Rural Water Supply Network

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Myths of the Rural Water Supply Sector

Introduction

Ensuring that rural dwellers around the world do not have to walk for hours to collect sufficient and safe drinking water is a huge challenge. This short article raises issues for those of us who are involved in trying to improve rural water supplies, whether as donor, Government or NGO; program manager or practitioner. It takes a hard look at our limited achievements, points to areas where our approaches need to be radically improved and sets some challenges.

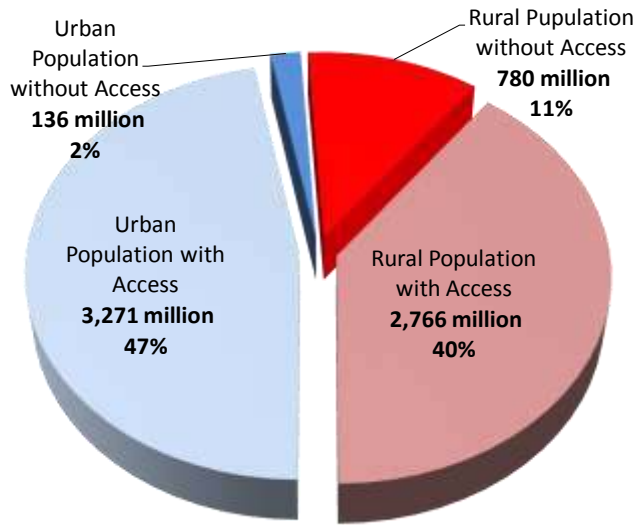
Considerable investments have been made in rural water supplies. For example, between 1978 and 2003 the World Bank alone lent approximately US$ 1.5 billion to the sector[1]. Springs have been protected; wells have been dug or drilled, and fitted with handpumps; piped water schemes have been constructed. However, the sobering fact is that progress is still much too slow, and rural water supply coverage significantly lags behind that of urban water supply:

- Eight out of ten people without access to an improved water supply live in a rural area. This corresponds to 780 million rural dwellers, compared to 136 million urban dwellers (Figure 1);
- In sub-Saharan Africa, the disparity is even greater with 272 million rural dwellers lacking access to safe water, compared to 54 million in urban areas (Figure 2).
- In Africa, the number of rural dwellers without access to safe water supplies went **up** from 243 million in 1990 to 272 million in 2006.

However, not only has progress been slow, but, more shamefully, many of the constructed services have not continued to work over time. It has been estimated that only two out of three installed handpumps are working at any given time. Thousands of people, who once benefited from a safe drinking water supply, now walk past broken handpumps or taps and on to their traditional, dirty water point. Despite the best intentions, the fact is that we, sector professionals and practitioners, have contributed towards the problem in numerous ways.

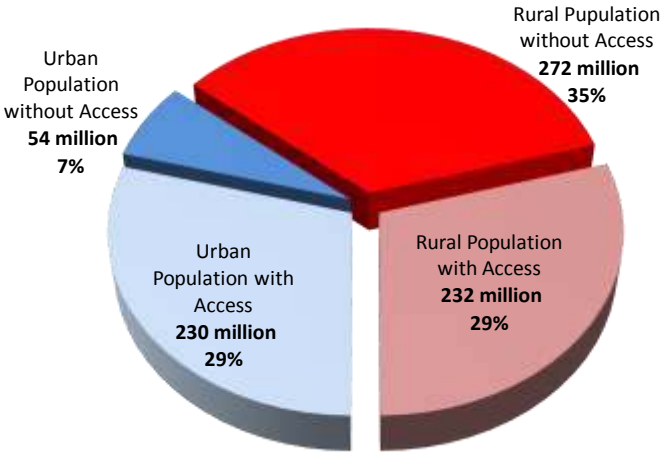
Over the years, some principles have been established as to what underpins the success and sustainability of rural water supply. Expressions such as '*demand responsive approach*', '*appropriate technology*', '*village level operation and maintenance*', '*community management*' and '*private sector participation*' have become well entrenched in policy and strategy. However, subscription to these and other principles has not yielded the results expected. Sometimes they are very poorly implemented; in other cases they are simply inadequate. It is thus time for us to reflect on some of the paradoxes and major myths of rural water supply service delivery.

Figure 1. Access to improved drinking water globally[2]



Total Global Population = 6.6 billion

Figure 2 Access to improved drinking water in sub-Saharan Africa[2]



Total sub-Saharan Africa Population = 0.8 billion

This paper sets out the myths of the rural water supplies sector. As you read it, you may decide that some of these are not myths at all, but are glaringly obvious. Take the example of the myth that "*building water supply systems is more important than keeping them working*". Your reaction may be that this is not a myth, and that you are well aware of the importance of operation and maintenance. But then ask yourself what you are actually doing in your programmes to address this major problem. Many of us are well aware that the issues set out in this paper are myths. Nevertheless, most of us carry on as before. A rehabilitation programme tends to use the same management and maintenance principles and training (if any) even where these previously led to long term breakdown.

Myth 1: The best way to utilize public funds is to heavily subsidise hardware

Much public sector funding is spent on hardware subsidies. The authors estimate that for Government and NGO supported rural water supply schemes across sub-Saharan Africa, between 90 and 100 % of the hardware costs are externally financed (i.e. not paid for by the community). This has three important effects:

- It constrains the ability of governments and NGOs to reach more communities as every scheme uses up significant amounts of funding.
- It does not acknowledge or capitalize on other potential sources of funding, especially money from communities and households themselves.
- Institution-building at national and local level is neglected in favour of building infrastructure.

Unfortunately it is unlikely that public funds will ever be available at the levels required to pay for services to all rural dwellers. Given the limited donor and government spending, ways need to be sought to use funds more strategically, and distribute their impact over a larger number of people.

Examples of alternatives to heavy hardware subsidies do exist. In Bangladesh, in the year 2000, it was estimated that 65% of tubewells with handpumps in Bangladesh were privately financed, and privately owned[3]. Analysis from Pakistan, Niger and Nigeria confirms that there is significant investment in water supply from households[4]. These examples illustrate the possibility for rural dwellers to invest some of their own money in improving access to their own water supplies, when given the opportunity. In fact, with small amounts of cash or credit, affordable technologies, local service providers (e.g. artisans) and awareness of the benefits of investing in water source improvements, villagers are able to do more for themselves than we professionals give them credit for.

Unfortunately, rather than trying to encourage and exploit such potential, e.g. by training artisans, demonstrating locally affordable technologies and providing incentives for household investment, on the whole, the sector has locked itself into a paradigm whereby external agencies continue to subsidise 90 to 100% of the hardware costs.

The best way to utilise public funds may not always be to heavily subsidise hardware. We thus advocate for: (i) much greater recognition of the financial contribution that many households and communities could make to improve their own water supplies and (ii) improved knowledge and skills of local institutions and service providers so that they actively encourage households and communities to improve their own water supplies i.e. upgrade existing facilities or constructing new ones.

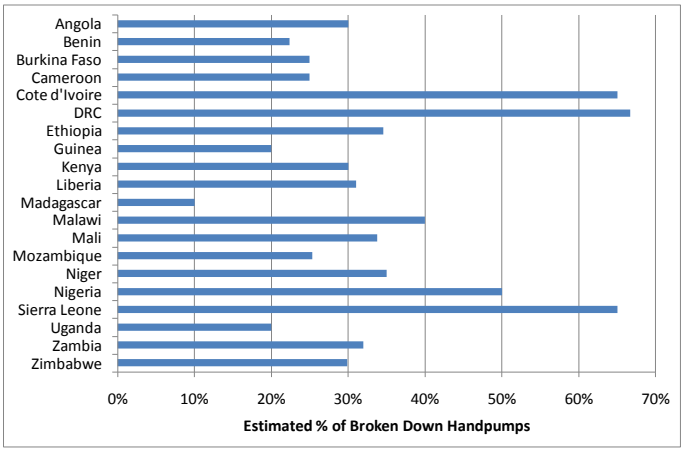
Myth 2: Building water supply systems is more important than keeping them working

The objective of the International Drinking Water Supply and Sanitation Decade from 1981 to 1991 was to provide '*safe water for all*'. It started a new focus on rural water and the speedy provision of safe water supply. Since then, Governments, donors and NGOs have tended to focus on numerical targets and put their efforts into building new water facilities.

The issue of how to safeguard investments and make them permanent has, on the whole, not been adequately addressed. Questions regarding how to support water users after construction of new infrastructure and who should pay for the long-term costs of operation and maintenance are considered to be '*somebody else's problem*', and of little concern to the organisations funding the new infrastructure. Too little attention is paid to how communities are likely to deal with the real-life complexities of a water supply system. This is when there are serious technical challenges and within the context of changing community dynamics and settlement patterns as well as a growing population and external financial pressures.

Data from a number of stakeholders in Africa[5] show that many handpumps, considered a robust and simple to maintain option, are actually out of operation (see Figure 3) Likewise, many rural piped schemes are partly or fully out of service. This represents a crisis of wasted infrastructure investment. The disturbing truth is that installed rural water supply infrastructure is far harder to keep operational than hoped for, and often fails before its planned design lifetime due to poor maintenance. Supplies end up requiring repeated rehabilitation, which is a massive waste of investment. Regardless of this problem, tens of thousands of new water points continue to be constructed in Africa every year.

Figure 3: Proportion of handpumps that are non-functional, for 20 selected countries



Unfortunately, governments and funding agencies have short time horizons and frequently measure the success of their water projects on the basis of expenditure. Spending money during a project cycle and meeting short term targets tends to take priority over long term outcomes. The result is that budgets are often spent regardless of whether the infrastructure can be kept operational.

Building rural water supply systems is clearly not more important than keeping them working. Both are important. We argue for the establishment of realistic, long term financial mechanisms and institutional support systems which actually lead to the sustainability of rural water supply infrastructure.

Myth 3: Communities are always capable of managing their facilities on their own

The sector has subscribed to the concept of community management of a shared water supply. However, depreciation of the equipment is neglected. On paper at least, water users are expected to form water committees to manage the upkeep of their new communal water facilities and collect money to pay for maintenance. However, the experience of many users is that a new water point is built, works for a while, then poorly for another year or two, before it finally breaks down. Even if users manage to undertake minor repairs they struggle with major ones. Thus, the users then have to wait until the facility is replaced through a rehabilitation intervention at some unspecified future date, if at all.

Despite the rhetoric, pre-construction community mobilization and training is not always carried out, or is of poor quality. Furthermore, there is an assumption that all communities and all schemes face the same set of basic challenges and require the same amount of training and preparation time. Many sector players do not respond to the specific ground realities. There are also questions being raised as to whether newly established formal community committees are universally appropriate and the extent to which voluntarism can be relied upon.

What is becoming clearer is that where a committee is established, it usually needs backup support from external agents such as a local authority or local NGO in order to remain motivated and retrain, or train new committee members and caretakers. It is also very important to note that even good community management structures cannot keep infrastructure in working order if they have not been properly trained and are hampered by lack of access to spare parts or skilled technical services.

Given that communities are clearly not always capable of managing their facilities on their own, we argue that the following is essential: (i) meaningful participation and training of communities prior to, and after construction in line with their specific needs; (ii) capacity (in terms of skills and human resources), financial resources, and monitoring systems which support communities to manage their water supplies and (iii) full consideration and testing of alternatives to community management, such as household owned systems or private operator managed systems.

Myth 4: What rural dwellers need is 20 litres per person per day of clean water

Almost universally, rural water supply programmes emphasize the need to provide 20 litres per person per day of clean water. In practice, protection of the source or construction of a new source is regarded as much more important than the distance to it. In addition, other water requirements are ignored. Alternatives such as providing say 5 litres per person per day of drinking water, coupled with tapping other sources for non-drinking uses is generally overlooked.

Water professionals and water users may not agree on acceptable distances between the home and the source. Water engineers, trained in the importance of a pathogen-free source, generally insist on providing water points with multiple features to protect water quality (grouting, a well apron, handpump). The cost of this tends to result in only one water point to serve many families or an entire village. This leads to long collection trips and queuing time. Data from the JMP show that 18% of the people in Sub-Saharan Africa supposedly using an "improved" source (and therefore considered served) spend more than 30 minutes per round trip to collect water.

The majority of publicly funded investments in domestic water supplies are made in isolation from consideration of other water uses. This ignores the fact that communities themselves see domestic use as just one set of demands, alongside water to support crops, livestock, kitchen gardens and other productive activities. The situation is critical; if current trends continue, most of Africa will not be able to feed itself within 40 years. Land currently has a carrying capacity of 0.1 to 5 people per hectare but will need to carry as many as 14 people per cultivable hectare by 2050 with current demography and agricultural practices[6]. Water security is central to food production and food security. Solving domestic water supply problems in isolation from other water needs is inadequate. Communities and households often know this better than the water professionals who design projects.

Given that the provision of 20 litres per person per day of clean water may not always be the most suitable requirement for rural communities, there is urgent need for: (i) consideration of other water requirements, such as for livestock and crops and how these needs can be better linked to requirements for clean drinking water; (ii) full consideration of household values with respect to water (particularly distance to source and reliability alongside water quality) and (iii) presentation and demonstration of real and affordable choices for household water supplies.

Myth 5: We know what we want and what we can get from the private sector

With respect to the private sector, professionals and practitioners in Rural Water Supplies operate in *double think*. On one hand there is much rhetoric of the need to *harness the private sector*. On the other hand there is suspicion and concern that the *private sector cannot be trusted*, and that it just wants to maximise profit.

There is a widely held view that the public sector has a rather poor track-record of providing services in rural water supplies. As a result, more and more contracts are being let to the private sector, particularly for construction. The focus on community water supplies, coupled with very heavy hardware subsidies has led to the private sector operating almost exclusively as a contractor for a programme or project. Further, construction, by parastatals and donor projects, at non-commercial rates has stunted the growth of private enterprise in rural water supplies.

There are currently very few incentives for the private sector to invest in construction or management of facilities in rural areas. It is not surprising; after all, how many local drilling company can sell a borehole to a community if the cost is as high as US$ 6,000? However, as we have already noted, there are cases (e.g. Bangladesh, Nigeria, Pakistan, Thailand, Niger), where private enterprises are providing services directly to rural dwellers.

Unfortunately, in most countries there has been a neglect of stimulating local markets for water supply facilities so that local artisans build facilities directly for rural dwellers. Private enterprise development is also stifled by lack of trust by policy makers, lack of knowledge about the practical ways that private enterprises can play a stronger role and lack of linkages between water supply initiatives and micro-finance systems.

Even where the private sector operates under contract, processes for tendering and contract award are not always adhered to, construction supervision and contract management is often weak, corruption is widespread and regulation is often non-existent. Construction quality suffers as a result. Relying on inadequate procurement methods prevents a trust-based customer-supplier relationship.

Furthermore, procurement practices and spares supplies by the public sector have stifled supply chains for rural water supply construction, equipment and spare parts.

Likewise, private sector maintenance of rural water facilities is not common. The community and its newly trained water committee are supposed to operate and maintain the facility after the agency that constructed the system has left. Private sector models, which are common in urban areas, such as the management of water points as water "kiosks" or the letting of performance-based management contracts for maintenance may have significant applicability in rural areas.

The authors of this paper advocate for: (i) strategic support to enable the private sector to develop and become much more active with respect to rural water supplies; (ii) documentation of viable technologies as well as maintenance and management systems which can harness the private sector, (iii) strengthened institutions and improved mechanisms to better hold the private sector to account; (iv) innovative subsidy mechanisms that allow users to act as buyers rather than recipients of technology.

Myth 6: Any action which tries to improve rural water supplies is laudable

In many countries, improving rural water supplies is an endeavour whereby almost anyone can decide to "*do good*". An NGO or project can turn up in a particular village and "*improve the water supply*" as they see fit. They can work according to their own standards and procedures (if they have them), bypass national sector policies and strategies and completely ignore Government agencies in the process. NGOs often claim that Government is just too corrupt or too difficult to work with. However, not all NGOs do good work either, and working against national policies can be extremely counter-productive for the country in the long run. When the NGO leaves, it is only local Government who could provide support to the community, at least if they were strong enough with adequate funds.

Sadly, communities and Governments are largely unable to hold implementing organisations to account. Oversight and monitoring mechanisms as a whole are extremely weak. In general, anything goes:

- Funding agencies and do-gooders can pursue their own interests, or what they consider to be *right*, rather than those of the rural people they are trying to serve.
- NGOs (and Government) are not held accountable for their actions today, or five or ten years after the intervention.
- Funding agencies and implementing organisations are able to push their tight time horizons and rigid expenditure cycles onto communities, no matter what the season, capacity or time that it takes rural dwellers to plan and prepare for new infrastructure.

In the donor community, much of rural water supply sector is still seen in the light of providing essential services, on a charitable basis, to desperately poor and powerless people. In general, there is a lack of transparency regarding investment and lack of accountability with respect to practices followed.

Independent verification of outputs and outcomes is extremely rare. One can work in rural water supply for years without ever being held to account for one's actions. A fundamental outcome of this lack of accountability is a lack of professionalism and work ethic among many.

The authors of this paper advocate for (i) a high level of coordination between rural water supply actors at national and local levels; (ii) strengthened institutions and improved mechanisms to better hold NGOs, other Government agencies, and donors to account; (iii) raised awareness among agencies of the damage that they can actually do with misdirected approaches and actions – so that they realise the need to adhere to existing policies; (iv) development of ways of ensuring that project implementation schedules are for the benefit of rural dwellers rather than funding agencies and (v) high levels of professionalism and work ethic among rural water supply sector actors.

Myth 7: There is a quick fix for rural water supplies

The ultimate myth is that there is a quick fix for rural water supplies; a simple idea, such as a new pump or a clever way to organise a village committee. We argue in order to provide a basic level of reliable service to all rural dwellers, there is no quick

fix to substitute for many years of political negotiation, institution building, education, long term investment and innovation.

Synthesis

Rather than being constrained by the myths in the rural water supply sector, we need to develop much more flexible, adaptive approaches that respond to local conditions. Rural dwellers need to be considered as consumers, as well as beneficiaries. We need to choose from the full range of technological innovations available, and fully harness the capacity of private enterprise. These approaches should be in line with, and inform, national policies. In summary, the authors of this paper advocate for:

Institution-building and working with Government

- Development of capacity (in terms of skills and human resources), financial resources, and monitoring systems of the organisations which support communities to manage their water supplies – in particular local Governments.
- Strengthened institutions and improved mechanisms to better hold NGOs, other Government agencies, donors and the private sector to account.

User focus

- Consideration of other water requirements, such as for livestock and crops and how these needs can be better linked to requirements for clean drinking water.
- Full consideration of household values with respect to water (particularly distance to source and reliability alongside water quality).
- Meaningful participation and training of communities prior to, and after construction in line with their specific needs.
- Full consideration and testing of alternatives to community management, such as household owned systems or private operator managed systems.

Affordable technical options and support to household investment through self supply

- Presentation and demonstration of real and affordable choices for household water supplies.
- A much greater recognition of the financial contribution that many households and communities could make to improve their own water supplies.
- Innovative subsidy mechanisms that allow users to act as buyers rather than recipients of technology.
- Improved knowledge and skills of local institutions and service providers so that they actively encourage households and communities to improve their own water supplies i.e. upgrade existing facilities or constructing new ones.

Private sector

- Strategic support to enable the private sector to develop and become much more active with respect to rural water supplies.
- Documentation of viable technologies as well as maintenance and management systems which can harness the private sector.

Finance and programme procedures

- Raised awareness among agencies of the damage that they can actually do with misdirected approaches and actions – so that they realise the need to adhere to existing policies; raised awareness among rural water supply agencies of the damage that they can actually do with misdirected approaches and actions.
- Realistic, long term financial mechanisms and institutional support systems which lead to the sustainability of rural water supply infrastructure for their design life, and ultimately a permanent service need to be established.
- A high level of coordination between rural water supply actors at national and local levels.
- High levels of professionalism and work ethic among rural water supply sector actors.
- Development of ways of ensuring project implementation schedules are for the benefit of rural dwellers rather than funding agencies.

The Role of the Rural Water Supply Network (RWSN)

It may seem like a tall order to advocate for action on the above aspects. The changes that we believe are necessary certainly cannot by addressed in a typical three-year project. We see this paper as part of a long term process, involving a wide range of stakeholders. Considerable discussion and debate regarding the myths and recommendations in this paper is required, as well as the identification of specific actions and champions (individuals and organisations) for change.

However, the Rural Water Supply Network (RWSN) and others have already made a start on some of these recommendations. The Self Supply Flagship has catalysed studies and pilot projects and undertaken considerable documentation on supported household investments, better known as self supply. The work of the cost-effective boreholes flagship has raised the profile of manual drilling, a technology which lends itself to uptake by local enterprises, and purchase by householders themselves. In relation to sustainable rural water supplies, over the years, support has been given to a number of countries (including Tanzania, Uganda, Ghana, Zambia, Malawi and Ethiopia) to improve their handpump supply chains and develop national frameworks for operation and maintenance.

Through its *field notes, member experiences* and *perspectives* series of publications, RWSN provides a platform for members to publish systematic and reviewed documentation of their work. Clearly, with more involvement of the RWSN implementing partners (UNICEF, WaterAid, WSP, African Development Bank and Skat) and the wider RWSN membership much more could be achieved. Initiatives which enable organisations to learn by doing, and sharing their experiences with others are much needed.

And now we hand over to you, the reader. We invite you to comment on these myths and how you can rise, or are already rising to the challenges set.

Please send your comments to Kerstin Danert at the RWSN secretariat (contact details overleaf).

Notes and References

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Preparation of the paper

This paper was prepared by the Rural Water Supply Network (RWSN) Executive Steering Committee. It drew heavily on background papers prepared by Kerstin Danert and Peter Harvey and comments from Richard Carter, as well as the knowledge and experiences from all of the Executive Steering Committee members. The process involved a workshop in September 2008 which agreed the main issues that would be covered by the paper. Barbara Evans produced the first draft of the paper and helped facilitate and document the workshop process. This was followed by an extensive review process in order to reach consensus.

The RWSN Executive Steering Committee comprised: Clarissa Brocklehurst (UNICEF), Peter Harvey (UNICEF), Kerstin Danert (SKAT), Erich Baumann (SKAT), Vincent Casey (WaterAid), Wambui Gichuru (WSP), Boniface Aleobua (AfDB) and Sally Sutton.

Feedback

Please send us your comments on the myths of the rural water supply sector as well as how you as an individual or your particular organisation can contribute to addressing the challenges that we have set.

You can send your contributions to Kerstin Danert at the RWSN secretariat (contacts given on right).

Contact

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