Best Practices for Water Development, Usage and Sustainability

A study of barriers to sustainability of use and maintenance of water and sanitation facilities in Ethiopian primary schools

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BACKGROUND

Despite recent efforts by the government and local and international organizations, access to safe and sufficient water and sanitation across diverse geographical and ethnic areas remains a significant problem in Ethiopia. Unsafe water, inadequate sanitation, and insufficient hygiene are responsible for 80% of diarrhea worldwide (Pruss-Ustun et al., 2008). Black et al (2003) estimated that of the 10 million children dying per year, diarrhea is responsible for 22% of deaths in children under five years, second only to pneumonia. The adoption of the Millennium Development Goals (MDGs) by the member states of the United Nations was an effort to address the glaring inequalities between the world’s richest and poorest countries. MDG 7 addresses the need to ‘ensure environmental sustainability’, which encompasses the target of halving, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation. To have any hope of achieving these goals, key stakeholders and programmers must carefully assess the effectiveness of the water and sanitation projects they implement to ensure that target populations are receiving intended benefits.

Ethiopia, with a population of more than 90 million, is the second most populous African nation and has some of the poorest water and sanitation coverage in Africa and the world. According to the World Health Organization (2008), only 42% of the Ethiopian population had sustainable access to improved drinking water sources as of 2006, and a measly 11% had access to improved sanitation. Schools present a desirable space for water and sanitation interventions that have the potential to impact health, and subsequently attendance and overall performance in education. Such interventions, however, meet many challenges, particularly with regards to sustainability. This report focuses on investigating barriers to sustainability of use and maintenance of water and sanitation facilities and identifying best practices; namely, those revolving around drinking water, hand-washing, and latrines. The main objective of this study was to identify barriers to use and sustainability of school-based water, sanitation, and hygiene (WASH) interventions and to highlight best practices, specifically with regards to those implemented within Save the Children’s Community-School Partnership Program target schools (CSPP), in hopes of identifying ways to improve both current and future interventions.

To fulfill this objective, both primary and secondary data were collected, including fieldwork carried out in Amhara, Gambella, Oromiya, Somali, Southern Nations, Nationalities, and Peoples Region, and Tigray. In-depth questionnaires and observations were conducted at 46 CSPP target schools in order to understand and assess the experiences, challenges, and best practices regarding management and maintenance of school-based drinking, hand-washing, and latrine facilities. Qualitative analysis was based on structured and semi-structured interviews, focus group discussions (FGDs), and extensive observations. School directors (SDs), Parent-Teacher Association (PTA) members, teachers, students and woreda officials were interviewed.

SUMMARY OF KEY FINDINGS

Drinking Water Facilities
The majority of schools visited (87%) had a source of drinking water within the school compound. Of these, 47.5% were pipe extensions from a municipal water supply, 22.5% were hand-dug wells, 20% had roof water harvesting schemes, and 10% had a covered well or borehole. Nearly half of the schools with water (42.5%) reported problems with the
design of their drinking water facilities. Difficulty reaching taps or operating the source was an issue for 12.5%, as well as poor drainage and inconvenient location. A variety of other issues were reported, which can be read in the full-length report. When asked who is responsible for the management of the daily provision of drinking water, more than half of interviewees said that teachers are primarily in charge. School directors and school guards were also mentioned as having a large role to play in provision of water. When it comes to maintenance of the water system at the school (Table 4), the PTA was mentioned more frequently (40%). The government (25%) and the community (7.5%) seem to have a much greater role to play in maintenance than in management.

Hand-washing facilities
The majority of the schools visited (91%) had some form of hand-washing facility, whether it was a tap connected to a piped water supply or a jerry can. Dedicated hand-washing stations (an apparatus designated for hand-washing only) were observed at 85.4% of all schools visited. Responsibility for making sure that students wash their hands after visiting the latrine and before eating most commonly lies with teachers (77.2%) and the students themselves (31.8%). A quarter of schools also reported having a school health and/or sanitation club which has responsibilities for ensuring that students wash their hands. Most schools had only water present for hand-washing. Less than one third had ash present, with even fewer providing soap. The most common form of hand-washing apparatus was a jerry can with a tap (46.2%). A variety of other containers with a tap attached, both plastic and metal, were also observed. Only 38.5% of schools reported a problem with the design of the hand-washing facilities. The reported problems were difficulty for small children reaching and remembering to close the tap, clogged drains, inconvenient location, easily-broken taps, and dripping. As far as functionality, 36.8% of schools needed one or more of their hand-washing stations repaired.

Latrines
Overall, interviewees expressed that there have been notable improvements in use of latrines, but they are gradual. Before having latrines built, open defecation far away from the school was normal. Now, this happens occasionally but students are gradually gaining awareness as a result of weekly hygiene lessons during flag ceremonies and following the examples of teachers who use the latrines.

Most school staff (87%) claimed that students find the latrines easy to use. The problem, according to most, is lack of awareness and inconsistency due to not having latrines at home rather than a problem with the design of latrines. However, 63% did report problems with the design of latrines at their school. The most commonly reported problems were lack of doors/privacy (34.5%), poor quality of construction (31%), not enough distance between male and female latrines (27.6%), pits too small for big children (13.8%), too dark (13.8%), bad smell (13.8%), pits too large for small students (10.3%), and difficulty cleaning (10.3%). Other problems included lack of footrests, and awkwardness using latrines due to the pit being positioned too close to the corner.

In the majority of schools visited (93%), WASH material is included as a part of regular science classes. Dated lesson plans for weekly 40 minutes sessions about health and hygiene were observed to confirm these reports. According to students, flag ceremonies are frequently used as a platform for promotion of hygiene behavior as well. FGDs indicated a
strong awareness among students in all regions about the benefits of hand-washing and latrine use in particular. Most schools (73.9%) did not have any visual promotion of WASH behavior. Of the 26% that did, it was the form of a poster demonstrating hand-washing behavior or awareness about trachoma.

The findings show a variation in responsibilities for different aspects of management and maintenance of water and sanitation facilities. Having a specific group of people charged with all matters related to water and sanitation is advisable, such as a 'water sub-committee' of the PTA. Responsibilities should be clearly outlined to increase accountability for ensuring the timely maintenance and monitoring of facilities. This study provides a cross-sectional look at the current condition of drinking water, hand-washing, and latrine facilities as well as challenges to sustainability. In order to get a better idea of trends over the long-term, school administration should be responsible for keeping a record of water and sanitation activities. For example, a dated record of problems encountered, repairs needed, and actions taken to solve the problem. In this way, common problems and the frequency with which they occur can be identified on a larger scale, and appropriate solutions devised.

A common theme that emerged was a paucity of training, skills, or knowledge in the school and community to make basic repairs to facilities. Dependence on the Woreda Water offices, which are themselves often under-resourced, does not seem to yield timely solutions to non-functional facilities in most cases. This indicates a need for strengthening capacity at both the school and the Woreda level. Basic trainings on operation and repair should be provided to multiple school staff upon completion of water development. Similarly, development of water sources should occur after it is determined whether or not the local Woreda Water office is familiar with and equipped to maintain that particular type of facility. Although this is not always possible, it is likely to enhance the sustainability of facilities and thus an effort should be made. Operation and maintenance plans should be made from the outset of water development.

Organization and accountability on the part of school administration seems to play an important role in how well facilities are maintained. In many schools the high volume of students makes close supervision of facilities use a challenge. Break time is when greatest use of WASH facilities occurs, but break time is also a chance for teachers to rest. It was found that the awareness level of children has no correlation with satisfactory use of latrines and hand-washing practices. Some teachers explained that although the students are taught about the importance of using latrines and washing their hands in school, many of them are not able to practice the behaviors at home. This disconnect indicates a role for organizations such as Save the Children and Health Extension Network workers in raising community awareness, though it also highlights the need to identify barriers families face to putting awareness into practice. Despite receiving advice on both water and hygiene practices, many people expressed an inability to act on it due to both financial and cultural constraints. These impediments to reconciling current best practices with current patterns of use of drinking water, hand-washing, and latrine facilities, and the ways in which they can be effectively addressed, deserve further study. Specific recommendations of best practices based on observations of successful approaches are provided below.
Opportunities for improvement of existing strategies:

- Records kept regarding school activities should be expanded to include WASH
- Income-generation at the school-level should be encouraged to contribute towards WASH
- The full potential of all school staff, including guards, should be utilized to increase supervision of WASH facility use
- Promotion of WASH in school and the community should continue
- In-depth studies to explore the disconnect between knowledge and practice should be commissioned

Best practices for sustainability of WASH facilities:

- Water source development should occur under the guidance of a qualified professional
- Seasonal timing of construction/development should be taken into consideration
- Access to taps should be limited to staff or designated student club leaders who facilitate drinking
- Containers for daily storage of safe drinking water should be used if possible to minimize wear
- Measures to protect facilities from theft and damage should be taken
- Creative solutions for long-lasting hand-washing stations should be encouraged and shared
- Contributions from community and parents may be leveraged to provide soap for hand-washing
- If latrines are built without doors, temporary solutions to provide more privacy should be encouraged
- Water should be kept inside or near latrines for continual cleaning if available

REFERENCES

Abrams, L.J. (1999). Poverty and water supply and sanitation services. Regional Workshop on Financing Community Water Supply and Sanitation


**BUDGET**

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<tr>
<th>Item</th>
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<td>Airplane tickets to and from Ethiopia</td>
<td>Travel to Ethiopia to conduct field research</td>
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<td>Multiple-entry work visa</td>
<td>Required to conduct research in Ethiopia</td>
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<td><strong>TOTAL</strong></td>
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