

Towards 2030 - Trends in rural water supply and the essential inclusion of Self-supply to achieve SDG targets

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Abstract/Summary

The number of people in Sub-Saharan Africa depending on unprotected water sources has not decreased over the past 25 years. Rates of progress in coverage over this period are far below those required to achieve universal access by 2030. Examination of some of the characteristics of the unserved population show major challenges to funding as well as to necessary rates of construction. Community water supply (CWS) as a sole solution is shown to be unable to solve the problem. The second half of the paper explores how self-financed water supplies are, or could be, filling the gaps public supplies leave. Enhancing support services in the public and private sectors to improve the safety and performance of Self-supply is shown, with examples, to be a cost-effective additional strategy, which can largely be integrated into existing services.

Introduction

In Sub-Saharan Africa (SSA) progress towards the MDG in rural water supply coverage has been significant (an overall increase of 22% points) but viewing it as percentages tends to hide specific trends which have major implications for reaching SDGs. These implications have been discussed in recent reviews with government in Zimbabwe, Zambia and Malawi under a UNICEF-funded project (SKAT/UNICEF 2015a,b and 2016), and are leading to greater government and donor consideration of alternative strategies to CWS to help reach 2030 targets. As a result this paper looks at the implications for sub-Saharan Africa as a whole, to raise awareness of the challenges to be faced and the necessity for broader strategies if all of the poorest and most vulnerable are to be enabled to access WASH support services.

Implications of community water supply in universal access.

Trends in rural population growth and coverage

Looking at progress to date, absolute values show that some 218 million more rural people in the region now have access to conventional improved supplies than in 1990. During the same period, the total rural population has grown by 244 million (WHO/UNICEF 2015). From 1990 to the present day the number without access to safe water has risen from 244 to 270 million. Whilst the number using surface water has declined the number using unprotected groundwater has increased. Just to provide universal access to those at present unserved by 2030 would require faster progress in the next 15 years than was achieved over the past 25 years.

In addition there is rural population growth (see Figure 1) to be considered. In the past 25 years the situation has been of ‘running hard in order even to stand still’ in terms of reducing the numbers of the unserved. Average annual growth in coverage has been consistently around 0.85-0.9% per annum since 1995, and only briefly exceeded 1%. With rural-urban migration, the World Bank predicts a fall in rural growth rates from 1.7% to 1.5% per annum, but there will still be a 2030 rural population of some 796 million or 180 million more than 2015. If half of this growth is served by existing rural water supplies, there would still be a need to look for solutions for some 375 million more people over the next 15 years. This would require supplies for three times more people per year than was achieved during the last 25

years. In addition, for targets to be achieved at this rate, all existing supplies would need to be kept functioning or be replaced. Any move for the SDG of universal to be achieved using only the same strategies as before appears unlikely to succeed.

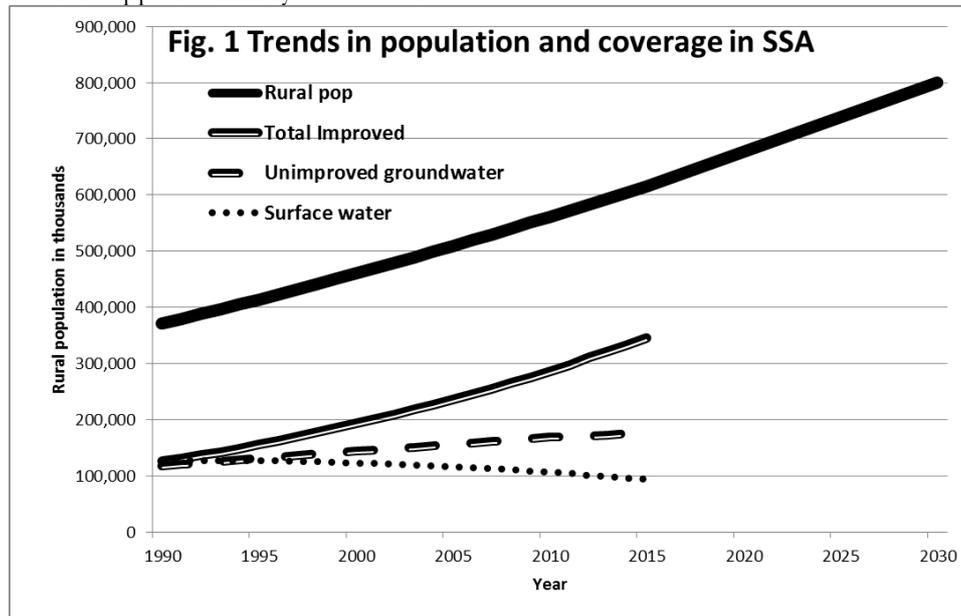


Figure 1: Trends in population and coverage in Sub-Saharan Africa

Population distribution and the future of service provision.

Per capita costs depend to a large degree on the number of people any one supply unit will serve. That may partly be indicated by population density. Populations are more easily and cost-effectively covered where density is highest.

Overall in SSA rural population densities are low (see Figure 2), averaging under 23/km², or about four houses per km². Only Rwanda and Burundi have more than 300/km² – equivalent to densities in India and Pakistan. Nigeria, Malawi and Uganda have reached some 100-150/km² but 42% of the mainland countries fall below 20/km² reflecting villages which are far apart and/or a tendency for scattered houses over a wide area. Both cases present difficult conditions in which to develop community water supplies (CWS) with good, affordable networks to support effective maintenance. The latter case especially presents difficulties in establishing a reasonable level of access to consumers since a single water point will have few houses within a convenient distance.

Table 1 shows a wide variation in the numbers of users per CWS, and of challenging situations to CWS which may affect future planning and budgeting, and functioning of supply.

Numbers served by handpumps in some countries are often still well above the design figure, which is likely to lead to queuing and breakdowns from over-use, both of which push people to use other sources temporarily or permanently. This feature tends to reflect under-provision in the larger communities first targeted, and/or levels of long-term breakdown. It highlights the fact that in addition to the ‘unserved’, many who are theoretically served are still waiting for adequate supply.

In other situations user numbers are already well below design populations. For example in Zambia, Milenge District (with an average population density of only 6.9/km²) giving priority to larger communities to achieve 70% coverage, already averages only 123 users per supply¹. Low user numbers have negative implications for community ability to keep systems working.

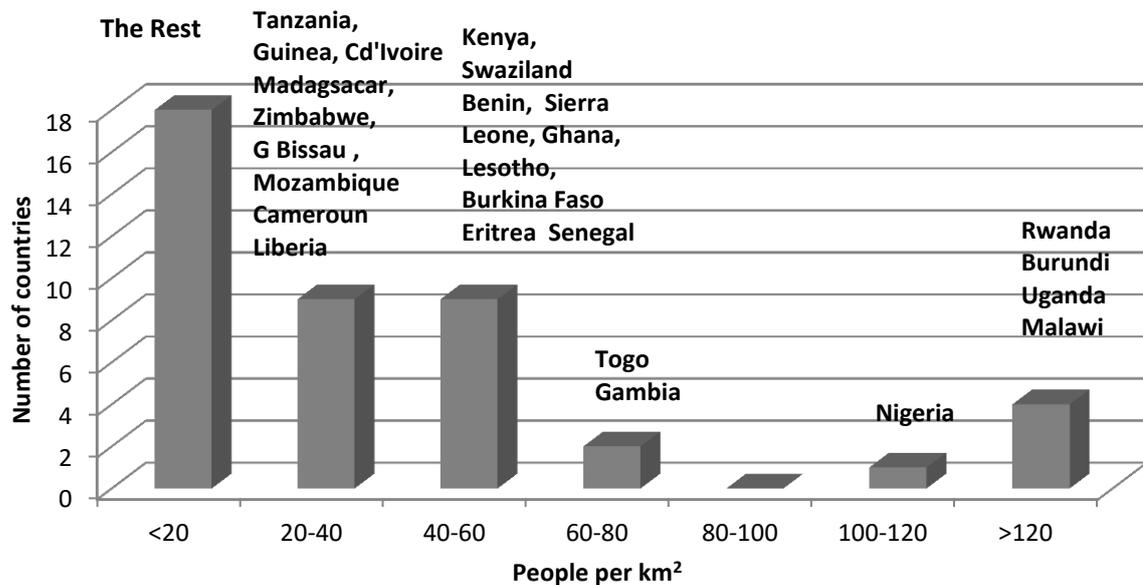


Figure 2 Population densities in rural Sub-Saharan Africa

The remaining unserved communities (indicated in Table 1 by data from Liberia, Malawi and Sierra Leone¹), are much smaller than those so far served, and generally smaller than design populations for boreholes and handpumps. This is to be expected if larger communities are targeted first in cost-effective planning, but information on the actual situation is rarely available. Using district or national level data from Liberia, Sierra Leone, Malawi and Zambia from Central Statistics Offices or CLTS community surveys suggests (see Figure 3) that in these countries an average of around 30 % of the rural population presently live in communities smaller than 250 people and 15% in communities of less than 150. Thus overall, when coverage reaches 85%, communities remaining unserved will tend to be those However waterpoints need to be located in each community, and so although in coverage terms only 15% of people may live in smaller communities, many more than 15% of communities have less than 150 inhabitants.

There are big implications for the number of additional waterpoints if everyone is to be served. In terms of smaller communities, on average 63% of them in these four areas consist of less than 150 inhabitants (see Figure 3) , and 20% less than 100. Liberia is taken as an example² as it is one of the very few countries for which served and unserved community size is available. Here in 2011 the average numbers using water points was 280 in some 3,780 communities. , The average size of remaining unserved communities is only 114. When coverage reaches 80%, if the focus has continued to be on prioritising larger communities and so maximising early beneficiaries, remaining unserved communities will number over 10,000 and with one handpump in each community average number of users will be less than 60. Examples are few because information is scarce, but this example and data (see Figure 3) suggest that governments need to examine the characteristics of remaining unserved communities in different parts of their countries if budgets are to be sufficient to enable all marginalised people to have access to water using existing strategies. Reaching the last unserved rural communities in the region with sustainable options will present an increasingly expensive challenge, as smaller and smaller groups of houses will remain unserved. The number of waterpoints needed to reach universal coverage in the region can be

¹ Representing SSA countries with high, medium and low rural population densities

² Raw data for Liberia Waterpoint Atlas and 2008 CSO National Census compiled by Abdul Koroma Coordinator National Water, Sanitation and Hygiene Promotion Committee, and WP Inventory

seen to verge on infinity. Their potential users also tend to be the ones with the weakest voice to speak to local government and often include the poorest households.

Cost implications for government and communities

The ‘mopping up’ the smaller and more remote rural populations in SSA will present a major funding challenge. The number of people to be covered per year to achieve universal access is estimated to be three times as many as the annual rate over the past 25 years, but the funds required will be several times more than that. Using the WashCost benchmark (WASHCost 2012) costing figures demonstrate the large effect of serving fewer people per CWS (see Figure 4) as smaller communities are reached. Actual costs may vary but the ratio of costs will remain essentially the same.

Table 1. Users per community waterpoint.

Country/ region	Number/ HP (served)	Average Unserved community size	Design population/WP	Information source
Ethiopia SNNPR	380		270/457	RiPPLE survey 2012/MoWR 2009
Sierra Leone Pujehun District	187	138	250	GOAL survey data 2012/ AfdB 2013
Malawi Kasungu	305	218	250	Kasungu WASH survey 2012
Zambia Milenge	123		250	Milenge DWASHE survey 2014
Zambia Southern	412		250	Wateraid (2008)
Liberia	280	114	250	Census and Waterpoint Atlas 2011
Mozambique	168		500	Wateraid survey 2008/UNICEF 2011

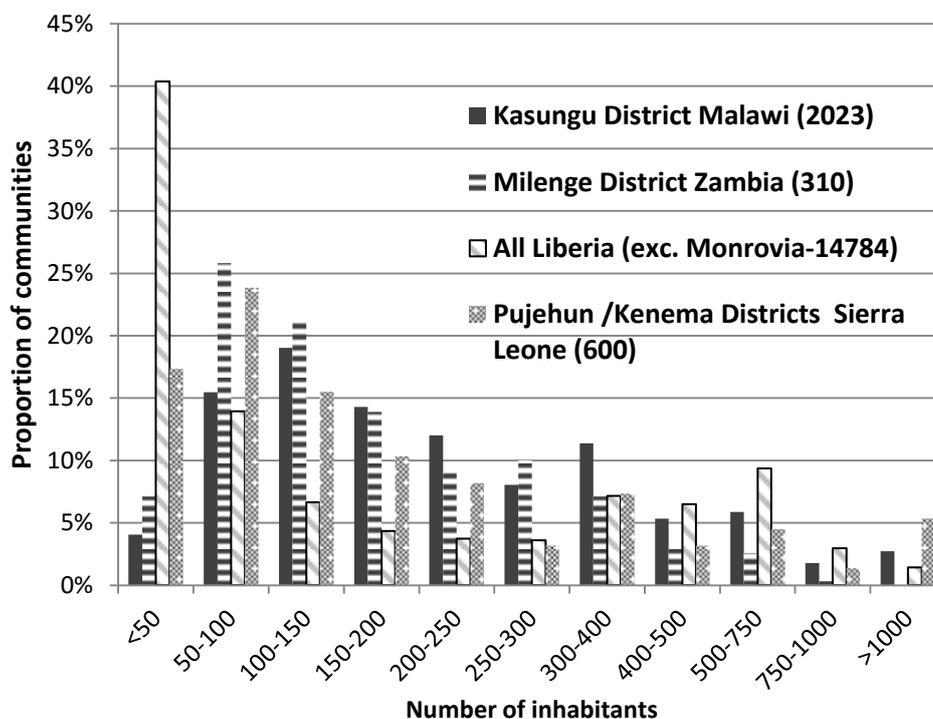


Figure 3: Examples of distribution of community size

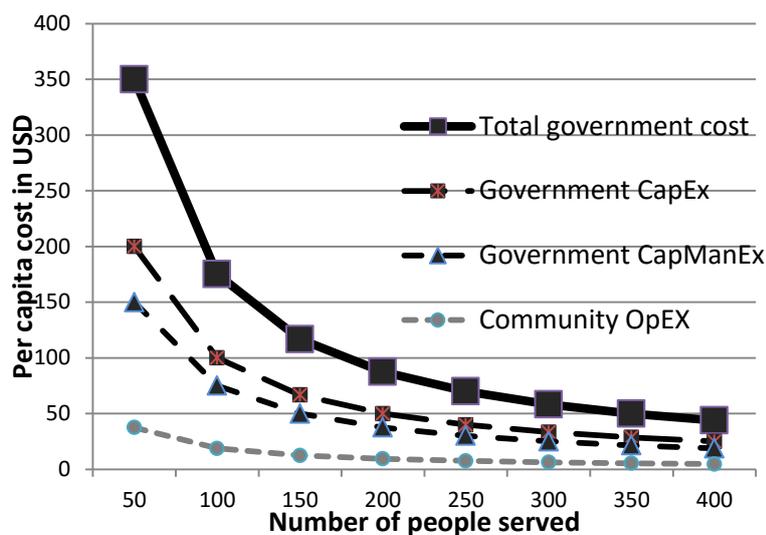


Figure 4: Per capita life cycle costs (LCC) for a borehole with handpump

The life cycle is calculated over a period of ten years and includes only capital costs, software and technical support (CapEx - government cost), minor maintenance and repairs (OpEx- 100% community cost) and major repairs/ replacement (CapManEx- government cost). Communities seldom pay more than a very low proportion of the capital costs. Overall it can be seen that the total per capita cost to the public sector of serving 250 people is around USD 70 (USD 30/head initial capital cost), but rises to over USD 300 in communities of 50 people or less. Overall the basic capital cost is taken to be USD10,000, the life cycle cost almost doubles this, with users paying approximately 10%.

Rate of coverage may be only need to increase by a factor of three, but the annual rate of construction and funding needed to serve smaller communities with conventional handpumps and boreholes will need to be six times or more what it has been in the past. That is without including any increase in construction, technical support and maintenance costs to cater for the more remote and inaccessible nature of many of these communities. Availability of such an increase in public funding has to be questioned in a time of reducing ODA to sub-Saharan Africa (OECD 2015).

Communities themselves, in the WashCost model, pay an additional 10% in small scale repairs and maintenance and in some cases community contribution to construction costs. With a design population of 250 people the contribution per household would be USD 40-50 over ten years. However the cost to the community, where the number of inhabitants falls below 250, rises significantly. Overall according to WashCost benchmarks, community recurrent contribution needs to be around USD 0.5-1 per person per year. On average, over ten years this would equate to around USD 1875 for a sustainable system of 250 users, but would still depend on government for replacement costs. Where community size drops to less than 100, community payment would then need to be some USD100 per household (assuming all households pay) over ten years to sustain the supply. Major emergencies which might make it necessary to pay a significant part of this sum in one tranche are likely to be a sizeable threat to sustainability of the supply. Such a burden on small communities is unlikely to be sustainable especially as long as most people depend on the vagaries of rain-fed agriculture and have difficulty to establish long-term savings schemes. The above WashCost figures are regarded as ones which could provide a sustainable supply. Existing community and government contributions to running costs (OpEx and CapManEX) are seldom at this level, hence the proportion of supplies not functioning at any one time and the extended length of time that each may be out of action.

It is apparent that that continuing only with a ‘business as usual’ CWS approach, the ability of both governments and smaller communities to provide adequate capital and recurrent funding to catch up with MDG shortfalls and progress on to sustainable universal access is very doubtful. The public sector continues to focus largely on new construction and to rely heavily on outside funding to patch up the damage of deferred maintenance. With funding and infrastructure constraints which are already

encountered, this single approach cannot realistically fit the changing demographic and physical environments in which future water supply provision must operate. Additional approaches need to be developed to cater for the specific problems presented by the remaining unserved communities, where sustainability will be more challenging even than in the communities already nominally served. Such approaches require a better understanding of the ‘unserved’ and their existing water supplies, and how catering for them may also strengthen the sustainability of systems already constructed.

The potential of the existing supplies of the ‘unserved’.

The growing popularity and contribution of Self-supply.

Figure 1 shows that the number of people using unprotected groundwater sources has grown by over 58 million in the past 25 years, and whilst this may partly reflect growing numbers using existing sources, another trend appears also to be developing. Despite the major increase in the provision of CWS, those who are not served, or regard the public service provision as inadequate, are in many areas increasingly investing in their own wells – Self-supply (See Figure 5). Such a trend suggests that public supplies are not satisfying needs but capacity to establish alternatives is growing, if slowly. So far the growth in Self-supply is almost always without any support from government services. Indeed the construction of new traditional wells³ (see Photo 1) exceeds the rate at which new boreholes and other public supplies are being constructed.



Photo 1 Typical traditional well, Ethiopia

These developments are not universal but are common in those parts of SSA where groundwater is within some 15m of the ground surface. Overall assessment of available groundwater resources (Adelana + MacDonald 2008) tends to classify them by aquifer type rather than accessibility and reliability, but indicate that some 60-75% of the rural population may live in areas where groundwater is within reach by relatively easy hand-digging or hand-drilling. Unfortunately very few SSA countries yet include self-financed waterpoints in their rural water supply inventories. Only ‘windows’ of information are available to indicate their total number, the rate at which they are increasing, and to identify where potential for their development is highest or where it is so low that boreholes should be given highest priority. Their importance and impacts are therefore largely hidden. In developed countries where rural people can afford to invest in a higher level of service, they are included in inventories and coverage statistics and are shown to contribute significantly to rural water supply coverage (commonly 15-30%). The waterpoint inventory in Uganda in 2010-11 was the first in the country to look for private, as well as public, supplies and caused considerable surprise when it was found that some 10% of protected supplies had been privately financed, and half of these conformed to national standards (SKAT 2015 b) without any advisory or other input from government

³ Wells which are dug by traditional means and are, at least initially, unlined.

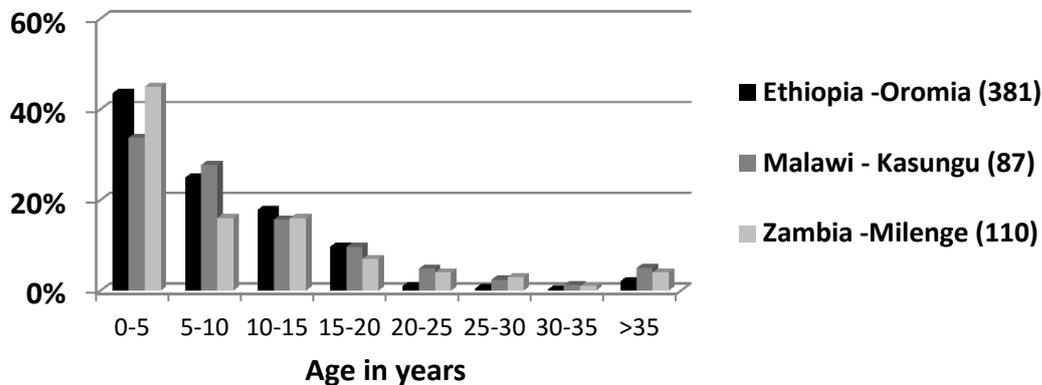


Figure 5: Age of traditional wells in parts of Ethiopia, Malawi, Zambia

Self-supply wells in some areas, especially where groundwater is difficult to access, may be community owned and serve large numbers of people, because the time and cost in providing the supply requires more than the efforts a single family can give. Another alternative in this situation may be household-level rainwater harvesting (RWH). More commonly, however, where groundwater lies within 15-20m of the surface, a single family will take the initiative to finance water supply from a traditional well. This they will share with neighbours, creating a mini-community supply under private management. Average numbers of users tend to be between 50 and 70⁴ which minimises problems with queuing and facilitates management and regulation of behaviour. CWS users are generally required to share with 250-300 per handpump, which may in part explain why people living in areas where they can develop their own supplies, are sometimes reluctant to shift to a community-managed supply. CWS are then less popular as households have to fit in with a larger group of users, with the associated problems of queuing, loss of control over management/decision-making, and rules of acceptable behaviour and the loss of status as owner.

CWS and self-supply systems are not mutually exclusive. In many cases even households with close access to community handpumps will invest in a traditional well for the flexibility of use it gives both in terms of being able to collect water whenever the owner or neighbour wants it, without time wasted queuing, and in the case of the owner, also for use for various non-domestic purposes such as watering animals or vegetables, food processing or other income-generating activities. In Zambia, in an area of shallow groundwater, the UNICEF/WaterAid study found that of households with a handpump within 50metres 93% also had a traditional well they used within 50m, which provided back-up and a more popular supply. Raw data from surveys of Self-supply and CWS in four countries (Zambia, Malawi, Ethiopia and Sierra Leone) show that most people (70-100%) use more than one source where more than one is available within some 200m. Where such options exist people ‘mix and match’ depending on the time they have available, the pressure of demand on supplies, and other factors.

Self-supply sources of water and CWS generally act as complementary rather than competing supplies, each providing a back-up when the other fails. Handpumps are extremely rarely repaired the same day that they break down. Nor, except in the largest communities are they close enough together that when one fails another is nearby to replace it temporarily. In smaller rural communities with only one handpump, the alternative is generally a Self-supply source. Conversely for many using traditional wells a more distant borehole may often be the back-up should the traditional well dry up seasonally.

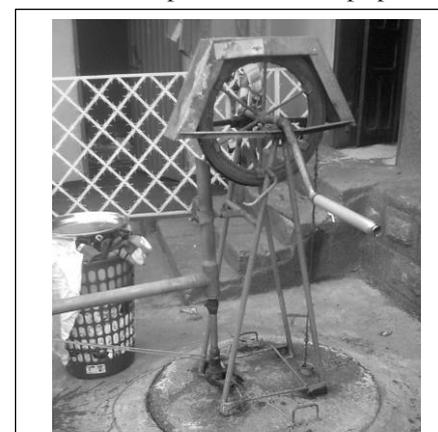


Photo 2 Typical improved Self-supply well, Ethiopia

⁴ Average from surveys in Mali, Zimbabwe, Zambia, Malawi, Ethiopia (Oromia and SNNPR)

However it must be said that in rural areas many self-financed supplies are poorly protected and there is little opportunity for people to get advice on achieving Improved Self-supply with better well-construction, mechanical and motorised lifting devices, productive uses to recoup costs, household water treatment, and elevated storage. The poor quality of completion has led to widespread professional dismissal of these wells as being a liability rather than an asset. The strategy has always been to replace them, albeit with systems that are usually less convenient and not managed at the lowest, most sustainable level. With an estimated 1.7 to 2 million⁵ Self-supply traditional wells already established in SSA such dismissal would seem to throw out assets which, if improved in quality and number, could have potential to help fill the gaps which public services are presently unable to fill. Transforming low quality Self-supply into improved Self-supply (see Photos 2-4) may increase coverage cost-effectively.

Reaching an accepted level of supply in self-financed systems is an incremental process. In the case of Zimbabwe self-financed supplies now serve some 34% of the rural population (SKAT/UNICEF 2015 b). Growth in construction of traditional family wells has already commonly resulted in an average of one such well for every 3-4 households, and families have often now moved on from construction of new wells to improvement of those they already have. The main reason for this is that a family well, shared with neighbours, will almost always offer a more convenient supply for nearby households. Complementarity lies not only in each being an insurance for the malfunction of the other, but each may be used for different purposes, or even at different times of year. As a result these supplies, once



Photo 3 and 4. Improved Self-supply. Basic levels of improvement in Zambia and Zimbabwe respectively

developed, are seldom totally abandoned in favour of a public facility unless the latter offers reliable water piped into the premises. Productive use of the water enables further investment in the supply and in other family priorities. The Government of Zimbabwe has developed Supported Self-supply as a service delivery model, with improved Self-supply as an accepted level of service. As a result a greater proportion of rural people have developed their own supply, and wells and springs are better protected and have proved more resilient during challenging economic times. All pilots studies of support to Self-supply have encountered remarkably high grass roots demand and indicate a very fundamental desire for a supply of ones own. The government add-on is the ensuring of adequate support services to satisfy that demand and to enable and promote best practice.

Building on existing Self-supply – See also Olschewski RWSN 2016.

Supported Self-supply for improved water provision

The Zimbabwe example has demonstrated that providing necessary support to households wanting to invest in their own higher quality supplies can be achieved largely by expanding the roles of existing

⁵ Based on JMP figures, of the total population using groundwater,

extension workers and the skills of artisans, sometimes initially augmented by the inputs of NGOs.. Whilst this approach has here, over 20 years, become embedded in rural water strategy, other countries are now beginning to explore its relevance to their own contexts. Piloting over the last ten years in Zambia, Uganda, Mali, Sierra Leone, Malawi, Tanzania and Ethiopia has indicated that providing support to rural families to enable them to construct and improve water supplies nearer to their own homes can help to reduce the burden on the public sector. The grass roots popularity of this approach is demonstrated by high rates of up-take. Capital costs were generally unsubsidised (except in Ethiopia) but credit/savings systems often proved essential in the poorest areas. Governments in Ethiopia, Uganda, and Mali have now incorporated necessary support services into their rural infrastructure and others such as Malawi and Zambia are considering doing so. Acceptance of the idea is growing at national level as countries begin to identify the challenges they face in reaching universal coverage. At grass roots level demand grows as people realise that donor dependency is not the only way to cope, as they see what their neighbours have achieved that they can copy themselves, a step at a time. For the first time in these countries people are actively being enabled and encouraged to solve their own problem in specific circumstances, rather than depending on the state whose direct support to smaller vilages may be delayed for many years, and may not deliver a solution which best satisfies the needs of others, such as groups of more dispersed households.

Piloting in one of the two poorest districts in the poorest province in Zambia (SKAT/UNICEF 2015a) provoked positive household response and effective improvements to 80% of over 300 existing traditional wells (see Photos 3,4) over a period of a year and a half. Half of these wells reached the defined stage of ‘improved supply’ in JMP terms during that time, using newly trained masons. The effects on water quality were dramatic, bringing 87% to a faecal-coliform-free state from one where more than half were contaminated. All piloting countries have found that even small improvements in protection have led to significant improvements in water quality and that ‘safe’ water can be progressively achieved with family investments of as little as USD 200-300. Unlike most community supplies these family or group-owned wells offer the potential for income generation and so too the potential of recouping investment and moving on to higher cost options. In some communities they are regarded by users only in terms of their value for domestic water supply, but even in these the reduction in time saved in water collection was found to lead to improvements in food security (Sutton et al 2012, PumpAid 2015), amongst both owners and those with whom they share their water.

Local government, national ministries and NGOs need to assess in different country contexts, how best to absorb their supporting roles into existing services. They also need to assess whether or not (and under what conditions) to provide direct subsidies as well as the indirect ones of building up the support services.

Challenges

The challenges are much as they will be for reaching SDGs in general. The main one is to move from thinking purely in terms of numbers on the ground to thinking about service provision and providing opportunities for all, rather than just solutions for some. In Human Rights terms the UN Rapporteur for Human Rights in Water stated in his presentation for the RWSN webinar on Human Rights and Self-supply (Heller 2015) “ Essentially, the government of any country is obliged to ensure that everyone is able to **access safe, affordable, culturally acceptable water services**, wherever they live and however the service is provided. The government does not have to deliver the services themselves – in rural areas, water is predominantly self-supply in many situations – but they must ensure that there is the right ‘enabling environment’ that governs this self-supply and safeguards human rights standards.” To maintain an affordability of service may require that different technical standards are developed for communities and for households, and that the enabling environment includes advisory services on ‘Progressive realization’ which encourages incremental steps for improving water supply. This means accepting that some water sources might not reach ‘improved’ status in one step and so may not initially provide safe water. However for these people Self-supply might be the only realistic way to get water at all, and the aim must be to enable progressive improvement, as it should be for all supplies, so that even the most marginalised have access to a supply which fulfils their human rights, in a manner that is affordable to the state and to them and so provides a sustainable solution. This approach is a difficult one for sector professionals to embrace initially, but if the constraints of funding and their role as catalysts to improve supply standards are clear their commitment is ensured.

After so many years of donor dependency, it is a challenge to move towards greater self-sufficiency. However the example of households which are early adopters quite rapidly changed the whole atmosphere from one where ‘But we are too poor’ is replaced by ‘Yes we CAN’. The history of the mobile phone in Africa shows that where this shift in mentality is combined with identifying real advantages in investment, progress accelerates and market or social forces, such as ‘keeping up with your neighbour’, kick into action..

Other challenges include –

- providing back-up to support services for an adequate period for them to achieve quality and sustainability
- structuring direct and indirect subsidies to target the most difficult to reach and enable progressive steps towards safe water for all, especially the most vulnerable.
- combining the social marketing efforts of the several ministries in the public sector and the commercial marketing of the private sector
- assessing the effects of climate change and competition for water resources. Low well density and abstraction rates will rarely cause problems unless water use changes from primarily domestic to primarily productive, when regulation may be required.
- ensuring any development in Improved Self-supply in peri-urban areas is accompanied by sufficient awareness- raising of risks of contamination and by HWTS promotion and
- only actively encouraging the growth of Improved Self-supply where public water supply services are unreliable or inadequate.

Perhaps the greatest challenge at present is that while the figures presented indicate the problems likely to be faced, they are inadequate to give a sufficiently accurate picture of problems or solutions regionally or nationally. All that can be said is that they are sufficient to highlight the challenge of inadequate data and justify a call for much better information and understanding of what people are doing for themselves. They also indicate the need for greater flexibility in solutions offered, and services provided, which move away from the ‘one size fits all’ of the past towards a mutually inclusive approach which embraces more than one option and which views combined approaches using support services in common, as the way forward. Indicators should then move from simply ‘wells completed’ or ‘dollars per handpump’ to aspects such as ‘access to quality support services’, ‘convenience of supply’ and level of supply service..

Costs of Self-supply Support Services

The capital cost of establishing support service in the public and private sector has generally been in the range of USD 4-20 per head (Kumamaru 2011, SKAT/UNICEF 2015 a + b). This constitutes the indirect subsidy to build up public and private sector support services. In Zambia the higher costs arose where introduction was through NGO (including seed funding for micro-credit), whilst lower costs were experienced where the introduction was totally through government services from the start (Sutton 2002). Government initiatives in Zambia and Zimbabwe show that over time the additional costs to government reduce as the private sector becomes better established/ more sustainable, and more marketing is by word of mouth. Monitoring and regulation then become the main roles and costs remaining in the public sector. Long term costs are greater than capital costs, but overall communities cover some 25% the Life Cycle costs for Supported Self-supply at its lowest level and 10% of those for CWS. In times of reduced donor funding this is an essential attribute.

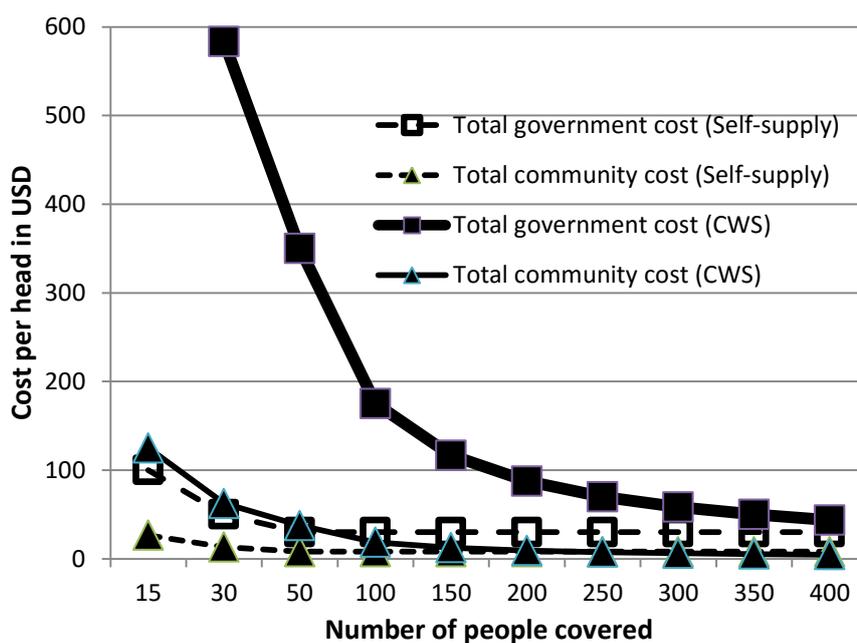


Figure 6: Per capita costs for government and community with CWS and Self-supply

Figure 6 shows that per capita cost of Supported Self-supply tends to be a cheaper option for government wherever it is possible, but overwhelmingly so for smaller communities. The reduction in cost is then significant, leaving room for small subsidies if necessary but still providing major savings to the state. However including supportive roles into public and private sectors provides an area- or country-wide service, available to all who are willing to invest in improving their water supply and so may need strategies to target the hard to reach. For communities of over 250 CWS generally provides a higher level of service and remains the cheaper option for households as a whole, a safer option in larger communities and the only option for those where groundwater is not easily accessible or RWH not feasible. Thus a well-designed combination of the two approaches is needed. Using data on population and shallow groundwater distribution in Zambia and Zimbabwe, and a composite strategy of CWS and Self-supply indicates a reduction of capital costs to reach 2030 universal coverage of at least a third to a half (depending on the size of unserved communities). In the case of Zambia this would be over USD300 million at present day prices.

Conclusions and Recommendations

Governments face a major challenge in reaching universal access to safe water in many countries of SSA. Whilst much progress has been made, funding shortfalls, donor dependency and limitations in construction and maintenance capacity already constrain rates of progress. Yet to achieve universal access by 2030 requires far higher rates of construction than those achieved so far. Bearing in mind the characteristics of many of the remaining unserved communities, the single solution of community managed supplies with handpumps on shallow wells or boreholes cannot provide the whole answer, in terms of affordability or sustainability. Other cost-effective options especially for the vulnerable, scattered households and small communities, but also for those peripheral to public supplies in larger communities need to be developed. In areas where Self-supply is a feasible alternative, encouraging households to aim for Improved Self-supply is one option. Building up support services which enable people to make progressive steps towards safe and affordable solutions, can largely be done through minor expansion of the roles and capabilities of existing government services. In this way Supported Self-supply should form a complementary supply approach, leveraging additional funds, reducing donor dependency and using sustainable technologies and management systems, to achieve a service level which fulfils the human rights of the most difficult to reach. In this way everyone gains (see Table 3)

Table 3. A win-win situation?

Stakeholder	Advantages			
Government	Lower costs among the most expensive to cover	Additional leveraged funds and increased coverage	Reduced burden on/stand-by for public supplies	Sustainability
Private sector	More customers and more (reliable) income	Greater skills and higher quality work	Wider range of services	Sustainability
End user	More choice in options and access to services	More flexibility in water use	More convenient supply, and food security	Sustainability

Both in the case of CWS and of Supported Self-supply there are also some risks, and for both the aim must be to assess them, make consumers aware of them and make services available to minimise them. In both cases non-functionality and water quality are the main issues, alongside the symbiotic or competitive relationship between the two approaches.

In that traditional wells are commonly shared with those less able to provide for themselves, and usually offer them a very convenient and free supply, this system caters for the most vulnerable in a way that a community supply seldom can. People are not excluded because they do not pay, and efforts in transporting water are minimised. If these sources can be improved to a level that offers an increasingly safe supply, primarily by the investment of one or more families, they offer an additional option and insurance policy for those people who are far from, or subject to irregularities of conventional CWS. The potential of this option should not be ignored, but should be exploited where possible through cost effective expansion and enhancement of the necessary support services.

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