even for poorest and vulnerable and marginalised</td>
</tr>
<tr>
<td>Cost for supporting Self-supply</td>
<td>Costs for direct support to communities and local government, for training of local masons, for setting up and managing a funding scheme and for follow up Subsidy e.g. in kind or as part of a funding scheme</td>
<td>Costs for direct support to communities and local government, for training of local masons, for setting up and managing a funding scheme and for follow up Subsidy e.g. as part of a funding scheme</td>
</tr>
<tr>
<td>Particular aspects</td>
<td>Need to capitalise from synergies related to hygiene and health promotion, sanitation and food security and income generation</td>
<td>Need to capitalise from synergies related to hygiene and health promotion, sanitation and food security and income generation</td>
</tr>
</tbody>
</table>
9. Conclusion

This review of the piloting and scaling up of Self-supply in Zambia and Zimbabwe and follow-up discussions produced a couple of new insights and confirmed some important findings:

Reach and benefits

- The review study revealed the fact that in many remote rural areas in Sub Sahara African (SSA) countries, people still invest in incremental improvements of their wells even in areas where there is some coverage with communal supplies.

- In Zambia, Self-supply has been taken up even in very remote areas and even with limited and different support services. In Zimbabwe, the UFW programme which was launched in the mid-90ties took off even after the year 2000, when the economic crisis hit the country and support to households and masons decreased dramatically. Between 2000 and today, the number of UFWs increased almost by a factor of six to 180,000 UFWs which serve about 3-4 million people in rural and peri-urban areas. This is real scaling up!

- Self-supply is not a pro-poor solution, as millions of people in the USA, France and UK are using Self-supply sources as their only water source. However, for millions of people living in remote rural areas in SSA, supported Self-supply will be the most cost effective service delivery model to provide safe water at all.

- Supported Self-supply plays a strong role as a service delivery approach, particularly in rural areas, as it provides many benefits such as convenience, less time spent for fetching water and access to more and better quality water. In some areas, Self-supply sources offer important added values such as water for productive use, income generation, family safety and improved food security.

Costs and business model for supported Self-supply

- Life Cycle Cost analysis of different service delivery approaches shows that communal supplies have costs of about 40 US$/capita served, whereas supported Self-supply is about 10 US$/capita. In Zambia and Zimbabwe, the cost savings of following a blended approach of Community water points and supported Self-supply are almost 50% of the LCC for using communal supplies. For achieving universal access in 2030 in both countries, following a blended approach could save a total of about 580 million US$.

Support services needed

- Supported Self-supply is aligned with the Human Rights to Water and Sanitation, which allows a progressive realisation of universal access to safe water. However, supported Self-supply is not a way to exempt government from its duties: Government has specific roles to play to ensure that everybody will finally have access to safe water.

- Wellhead improvements have significant impacts on improving water quality in Self-supply water sources. However, water safety plans, hygiene education and promotion of HWST are needed to further improve water quality at source and at point of use. This is required not only for Self-supply sources but for any water supply service in rural Africa, including communal supplies.

- In many cases, supported Self-supply is the most cost effective approach for water service delivery. However, as it is not applicable in all contexts, a blended approach should be followed. In remote rural areas, specific support services such as capacity development of local private sector, financing or HTWS promotion are needed to improve and take Self-supply further. Support services need to be embedded in existing mechanisms such as health promotion. Using these synergies Self-supply can support achieving different SDGs and water security.
- For specific contexts and stages, smart subsidies might be needed to trigger uptake and ensure equitable access.

- There is a huge potential for improving access to safe water and sustainability of water supply for millions of people in rural areas through supported Self-supply. Some countries have endorsed supported Self-supply as a service delivery model, such as Zimbabwe or Sierra Leone. Currently, in Ethiopia, Self-supply is being scaled up at national level.

- To reach the SDGs, more countries should endorse and rollout supported Self-supply at policy level, allocate sufficient resources for blended approaches for rural water supply service delivery including supported Self-supply. Reaching the last 20% in remote areas will just be far too costly following communal supply alone. There is no way to achieve the SDGs in rural areas without supported Self-supply!
10. **Recommendation and next steps**

Gaining more recognition and support for Self-supply and establishing related support services requires a major mind shift of many actors including government and partners so that policies are adapted, capacities developed, specific services established and resources allocated adequately. For this, a sequence of next steps is proposed at various levels:

**At global level:**

*By governments already implementing supported Self-supply*

- Advocacy for approach; for formal recognition of relevance of approach at global level, e.g. SWA; more explicit presentation of data in GLAAS and JMP
- Clear communication and promotion of supported Self-supply, of costs and benefits; on modalities of implementation, roles of actors, challenges and potential, e.g. in SWA, at global conferences
- Providing guidance for countries interested in supporting Self-supply through peer-to-peer exchange

*By partners, including research and knowledge networks*

**Policy dialogue and advocacy:**

- Formal recognition of relevance of approach at strategic level within institutions and integration in own programmes, strategies and plans;
- Integration of supported Self-supply in more programmes to combine efforts with other approaches and to capitalise from synergies, e.g. from hygiene promotion, food security and rural development;
- Advocacy for approach at global level, e.g. at conferences and joint sector events;

**Research and knowledge management:**

- Documentation and sharing of experiences; establishing a learning community for supported Self-supply involving relevant knowledge networks such as RWSN, HWTS
- Development of a generic information tool kit on supported Self-supply for politicians and decision-makers in funding organisations through guidance notes (links to existing tools in Annex 3 incl. tool box for Ethiopia, TAF, TALC) and through training courses
- Further review and adaptation of approach through follow-up of impact of approach and coordinated research
- Providing guidance for countries interested in supporting Self-supply e.g. through providing or financing technical advice, training or peer-to-peer exchange visits between countries, e.g. to Zimbabwe on data collection and monitoring of of Self-supply sources

**At national level**

*For governments already implementing supported Self-supply (along project cycle)*

**Programming and follow-up**

- Incorporation of Self-supply water sources in national monitoring, reporting and inventory systems to address HRTWS issues on a disaggregated basis, through extending data collection to include Self-supply sources using community mapping and ICT approaches
- Ongoing information and advocacy to ensure adequate funding for tangible support and follow-up such as through EHTs and for M&E
- Reviewing potential and applicability of specific technologies through targeted hydrogeological surveys and technology and service assessments using tested tools such as Technology Applicability Framework (TAF; see www.washtechnologies.net)
- Evaluation of impact and performance of supported Self-supply, also using disaggregated data on poverty, gender and equity and inclusion
• Piloting of new support services, e.g. financing mechanisms and adapting specific strategies including packages of technologies, support services and implementation modalities
• Adjusting implementation modalities, e.g. for subsidies to ensure equitable access for all and targeted capacity development at local level, using synergies with other programmes, e.g. on HWTS
• Adapting M&E including monitoring of water quality in Self-supply sources; establishing a feedback loop for improving technologies, enabling environment and implementation modalities
• Documentation of lessons learned, triggering vertical and horizontal sharing, dissemination and learning

For governments interested in implementing supported Self-supply

Policy development and programming
• Assessing potential and applicability of specific technologies through targeted hydrogeological surveys and applicability of specific technologies using tested tools such as the Technology Applicability Framework (TAF; see www.washtechnologies.net)
• Strengthening linkages to programmes focusing on CLTS/CHC, rural development, or microfinance and to related knowledge networks such as SuSanA
• Piloting and assessing supported Self-supply and selected suitable technologies incl. HWTS and support services in suitable regions; using synergies from other programmes such as health or food security
• Adopting supported Self-supply as a complementary approach in national strategies, embedding it in national procedures; defining hosts and champions; ensure adequate funding
• Planning and phasing and rolling out of activities (according to funds available and priorities/need) including targeted capacity development, also at local level (such as EHT, masons, DWASH committee), through government and with support of local partners

Implementation and follow-up
• Incorporation of Self-supply water sources in national monitoring and reporting tools to address HRtWS issues, through extending data collection to include Self-supply wells using community mapping and ICT approaches; feeding data into JMP and GLAAS
• M&E; feedback loop for improving technologies, acceleration and enabling environment; communication and follow up, vertical and horizontal sharing and learning led by government

For partners including research and knowledge networks
• Support of governments in assessing applicability of technologies and support services; support in piloting and rolling out; with technical assistance, financial support and coordination
• Support in communication, demonstration and promotion of approach; support in setting up local supply chains by the private sector and promotion of technologies and support services provided
• Contextualising of tool kits on supported Self-supply for national contexts, politicians and decision-makers and including developing tailor-made training courses
• Support in follow-up and M&E, documentation of experiences, sharing, sharing and learning
References


Annexes

Annex 1A/1B: Executive Summary of country reports from Zambia and Zimbabwe

Zambia - Executive Summary

According to the UN Human rights to water and sanitation note (2015), there are three major management models for water supply, one of which is the “individual on-site solution” known as Self-supply. Self-supply is defined as incremental investments to improve access to water and quality of water financed by household investment. This report aims to present ‘adequate strong evidence to support or negate Self-supply acceleration as a service delivery model’ in Zambia. It is based on a review study of piloting of self-financed traditional well improvement in Milenge District, Luapula Province, one of the two poorest districts in the poorest province in Zambia. During the piloting, specific support services were also provided, such as facilitation of a loan scheme and training of local masons to improve Self-supply so that there was supported Self-supply as a service delivery model.

The study included extensive dry season surveys of waterpoints (200) and households (150) and interviews with stakeholders at all levels, undertaken between June and August 2015.

The key findings include:

Performance of supported Self-supply as a Service Delivery Model

- Full improvements in well head protection (average cost US$150) increased the proportion of traditional wells complying with the national standard of water quality (0 TTC/100ml) from 46% to 89%. 88% of surveyed traditional wells provided water every day in the past year, and 81% for the past five.

- 95% of households surveyed have a traditional well closer to them than a communal handpump. Convenience is the main preference for households in what they want from their water supply. As a result, 86% of improved traditional well (ITW) users are satisfied with their supply, compared to only 61% of handpump users. With an average handpump downtime of one month over last year, ITWs are a vital back-up and a complementary source for those preferring to use handpumps.

- Flexibility in use and times of use are major attractions of having your own supply as is the pure fact of ownership and being able to plan improvements in small steps when affordable.

- The willingness of well owners to invest in their own water supply enhances their sustainability and shows a high level of ownership. Households know where to find skilled well-diggers and masons, which is an added benefit.

- Despite high theoretical coverage from recent drilling programmes in the area, new wells are still being dug, and almost all well owners want to improve their own wells, even though it is at their own cost. The local perception is that the two types of supply are complementary. Both are essential, with one providing a back-up service when the other fails, especially where handpumps are far from a source of spare parts and ‘down-time’ may therefore be long.

- Household water treatment and safe storage (HWTS) is practised by just over half of households, but regularly by only a quarter. It seems to be a sufficient nucleus for model households and peer pressure to have a promotional effect. Continued subsidy and challenging logistics have suppressed the growth of a private sector supply chain for chlorination products.
In supported Self-supply, the role of government should be mostly that of funding “software”, whilst in communal supplies, it is more focused on hardware. In supported Self-supply, government is in charge of setting standards, sensitisation, training, supervision, establishing the enabling environment and facilitation of activities of the local private sector.

Effectiveness, efficiency and sustainability

- Technical options have been few beyond simple wellhead protection and HWTS (chlorination), so marketing has been based solely on health issues and convenience. The economic benefit of water (small-scale irrigation and animal watering particularly) has not been exploited much. Time saving and consequent perceived food security are ranked high as benefits.
- Piloting of supported Self-supply was organised in a **project mode** with a very limited time span (18 months implementation), leading to little embedding of support mechanism for Self-supply into government procedures. Lack of planning and of communication on phasing out have meant that little activity has continued beyond the period of funding.
- Up-take in such a poor and remote area takes time to develop, but has been remarkably widespread in such difficult economic conditions. It should be stronger and more quickly sustainable in areas with more economic activity.

Costs for supported Self-supply (**“The business case”**)

- The approach of supported Self-supply is highly relevant in Zambia as technologies suitable for Self-supply for tapping shallow groundwater such as hand dug or manually drilled wells can be applied in most regions of Western, Northwestern, Northern, Muchinga and Luapula province. In these five provinces alone, over three million people, mostly living in small, scattered communities, remain unserved, as do many others living in houses peripheral to small piped supplies.
- Average costs for supporting Self-supply in sparsely populated Milenge were less than US$ 20-22 per capita in a project mode. Piloting costs are always higher than scaling up costs. Where scaling up allows continued low-level support beyond initial triggering and greater numbers of people using the trained private sector and copy their neighbours at little additional cost to the state, per capita support service cost ought to drop. If implementation were through government, costs would be less than US$ 10 per head, as earlier piloting by government has shown, and would fall further over time.
- This cost is small compared to total per capita investments for communal supplies which are already reaching US$ 100/capita with, as in Milenge, an average of only 120 users per borehole. The average number of users will decrease as more sparsely populated areas are reached. Per capita costs then rise further, showing the need for alternative solutions to achieve SDGs. Not only are costs higher for communal supplies but lower convenience and lower range of uses for the water mean that contributions to the other SDGs are also more limited.
- To make uptake more efficient and sustainable, the support services for Self-supply need to be included in existing initiatives such as CLTS, hygiene education and food security using similar financial procedures and intervention mechanisms to address and manage issues at local level.
- A potential win-win situation arises where supported Self-supply and CLTS are twinned, since the former can maintain the dynamics generated in community action at household level, and also gets around the problem where CLTS community self-analysis highlights the problems of poor water quality but can do nothing about it. Similarly, linking to agricultural reform can reduce dependency on rain-fed agriculture, providing a buffer to climate change.
Barriers

- Development and sustainability of the private sector and of revolving funds are difficult to achieve where populations are sparse and have low purchasing power, markets are small and distances large.
- Some long-term subsidy remains necessary to ensure that these efforts do not fail and private sector skills are maintained, but it can be linked to support to community supplies (e.g. SOMAP and monitoring) and saving and credit schemes as they develop. As with CLTS, funding of long term low level budgetary support is not easily established, especially in inter-sectoral initiatives, and with fixed budget lines.
- NRWSSP standards apply to community supplies. Elements such as full lining of a well to count as a protected supply are not achievable by households, and will not reduce contamination significantly more than top lining. Unless household level standards are developed, supported Self-supply will seldom add to ‘coverage’ despite contributing enormously to service delivery.
- For people to progress up the technology ladder, they will need more cash. If they do not have the opportunity, the will, the knowledge and the market for productive water use, their ability to pay for higher levels of service will be very limited. In areas with more economic activity, Self-supply might grow more quickly through a private sector-owned supply chain after some initial launch, but in remote areas, it needs more time and ongoing support from government.
- At present there is no formal national policy or strategy which endorses supported Self-supply, and yet, for its sustainability, it needs to be embedded both in MLGH and MCDMCH, with major inputs from the DWASHE committees.

Overall assessment

- The survey results show that Self-supply is practised even in remote rural areas and even after external support has significantly decreased.
- The survey provides strong evidence that supported Self-supply is a cost effective service delivery model to be developed alongside the community water supply model. It is particularly relevant to remote and sparsely populated areas, and to low density peri-urban areas.
- Convenience, pride of ownership and essential back-up to CWPs are the three major drivers and guarantors of sustainability in the district surveyed.
- In Zambia, there is huge potential for Self-supply as approximately 60% of the rural Zambian population live in areas where hydrogeological conditions are suitable for shallow well excavation and improvement (northern half of the country), and all, including those using handpumps, can reduce health risks by adopting HWTS.
- Self-supply offers a high level of service for households and small shared groups at a considerably lower cost than conventional community supplies, especially in sparsely populated areas. Additionally, it is an essential element of poverty reduction, aligned with principles of Human Rights to Water and supporting efforts for achieving the Sustainable Development Goals (SDG), also through decreased dependence on rain-fed farming.
- As leveraging funds from households (average costs at the lowest level of well protection are some US$ 200) even in the poorest areas is shown to be possible, the potential in richer farming areas can be expected to be even higher, as can the levels of technology reached.
In Zambia, there is a lot of experience with combined approaches such as Self-supply and Nutrition (through small scale irrigation) and increasing dynamic for similar approaches in sanitation (CLTS) which should be used for further scaling up of Self-supply.

The five provinces in Zambia with lowest rural water supply coverage in the country are also suitable areas in terms of hydrogeology where self-financed groundwater sources can be most easily established and improved. If even half the remaining unserved in these provinces could access improved water supply through their own investment, with effective government support, this would save the sector more than US$ 160 million in the move to universal access.

**Supported Self-supply** is shown to be a potentially very cost effective supplementary service delivery approach for government to achieve access to safe water for all. For households, Self-supply offers a wide set of benefits, including potential for income generating activities and food security. However, without clear commitment, guidance and support by government at national and local level, Self-supply will continue to grow on its own, but without the necessary improvements in quality of protection, workmanship and technology options. With government support, it can develop as a service delivery approach for rural areas which can significantly reduce the massive cost to government in reaching universal coverage through community water supply approaches alone.

**Zimbabwe - Executive Summary**

This report aims to present the impact of a programme for the upgrading of traditional wells in rural Zimbabwe. The study focuses on two districts in Manicaland province, Makoni and Buhera, where self-financed improvements through the UFW programme were supported some 20 years ago. The study included extensive dry-season surveys of water-points and interviews with households and with stakeholders at all levels that were conducted between September and October 2015. Water quality samples were taken both from sources (from 50 community water points, from 50 traditional wells and from 100 upgraded family wells) and at point-of-use (200 samples).

The key findings include:

**Performance as a service delivery model**

- In 1993, the initial roll-out of the UFW programme was organised in areas suitable for hand-dug wells through government extension services (e.g. EHTs from MoHCC) with support from implementing NGOs. Based on action research by the Blair Research Laboratory, robust and affordable technical options were developed which ensured safe water from UFWs. Households fully accepted the technical option for well improvements including the requirements for upfront investment, before being eligible for the subsidies. They also fully accepted that thereafter they would maintain their wells entirely through their own means. Government facilitated the UFW programme by providing supervision and monitoring by EHTs on the ground. This included help with siting of wells and ensuring that they were kept at least 30m from the nearest latrine.

- The Upgraded Family Well (UFW) programme was implemented by offering a hardware subsidy worth a US$ 50-60/well at the time. To become eligible for subsidies, the households had to dig their wells and line them completely, corresponding to an investment of about US$ 200 / well by that time.

- By 2000, more than 50,000 wells had been upgraded, and it is now (2015) estimated that over 150-180,000 rural households have upgraded their wells to an “improved” level according to WHO standards (based on coverage figures, in MICS 2014).
On average, three to four households, or 15-20 people, share one UFW. More than 80% of households with a UFW use it as the primary source of drinking water. Most UFWs deliver water throughout the entire year. About 75% of upgraded family well users are satisfied with their supply.

In 2014, water supply coverage in Manicaland was about 78%, of which around 30% is from community water points (CWPs) using handpumps and 24% from UFWs. The rest is provided by other means, such as piped schemes.

Most UFWs are close to homes and gardens (<50 m). Before investing in an UFW, households had to walk over 500 m (often several kilometres) to CWPs to fetch water. Due to the economic crisis, communities are struggling to collect fees for operation and maintenance of the handpumps when they break down at some point.

Convenience, privacy and having cheap access to sufficient quantities of water close-at-hand in order to grow vegetables, fruit trees and wood-lots are the expressed main preferences for households for having a UFW.

Flexibility in use (quantity, accessibility) and times of use are major additional attractions for having one’s own supply, which allows market gardening and other income generating activities.

Household water treatment and safe storage (HTWS) is not practised widely by households on a regular basis but could be further triggered through hygiene education and involvement of a viable supply chain.

CWPs in Manicaland are rather old. More than 60% of all hand-pumps in the study region had been installed before the year 2000. Rough estimates are that about 40% of the CWPs are not functioning in Zimbabwe. With average handpump downtime > 6 months, CWPs are struggling to offer an adequate service level and coverage.

In many rural areas, UFWs have become an important pillar for rural water supply and a complementary source for those preferring handpumps for their drinking water supply.

**Effectiveness, efficiency and sustainability**

- Based on the research data available, it can be assumed that about 50-75% of all areas in Zimbabwe are suitable for UFWs to tap groundwater and to provide water supply at household level.

- The UFW has subsequently become the major pillar of rural water supply, particularly when the down-times of broken CWPs increased. Additionally, the UFW provided the owner with the water to do market gardening and growing of wood-lots close to home. This greatly improved family nutrition and food security, while also generating much needed extra cash or barter income.

- Where CWPs are working, they are particular important in times when UFWs have only little water or even fall dry, such as by the end of the dry season.

- The combination of having safe water near homes for cooking and hygiene purposes (e.g. hand washing) while at same time having extra water that can be used at any time for gardening is certainly one of the major drivers for households to invest in improvements to their own wells.

- To make uptake more efficient and sustainable, UFWs should to be linked with integrated initiatives such as Community Health Clubs (CHCs), small-scale gardening or supply chain development in
order to also achieve impacts such as assessment as well as hygiene behaviour change, improved nutrition and food security and the empowerment of women (and men) through knowledge and skills transfer.

**Cost comparison and complementarity of CWPs and UFWs**

- During the initial phase of triggering, the UFW average costs for setting up and supporting UFWs in Manicaland are about US$ 10 per capita (this includes the hardware subsidy). Households owning a UFW invest about US$ 300 for digging, lining and material.
- The value that owners put on their wells and invest in them ensures their sustainability. Knowing where to locate skilled well-diggers and masons when needed is an additional contributing factor.
- A win-win situation arises where UFWs and CHCs are fully integrated together with agricultural initiatives for small-scale farmers. Most important is the fact that UFWs can provide water for hygiene (i.e. regular hand-washing and bathing) and sanitation. Similarly, linking to agricultural reform can reduce dependency on rain-fed agriculture.
- The cost for government to promote and follow-up UFWs is small compared to per capita investments and costs for follow-up for communal water points (CWPs) in rural areas, which amount to about US$ 40/capita. In remote rural areas, this CWP cost will be even higher (US$ 60-100/capita) because fewer people will be served per one CWP in sparsely populated areas. After triggering the UFW, people continued to copy initiatives from neighbours and invest in their UFWs even without major activities and without any subsidy from third parties.

<table>
<thead>
<tr>
<th>Management approach</th>
<th>Community Water Supply approach using CWP</th>
<th>Supported Self-supply following UFW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific cost for government [US$ / Cap]:</td>
<td>40</td>
<td>10</td>
</tr>
<tr>
<td>Accountability, operation and maintenance:</td>
<td>Water Point Committee</td>
<td>Well owner</td>
</tr>
<tr>
<td>WASH benefits:</td>
<td>access to aquifer with better water quality; allows some gardening, livestock</td>
<td>high functionality, high sustainability</td>
</tr>
<tr>
<td>Non WASH benefits:</td>
<td>Social exchange at borehole and when organising water committees</td>
<td>high convenience, allows gardening/food security; income generation; health</td>
</tr>
<tr>
<td>Level of service:</td>
<td>High to low if heavy use, many breakdowns, long downtimes</td>
<td>very high, almost 24/7</td>
</tr>
<tr>
<td>Applicability:</td>
<td>Backbone for rural water supply in any area of Zimbabwe</td>
<td>only applicable in 50-75% of areas</td>
</tr>
<tr>
<td>Scalability</td>
<td>Limited scope for economy of scale and upgrading</td>
<td>- Economy of scale and decreasing specific costs as copying by people continues - Upgradable</td>
</tr>
</tbody>
</table>

- UFWs have also been proven to be sustainable during drought periods, with much evidence of households deepening their wells to follow the water table down. This indicates that UFWs are also resilient to climate change.
- Measures for recharging of groundwater should be combined with improving land use management, use of fertiliser and crop selection for improving climate change resilience.
Water from rural water supply sources is not always safe, not only at source but also at point of use. Therefore, hygiene education is key, as is promotion and use of household water treatment (HWTS).

UFW will not be applicable in all regions of Zimbabwe due to hydrogeological constraints. Therefore, a blended approach of CWP and UFW with hygiene education and HWTS is the most cost-effective approach to provide universal access.

**Barriers**

- In April 2000, when the economic crisis hit the country, external support to the UFW programme fell apart almost overnight. However, with increasing levels of unemployment that hit the country since that time and the dramatic increase in poverty, the demand for UFWs has continued to grow. In 2002, there were roughly an estimated 50,000 UFWs. After 2000, there was still a remarkable uptake of UFWs despite the fact that no subsidies were provided. This apparently stresses the fact that sufficient critical mass was developed to support the uptake later. Additionally, it became clear that the UFWs provide vital benefits for households such as water for gardening.

- Today, that figure has grown to over 150,000. This represents a threefold increase in less than 15 years! However, during that time, due to the economic crisis and lack of follow-up, standards of wellhead protection (i.e. the sanitary seal) have diminished, and as a direct consequence, water quality has also tended to fall.

- Private sector sustainability e.g. of trained masons is more challenging to achieve where there is no follow-up of programmes, the economy is declining and savings of households are marginal.

- The achievements at technical and institutional level reached so far, in the area of UFWs but also of CWPs, are at high risk of deteriorating. In fact, they have already started to disappear as there is lack of sufficient follow-up and lack of support, not just at technical but also at institutional level.

- Some long-term support is needed to ensure that the valuable rural water assets that are already in place for both CWPs and UFWs can be rehabilitated and further developed.

- For people to progress up the technology ladder, they will need more cash. If they have neither the opportunity nor the knowledge or the market for productive water use and move away from subsistence farming, then their ability to pay for higher levels of service will be very limited.

- For the past 15 years, there has been insufficient support and funding of institutions active in the implementation and follow-up of the UFW programme that has impacted negatively on EHTs and implementing NGO capacities.

- The present strategy for rural water supply embraces the supported Self-supply approach of UFWs. However, more reliable funding is needed to allow coordination between MoWEC and MoHCC to ensure that UFWs on the ground are optimised while also establishing adequate monitoring mechanisms at district and provincial levels.

**Overall assessment**
The study results indicate that the Upgraded Family Well (UFW) Programme was a highly effective, low-cost and sustainable initiative to improve access to safe water in rural areas, triggering a high contribution of self-financed improvements by households.

Today, the UFWs contribute >25% of the coverage of rural water supply in Zimbabwe and are a major pillar of rural water supply. This is particularly relevant in areas where many CWPs are non-functional or struggle to provide adequate and sustainable levels of service.

In Zimbabwe, UFWs are shared water sources which provide safe water to an average of 3-4 households (15-20 persons) on average in rural areas. This includes poorer households (e.g. child-headed households and PLWA).

It has been estimated that by 2000, a total number of beneficiaries of > 1 million were being served by the 50,000 UFWs that had been constructed by that time. Today, the total number of UFWs in rural areas is estimated to have grown threefold to over 150-180,000 UFWs, serving an estimated 4-5 million people in both rural and peri-urban areas.

Apart from many assets such as convenience and privacy, UFWs offer a unique service level (i.e. 24/7) for households at a considerably lower cost than conventional community water services, especially in sparsely populated areas.

Further research is needed on how best to improve and rehabilitate existing UFWs, to identify suitable new products with market potential for Self-supply, e.g. through SMART Centres\textsuperscript{ix}, and on how to best support households in promoting the products they want to sell (value chain development), e.g. through the Food Agriculture & Nutrition Clubs (FAN).

Today, about 30% of the rural population are still unserved, which is around 2.5-3 million people. Of this share, an estimated approximate share of 50-75% (see also Mudimbu and Owen, 2015) or about 1.5-2 million, live in areas where hydrogeological conditions are suitable for Self-supply, in particular for shallow wells, excavation and improvement, where shallow groundwater is available and sufficient UFWs are there to serve a group of households almost throughout the entire year.

To provide access to safe water for the two million unserved living in rural areas viable for Self-supply, the UFW approach is the most cost effective and efficient one in terms of absolute costs but also in terms of service level, sustainability and benefits. CWPs are still the backbone when water table or water quality in the aquifer accessed by UFWs is rather low.

Therefore, to serve the unserved in Zimbabwe, a blended approach should be used for providing universal access to water using CWP and UFW combined with HWTS, hygiene education and reliable follow up.

Self-supply such as UFW is an essential and effective element of poverty reduction and is well aligned with the principles of a Human Right to Water\textsuperscript{xx} and other supporting efforts for achieving various SDGs.

\textsuperscript{ix} For an example, see SHIPO SMART Centre in Tanzania: \url{www.shipo-tz.org}

\textsuperscript{xx} See RWSN Webinar on “Self-Supply and human rights to water; 24.11.2015; \url{http://www.rural-water-supply.net/en/resources/details/651}
Stage 1: Health Education (SDGs 3&4)
Related SDG: SDG 3: Prevent Disease & SDG 4: Education Equity

Stage 2: Water Sanitation & Hygiene (WASH) (SDGs 5&6)
Related SDG: SDG 6: Water & Sanitation and SDG 5: Empower Women

Stage 3: Food Agriculture & Nutrition (SDGs 2&7)
Related SDG: SDG 2: End Hunger
SDG 7: Save Environment

Stage 4: Skills and Livelihoods (SDGs 1&8)
Related SDG: SDG 8: Skills for Work
SDG 1: End Poverty
### Cost comparison of management models for rural water supply in rural areas; cost data used from Zimbabwe

#### Life Cycle Cost (Investment cost, recurrent costs, support costs)

<table>
<thead>
<tr>
<th>Community water point:</th>
<th>Borehole and Handpump</th>
<th>Upgraded Family Well (UFW)</th>
</tr>
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<tbody>
<tr>
<td><strong>Upgraded Family Wells</strong></td>
<td></td>
<td></td>
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<tr>
<td>People to serve</td>
<td>Number of people to serve in total</td>
<td>Number of people using one UFW</td>
</tr>
<tr>
<td></td>
<td>10,000 persons</td>
<td>667 persons</td>
</tr>
<tr>
<td><strong>Service Level</strong></td>
<td>Service Level</td>
<td>100%</td>
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<tr>
<td><strong>Costs</strong></td>
<td>Who pays?</td>
<td>Costs for Government</td>
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<td>Subsidy /well *(US$/well)</td>
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<td></td>
<td></td>
<td>Follow up Gov: Hygiene education, WQ measurements</td>
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<td></td>
<td>For household</td>
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<tr>
<td>Business Case UFW</td>
<td>Cost contribution Government / Cap user</td>
<td>10 US$/Cap</td>
</tr>
<tr>
<td>Costs for government</td>
<td></td>
<td></td>
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<tr>
<td>Optional</td>
<td>Filter per household</td>
<td>35 US$/Well</td>
</tr>
<tr>
<td></td>
<td>Costs of HWTS / person (1 filter per household or per 5 people)</td>
<td>7 US$/cap</td>
</tr>
<tr>
<td></td>
<td>Absolute costs for Gov (cost per user X No of people served); no filter</td>
<td>96,000 US$</td>
</tr>
<tr>
<td></td>
<td>Absolute costs for Gov (cost per user X No of people served); with filter</td>
<td>166,000 US$</td>
</tr>
<tr>
<td><strong>Community Water Point</strong></td>
<td></td>
<td></td>
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<tr>
<td>People to serve</td>
<td>Number of people served</td>
<td>Number of people using one CWP as per standard</td>
</tr>
<tr>
<td></td>
<td>10,000 persons</td>
<td>250 persons/well</td>
</tr>
<tr>
<td><strong>Service Level</strong></td>
<td>Service Level</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Costs for Government</strong></td>
<td>CapEx per 1 well (US$); life time 10 years</td>
<td>7,500 US$</td>
</tr>
<tr>
<td></td>
<td>Capex for 1 well / Cap</td>
<td>7,500 US$/cap</td>
</tr>
<tr>
<td></td>
<td>Initial Hygiene education / Cap</td>
<td>20,000 US$/cap</td>
</tr>
<tr>
<td></td>
<td>External support costs for follow up Gov: Hygiene education / WQ measurements</td>
<td>2 US$/cap</td>
</tr>
<tr>
<td></td>
<td>Operation and maintenance (0.5 US$/cap per year); major replacement after 10 years</td>
<td>6 US$/cap</td>
</tr>
<tr>
<td></td>
<td>Cap Maintenance (not included here!)</td>
<td>0 US$/cap</td>
</tr>
<tr>
<td></td>
<td>Cost for CWP / Cap user</td>
<td>40 US$/Cap</td>
</tr>
<tr>
<td>Absolute LCC costs for Government/well</td>
<td>10,000 US$/well</td>
<td></td>
</tr>
<tr>
<td>Absolute costs for Gov (cost per user X No of people served)</td>
<td>400,000 US$</td>
<td></td>
</tr>
</tbody>
</table>
### ZAMBIA

**Universal access to rural people in 2030 (all costs in US$)**

<table>
<thead>
<tr>
<th>Population served</th>
<th>Unit Cost LCC</th>
<th>User/unit</th>
<th>No of units</th>
<th>Total cost</th>
<th>Government part</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. All boreholes and hand pumps</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1A Big villages</td>
<td>2,470,000</td>
<td>12,000</td>
<td>250</td>
<td>9,880</td>
<td>118,560,000</td>
</tr>
<tr>
<td>1B Smaller villages without shallow groundwater</td>
<td>2,008,000</td>
<td>12,000</td>
<td>120</td>
<td>16,733</td>
<td>200,800,000</td>
</tr>
<tr>
<td>1C Smaller village with shallow groundwater</td>
<td>3,722,000</td>
<td>12,000</td>
<td>120</td>
<td>31,016</td>
<td>372,200,000</td>
</tr>
<tr>
<td><strong>2. Blended Approach:</strong></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Boreholes and hand pumps and supported Self-supply</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>2A Big villages</td>
<td>2,470,000</td>
<td>12,000</td>
<td>250</td>
<td>9,880</td>
<td>118,560,000</td>
</tr>
<tr>
<td>2B Smaller villages without shallow groundwater</td>
<td>2,008,000</td>
<td>12,000</td>
<td>120</td>
<td>16,733</td>
<td>200,800,000</td>
</tr>
<tr>
<td>2C Smaller village with shallow groundwater</td>
<td>3,722,000</td>
<td>750</td>
<td>50</td>
<td>74,440</td>
<td>372,200,000</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>8,200,000</td>
<td></td>
<td></td>
<td></td>
<td>375,190,000</td>
</tr>
</tbody>
</table>

**Cost savings with inclusion of supported Self-supply**

- **328,838,700**

**Cost saving of blended approach:** 48%

### ZIMBABWE

**Universal access to rural people in 2030 (all costs in US$)**

<table>
<thead>
<tr>
<th>Population served (1)</th>
<th>Unit Cost LCC</th>
<th>User/unit</th>
<th>No of units</th>
<th>Total cost</th>
<th>Government part</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. All boreholes and hand pumps</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1A Big villages (20%)</td>
<td>1,200,000</td>
<td>10,000</td>
<td>250</td>
<td>4,800</td>
<td>48,000,000</td>
</tr>
<tr>
<td>1B Smaller villages without shallow groundwater</td>
<td>1,200,000</td>
<td>10,000</td>
<td>120</td>
<td>10,000</td>
<td>100,000,000</td>
</tr>
<tr>
<td>1C Smaller village with shallow groundwater</td>
<td>3,600,000</td>
<td>10,000</td>
<td>120</td>
<td>30,000</td>
<td>300,000,000</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>6,000,000</td>
<td></td>
<td></td>
<td></td>
<td>448,000,000</td>
</tr>
</tbody>
</table>

**2. Blended Approach:**

- **Boreholes and hand pumps and supported Self-supply**

| **2A Big villages (20%)** | 1,200,000 | 10,000 | 250 | 4,800 | 48,000,000 | 47,208,000 |
| **2B Smaller villages without shallow groundwater** | 1,200,000 | 10,000 | 120 | 10,000 | 100,000,000 | 98,350,000 |
| **2C Smaller villages with shallow groundwater** | 3,600,000 | 650 | 20 | 180,000 | 117,000,000 | 36,000,000 |
| **TOTAL** | 6,000,000 | | | | 265,000,000 | 181,558,000 |

**Cost saving of blended approach:** 59%

**Data sources:**

- (1) population: Zimbabwe National census 2012
- Assumption: Growth rate 2% in average until 2030
- Assumption: 20% of rural population lives in big villages
Annex 3: Tested tools for supporting Self-supply


- WASHTech: Technology Applicability Framework (TAF): [www.washtechnologies.net](http://www.washtechnologies.net) (field-tested method to assess applicability and scalability of specific WASH technologies)