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Developing low-cost household water supply options: the potential of self supply in Ethiopia

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Ethiopia has launched a Universal Access Plan (UAP) to achieve safe water supply and sanitation for the country's 77 million people by 2012. This would mean providing safe water service to 50.9 million new users in just 7 years. The government recently reviewed the progress of UAP and concluded that it would be challenging to achieve its targets with the existing implementation approach. The review strongly recommended that low-cost options need to be pursued to accelerate progress. Self Supply is proposed to be one such approach, providing safe water supply to households without external subsidy. This paper briefly discusses the practice and potential of Self Supply approach; and proposes key next steps needed to help achieve the UAP target for safe water supply in Ethiopia.

Background

The Government of Ethiopia is implementing the Universal Access Plan for water supply, hygiene and sanitation sector since 2006. UAP objectives include achieving universal (98%) access to safe water supplies for the country's 77 million people by 2012 (MoWR,2006). This would mean providing services to 50.9 million new users in just 7 years. This is obviously a very ambitious plan given the huge number of people without access to this vital service. The task is even more challenging if we consider a backlog of more than 30% of water supply schemes that have ceased to provide service due to various reasons. Heavy reliance on high cost options such as bore holes and large distribution systems, coupled with poor community management, have contributed to the high failure rate of water supply schemes, especially in the rural areas.

The Ministry of Water Resources (MoWR) recently reviewed the progress it is making towards achieving the UAP targets. An initial assessment of the performance of the first three years of implementation of the UAP for water supply showed that the achievement is lagging behind the target set in the UAP plan (MoWR, 2008). The evaluation also identified that one of the contributing factors for this low performance was the fact that the UAP tended to focus on high-cost approaches.

Based on the lessons learnt from the initial three years of implementation, the Ministry has reformulated the UAP and prioritized low-cost options, including Self Supply, as one of the key approaches to accelerating implementation and achieving planed targets. The review has also considered both national and African experiences on Self Supply approaches that focus on low cost water supplies such as family wells and rain water harvesting techniques.

Currently, the level of technical and financial support to the water supply sector is increasing. Fund flow to the sector has increased significantly and joint government-donor sector reviews are undertaken on a fairly regular basis. Important lessons are coming out of these partnership processes. This joint approach is also helping sector practitioners and policy makers to explore more innovative and low cost approaches to safe water supply. There is now a strong consensus among development partners on the use of Self Supply options where a comparative advantage exists for such approaches. The main purpose of this paper is to briefly discuss the practice and potential of Self Supply approach; and propose key next steps needed to help achieve the UAP target for safe water supply in Ethiopia.

Practices of self supply in Ethiopia

Communities and families have long been providing for their own water supplies through various means including family wells and rainwater harvesting. Family wells are more common in rural parts Ethiopia where individual families dig their own wells in their backyard to provide water for drinking and sometimes productive uses. These are low cost options that are fully managed by individual families themselves. Traditional as it is, the quantity and quality of water vary depending on the method and quality of construction, management of the schemes and other environmental risk factors. Most importantly, water safety including chemical water quality has been one of the major factors affecting the use of family wells for drinking.

In recent years the Government of Ethiopia has attempted to build on the traditional practices by vigorously promoting water harvesting approaches, including self supply family wells. In Oromia regional state alone, the largest of the nine regions in Ethiopia, close to 90,000 family hand-dug wells were constructed in just three years from 2004-2006 (Mekonta, 2008). Similar programmes were also implemented in other parts of the country.

Approaches used to implement self supply options in Oromia region have been more organized than in other regions and included the following key aspects.

- The preparation of manuals and guidelines to facilitate and accelerate implementation of family wells.
- Training of local communities, especially development agents and local artisans.
- Conducting regular supervision to closely follow up the progress of implementation.
- Introducing the more innovative water lifting techniques. This included a rope pump pilot project funded by the Japanese International Cooperation Agency (JICA).
- Undertaking advocacy and promotion activities including dissemination of IEC materials in local language

A more formal evaluation of the experiences of the water harvesting programme, including Self Supply approach, is yet to be made. However, initial findings and feedbacks show that it is possible to achieve water supply targets with less time and resources through community based self supply options. Some of the most important lessons include the following.

- The experience of Ethiopia has shown that the attitude of sector professionals and local political leaders towards low cost options is critical. There are some anecdotal evidences here in Ethiopia and elsewhere in Africa that low cost options are sometimes seen as going backward. Their attitude needs to change favorably if the approach is to become more successful.
- We should avoid recommending a single technology type everywhere. It is important to investigate and understand the local context and adapt it accordingly.
- Quality of workmanship and management of the scheme have a very critical bearing on water quality. Communities would be discouraged to use Self Supply schemes if these issues are not properly addressed.
- Self supply option need to be duly recognized as contributing to coverage targets of MDG and UAP provided it satisfies specified criteria that indicate acceptable water safety. This may also encourage sector professionals and local political leaders to support the option.

The national workshop on self supply

In support of the recent self supply initiatives, UNICEF and WSP in collaboration with the MoWR, organized a national consultative workshop on Self Supply in Wolisso in June, 2008. The workshop was attended by a wide spectrum of sector policy-makers and professionals from federal and regional government offices, private sector, development partners and international practitioners. This was a first step in exploring and pooling together local and international experiences. It also helped identify the key success factors of Self Supply and adapt it to the Ethiopian context. The starting point of the discussion was to agree on the basic definition of Self Supply, shown in Box 1 below and add clarity to it. The workshop also gave the opportunity for the Ethiopian government to officially confirm that Self Supply will be strongly pursued as one of the approaches to achieving the UAP target for safe water supply.

Box 1. Definition of self supply and its building blocks

Self Supply refers to local level or private initiatives by individuals, households or community groups to improve their own water supplies, without waiting for help from Government and non-government organization (Carter, 2006). Once the basic services are available, individual families make their own decisions on how to improve their services based on affordability and technical capacities at local level. The practice is more common in rural Ethiopia where local conditions including settlement and hydro-geological conditions permit.

Self Supply is more about self initiative and less about donor subsidy or external support. Preliminary assessments so far suggest that users regard self supply initiatives as desirable and communities can make incremental improvements at their own pace with regard to technical capability and financial capacity. The success of Self Supply depends on the development of four supporting building blocks. These are technical options and advice, access to finance (including micro-finance), involvement of private sector and enabling government policies (Sutton, 2007).

The following are the key policy commitments and recommendations that came out of the workshop:

- Self Supply will form an integral part of the UAP implementation strategy for the longer term and should not be regarded as an interim solution
- Steps in the ladder of service improvement need to be linked to water safety and the lowest acceptable step to count as ‘coverage’ should be defined within UAP and MDG targets. This should also be linked with recognition of the role of hygiene and water collection behaviour.
- It is important for sector professionals and local political leaders are aware of the benefits of Self Supply and the valuable role of lower steps to allow affordable achievement of higher service levels
- Donor and government investment should play key role on ‘soft’ components of an enabling environment, such as training, advisory services, introduction and development of new technologies, microfinance and advocacy. This also contributes to lower unit costs except where no low cost option is feasible
- Household water treatment and safe storage (HWTS) need wider promotion to offer security of safe water but should not be obligatory for acceptance of Self Supply.
- HWTS promotion and hygiene education will also be linked to sanitary surveillance to identify risk factors and their remedial actions.

The new approach for Ethiopia

With its UAP, the Government of Ethiopia has set a clear target of achieving universal access to safe water supply by year 2012. In terms of financial resources, the MoWR estimates it requires US\$ 780 to achieve the UAP targets for water supply alone (MoWR, 2008). With less than half total financial requirement expected to be secured both from donors and Ethiopian government, the financial gap is very significant. It is now clear that UAP target can not be met only through the more conventional approaches of community water supply programmes which is both capital intensive and a relatively high-tech approach. In its reformulated UAP document, the government has clearly stated that low cost approaches should be implemented widely where local conditions permit. Accordingly, both the federal and regional governments are now reviewing their plans; and increasingly the emphasis is on Self Supply options. Below are important next steps that need to be undertaken so that Self Supply approach can meaningfully contribute to the achievement of the UAP targets.

Next Steps

Mapping groundwater potential

Groundwater potential varies widely across Ethiopia. Self Supply options such as family wells are best suited for areas where ground water is available at reasonably shallow depth (5-20 meter deep). Communities need closer technical advice and support by providing information on the availability and quality of ground water. Regional governments should identify areas suitable for Self Supply and provide technical advice to communities accordingly.

Water safety benchmarking and base line survey

A practical criteria and means of measurement for Self Supply schemes should be developed in order to benchmark the minimum acceptable standard of service with regard to water quality and quantity. This would not only help determine how Government and other stakeholders support and promote self supply, it would also establish a measurable indicators for quantifying the number of people who have access to a safe water supply and who could be recognized as contributing to the UAP target. It is also very important to undertake a baseline survey of water points, especially family wells, before starting intervention. This helps to plan service improvements and show the progress towards improved service levels.

Sanitary surveillance and household water treatment

Water safety/quality has been one of the major concerns against the wide use Self Supply sources. Sanitary surveillance helps to assess the level of risk to such sources. Water safety risks could be addressed either by improving the physical conditions of the source and/or by treating the water at the point of use. UNICEF is working with MoWR to establish the sanitary surveillance system in the rural water supply sector. Household water treatment and safe storage (HWTS) is one of the most important interventions to making water safe at the point of use. As such, HWTS and self supply complement each other and help ensure that communities get access to safe water affordably.

Manuals and trainings

Important lessons can be drawn from the experience of Oromia region where technical manuals/guidelines on family well construction have been prepared and widely disseminated across the region. This needs to be strengthened by providing training to local development agents, artisans and community members on methods of cost effective construction and management. The ultimate objective is to strengthen community capacity so that they can work on their own with minimum external support. This approach builds confidence in local communities and helps sustain self supply schemes.

Water lifting systems

Most traditional self supply schemes use a simple rope-and-bucket system to draw water from well. These techniques consume a lot of energy and are less convenient, especially for the elderly and pregnant women. Besides, the quality of water could be significantly compromised as it can be exposed to risk of contamination during drawing water. Intervention is needed to introduce and support safe and energy-saving water-lifting techniques. More efficient and effective water lifting technologies are being developed including the more common pulley-windlass and the recently introduced rope pumps. Demand for these systems is picking up and it is important that these systems are improved and expanded widely across the country. Supporting and working with private sector, especially with local workshops and garages, to develop more affordable water lifting equipment. It is also important to complement this by facilitating micro-credit facilities for communities so that rope pumps can be bought on credit.

Knowledge and promotion

Experience has shown that the knowledge and attitude of sector professionals and local political leaders is key to the adoption of Self Supply options. It is, therefore, important to undertake knowledge and promotion workshops for key stakeholders to strengthen their awareness on the benefits of Self Supply and the valuable contribution of lower steps (service levels) to allow affordable achievement of higher ones. The MoWR has already started UAP advocacy work with regional governments. This should be expanded further and the National Taskforce on Self Supply should be strengthened to scale up low cost option across Ethiopia.

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