Briefing note – No. 1

Bottlenecks of operation and maintenance

Learning and Communications in WASH in Amhara

Introduction

Despite many years of development efforts, access to safe water supplies and sanitation services in Ethiopia continues to be negligible. As of 2010, the national rural water supply coverage of Ethiopia was estimated at only 59.1%, and only 59.3% of Amhara region has coverage (WaterAid, 2010). If the current trend of management and utilization of water supply facilities continues, a minimum of 35% of the currently functioning facilities will become non-functional (ADF, 2005). Poor operation and maintenance (O & M) of water facilities is one out of the many factors contributing to the failure of these schemes (Carter et al, 1999).

Though the Ethiopian water policy states that rural tariff settings should be based on the objectives of recovering O & M costs, the actual O & M of schemes is low (MoWR, 2004). In most rural areas of Amhara Region, operation & maintenance are not practiced instead communities often wait for the intervention of government or non-governmental organizations (NGO's). In places where users are paying tariff, either it is not enough or it is used only to cover a portion of the O & M costs. Therefore, most facilities in the region are under threat of losing functionality if the practice of O & M is not improved.

Damaged Hand Pump at Manayita locality, Sekela (photo by Wondimu P.2010)

To improve the documentation of different issues of Water Supply, Sanitation and Hygiene (WASH) in Amhara Region, the School of Civil and Water Resources Engineering at the Institute of Technology (ioT) of Bahir Dar University (BDU), financed by WaterAid, has conducted research on community participation, technology, implementation, operation and maintenance, monitoring and evaluation, sustainability and impact of WASH project in Amhara Region. This research was conducted at 18 schemes located in different *woredas* in the Amhara Region.

This briefing note, extracted from the main research, provides an overview of the research specific to the current situation and the problems of operation and maintenance with key findings and recommendations that could improve the application of O & M in the Amhara Region. The main research document will soon be available at www.wateraidethiopia.org,

Background

Like rural areas in many sub-Sahara African countries, maintaining water facilities that frequently break and managing their operation of water sources in a sustainable manner are still extremely challenging in rural areas of Amhara Region. Most of the time, people are not willing to contribute cash for O & M despite the common belief that user fees cover the O & M costs of rural water supply systems. When they are willing to pay, it is more like a contribution because the fees do not cover the cost of maintenance or allow for replicating the system in case of complete failure. Some water users in the region are likely too poor to pay the real cost of maintenance. However, there are challenges to payment that are not fully known or properly documented.

Cash is not the only requirement for effective operation and maintenance. However, effective O & M also requires the users to efficiently and appropriately manage the water supply technology, but this effective management is lacking in most areas of the region. Administration of finance, the control of water collection point, the requirement to repair parts by users, conflict between users or within committees are several of

the observed and documented challenges that weaken the Africa to manage their water points (Carter, 2009). These challenges could be applicable lessons for water point implementation in the Amhara Region, but it is important to verify these challenges also exist in Amhara, to investigate such issues at the regional level, and to document them for future lessons in the implementation of water points.

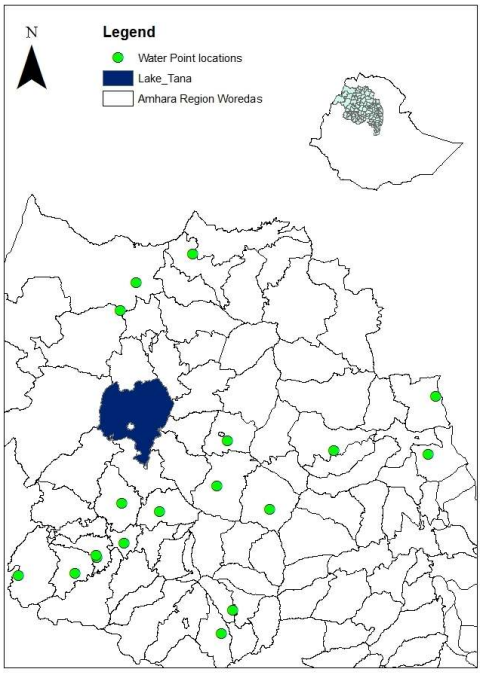
Thus WaterAid Ethiopia granted funds to the School of Civil and Water Resources Engineering at the iOT of BDU to document practices in different areas of the WASH program including operation and maintenance. This would help to understand practices that could be adopted in different areas and to identify the challenges that affect the principles, such as users covering the costs of O & M and managing their scheme.

Documenting the O & M practices would provide an opportunity for dealing with an efficient O & M of water facilities for various implementers of WASH, Government and responsible stakeholders in the region.

Definition of Terms used in the note:

Operation: deals with the actual running of a service such as starting or handling of hand pumps, guarding water collection points, provision of fuel for motorized pumps, by laws or rules governing the system, hygienic handling of the water point, etc.

Maintenance: Maintenance deals with the activities that keep the system in proper working condition, including management, cost recovery, repairs and preventive maintenance.



Location map of water points monitored in this study (Map by: Seifu A., 2011)

Methodology

Structured interviews were conducted with the beneficiaries of the improved water supply scheme, the district WASH committee and woreda Water Resource Development office members at 18 schemes located in different woredas and zones. The schemes are selected after discussing the objectives of the research with the office members of zones and woredas. The beneficiary interview covered topics on operation and maintenance practices, and cost recovery policies. The maintenance policies, management strategies funding plans for the scheme and challenges to fulfil O & M were elicit from the interview responses and follow up with the scheme's implementers. A two day site visit by a team of two people from the School of Civil and Water Resources Engineering were conducted at each sites. A total of 8 professionals were involved covering evaluation of the 18 schemes.

Key Findings

The key findings were compiled after visiting multiple research sites. Although the findings are not the same at each site, they are presented as concepts to be extrapolated to many sites throughout the region.

Cash contribution for operation and maintenance

In about 60% of the sites, it is observed that there is not any cash contribution. In those locations where cash was contributed for operation and maintenance, the contributions were not more than 6 Ethiopian birr (ETB) per month per household (HH). Higher contributions were observed at sites with borehole water points. According to a user in Shinkurt, Farta woreda, *"If there is any damage to the HDW, the care-takers try to maintain it. When it is beyond them, Artesian and Woreda water offices provide assistance. The operation and maintenance cost of the scheme is covered by the monthly contribution of 0.5 ETB per month per beneficiary household*".

Not all water users agree with the amount or reason for contribution. Kule locality from Harbu woreda states that *"6 Birr per month to fetch only 25 litres per day is expensive and an additional jerry can is 30 cents."* However, fees collected from new user members could be saved for addressing the maintenance needs of the water point. An appropriate amount for this new member fee should be adjusted according to these new members' ability to pay because *"those who are not able to afford to pay the 100 birr membership fee are forced to fetch water from unprotected springs and streams. This needs to be adjusted,"* according to Debay Telatigin woreda at Hamusit locality.

Furthermore, different conflicts involving water users lessen their willingness to pay for water use. A woman at Sali Sefre locality of Chilga "*heard a rumour that the previous owner of the parcel of land where the spring was developed is planning to dig a new well at the head of the spring to have his own water supply system and to destroy the existing one."* She wonders why she should pay if this is to happen.

At the few of the sites visited, upfront cash contribution by the users ensured the availability of funds for operation and maintenance in the future.

Safeguarding the water source

Hiring a guard to safeguard the resources of the water scheme is a common practice at the different sites throughout the region. Guards prevent the intrusion of non-user members and check the scheme for damage or other problems. The O & M cash contributions are sometimes used only to pay the guard. Another possibility for payment of the guard would be for every user household to contribute labour to the guard's agricultural activities. In the case of water schemes used for multiple purposes, such as irrigation, the particular users of this extra use would be responsible for guarding the scheme in turn.

Finally, an opportunity some scheme users have taken to decrease the amount of cash contribution per household or to eliminate it completely is for every household to guard the scheme upon rotation.

Trainings on maintenance

Water users' perceptions and evaluations of the maintenance trainings were commonly negative. Often the trainings were provided to only men so that the caretakers of the schemes are exclusively men although women have a great interest and are the dominant users of the schemes. Furthermore, the per diem provided for these trainings have led to corruption. One of the committee members at Melame locality of Simada explains, *"Other committee members exclude me from the trainings. They have replaced me with their friends."* Finally, a woman from Gafat in West Este summarizes the training situation: *"Committees are only interested in the per diem and trainings. They don't care about the water."*

Challenges that influence the operation, maintenance and willing to contribute cash for O & M are identified as follows:

- Spending more cash on operation costs than those costs related to maintenance
- Weak user committees that did not stimulate users to contribute cash and to utilize money in the saving account
- Lack of preventive maintenance action; instead maintenance undertaken only in responses to breakdown
- Shortage of spare parts in the local market
- Provision of maintenance training to mostly men within the community
- Insufficient training provided for community members. Members are less likely to be able to maintain their own system and they may begin to lose interest in the scheme
- Loss of trust in the committee or lack of faith in source reliability
- Unsettled disputes between users and land owners on which the water point is situated

Recommendations

1. **More organized participation of households**
   A true and higher involvement of households starting from the planning of the water point will influence the willingness to pay cash and, operate and maintain the scheme after implementation.
2. **Establishing trustworthy committee**
   Water user committees in most areas are looked as individuals who collect benefits such as per dimes. Establishing committee members trusted by the community would also improve the willingness to pay for operation and maintenance. Existing age old indigenous institutions such as '*Edir* '(a traditional informal farmers' organization mainly created for the purpose of mutual help in case of death of family members) could be used to manage water points instead of externally installed institutions.

Missing faucets and other disrepair make the water point at the Gafate locality (W. Este) inoperable (Photo y: Meserte B., 2010)

3. **Upfront cash contribution**
   Setting initially a requirement of upfront cash contribution as a percentage of capital cost before construction of scheme for operation and maintenance would give opportunity to sustain a water point. Government, Implementers and NGO's should inscribe this in their implementation approach of rural water supply. And this also promotes preventive maintenance.
4. **Paying maintenance than operation**
   As the willingness to pay cash is challenging in rural areas, most cash collected for O & M should be spent more on maintenance than operation. Operation could be paid in the form of kind or it could be implemented through participation of every households.
5. **Improving the training quality**
   Most training provided to communities or committee members are not sufficient to enable them maintains the systems. After the NGOs and implementers hand over the projects, continues follow-up of the trainees is needed from the woreda experts.
6. **Inclusion of women on training**
   Operation and maintenance training is usually given to men in the rural water supply system. Women suffer a lot when there is no clean water as they are the primary care takers of the family and the community at large. There is no doubt that their knowledge and involvement in operation and maintenance largely contributes to the sustainability of water schemes.
7. **Increasing Income of Households**
   Depending on the availability of water, it is important to devise mechanism to use water for multiple uses in order to address the poverty of the communities. The support of government offices, implementers and NGO's on the uses of water beyond its basic need, such as micro-scale irrigation is crucial. Therefore, horticultural development initiatives increase their income and in turn positively affect their willingness to pay more cash and labor.
8. **Improving the technology**
   Parts of the hand pump, which are installed widely in the rural area, are made of plastic and wear easily. Finding locally available materials that could replace these parts or substituting parts by materials that require low maintenance through research is important in addition to increasing the availability of spare parts in the local market.
9. **Promotion and Influencing**
   Advocating for the operation and maintenance and its contribution to the sustainability of water schemes is necessary. Recruitment of volunteers as local promotion agents focusing on operation and maintenance issues will likely increase the community's willingness to contribute in cash, kind and labor.
10. **Dispute Resolution**
    User should be free from any possible conflict due to installed water points. This can be done by understanding all possible issues that could be source of dispute and planning solutions in advance. If it is not avoidable, dispute should be resolved involving the users as soon as it occurs.

Key Words:

Operation, Maintenance, water points, technologies, training, contributions

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