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Millennium Water Alliance-Ethiopia Program Ex-Post Evaluation

PURPOSE AND OVERVIEW

Installation of a water point can be transformative for a community, but only as long as it continues to function. A quarter of all water points in Ethiopia, according to a national water, sanitation, and hygiene (WASH) inventory, no longer work, a particularly troubling trend in a country with high rates of diarrheal disease and frequent drought cycles. Failed infrastructure is a waste of money and promise. In recent years, the global WASH community has increased its focus on improving sustainability to guarantee more long-lasting solutions.

To understand what outcomes are sustained over time, USAID is supporting a series of independent ex-post evaluations of USAID-funded WASH activities, which will inform future USAID programming. This brief summarizes the third evaluation in the series, which examines the long-term outcomes of the Millennium Water Alliance-Ethiopia Program (MWA-EP). A consortium led by the Millennium Water Alliance (MWA) implemented, via a cooperative agreement valued at \$7 million, MWA-EP in 24 rural *woredas* (districts) in Ethiopia between 2004 and 2009. MWA-EP built and rehabilitated water points (WPs) and trained community-level WASH committees (WASHCOs) to manage each of the

WPs. The activity also conducted hygiene and sanitation education, primarily using a participatory hygiene and sanitation transformation approach, and it supported the construction of household and public latrines.

The results of the evaluation indicate that long-term sustainability was not achieved at many of the water points, and the inability to cover the costs of the water points' life cycle is a central factor. People interviewed as part of this evaluation demonstrated a basic understanding of sanitation and hygiene behaviors, but actual practices fell short of recommended standards.

SCOPE

The evaluation answered six key questions:

1. Water access: What is the level of service at water schemes completed by MWA-EP more than seven years after the activity ended?
2. Water use: To what extent are community members still using the water?
3. Water point management: How have water schemes been maintained since MWA-EP?
4. Household latrine, handwashing facility use: To what extent are household-level and shared community

latrines and handwashing facilities still functional, adequately maintained, and used?

- Public latrine management: What systems and financial mechanisms have communities used over time to maintain public sanitation facilities?
- For each type of water and sanitation intervention, which factors contributed to or impaired long-term sustainability?

DESIGN

The evaluation used a mixed-methods design that included: 64 qualitative individual and group interviews; structured observations of 13 WPs and 15 latrines; water quality tests of 10 WPs; and a review of secondary data. This review included an inventory of water point data in South Gondar Zone, Amhara, and latrine and water point data from woreda health and water offices. Fieldwork occurred over a four-week period in October and November 2017, in seven of the activity's 24 woredas. The seven were purposively selected in Amhara Region and Southern Nations, Nationalities, and People's Region (SNNPR). Prior to fieldwork, the evaluation team conducted a desk review of both MWA-EP activity documentation and relevant WASH literature.

KEY FINDINGS

The evaluation team examined water points' basic functionality; quantity of water and use; and water quality, accessibility, and reliability.¹

Water point functionality: Most WPs visited had significant problems with basic functionality. Concerns about functionality arose during interviews and from direct observations; secondary data confirmed these concerns. The evaluation team observed only five fully functional WPs of the 13 visited, and three did not function at all. A water point inventory



Many of the household latrines observed during this evaluation had not progressed up the sanitation ladder. Photo credit: Kari Nelson/ Water CKM Project

dataset representing 4,352 WPs in the Amhara region showed that only 44 percent of MWA-EP-established WPs functioned as of 2016 (see Figure 1).² WPs constructed during the same period by other implementers/organizations functioned at a rate of 53 percent, suggesting that the MWA-EP water points may be underperforming compared to other rural water infrastructure in the area.

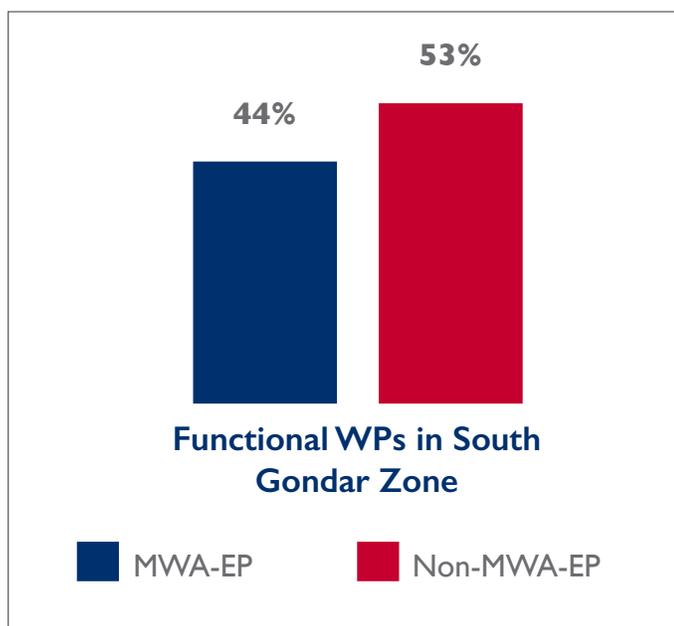


Figure 1: Comparison of MWA-EP and Non-MWA-EP water points in South Gondar Zone, Amhara

Water quantity and quality: WPs appeared to be well-used, and most produced sufficient quantities of water. However, most people continue to rely on multiple water sources. Community members used MWA-EP water points daily, when functional, particularly for drinking water. At six of nine visited WPs, flow rates were theoretically sufficient to provide water for domestic uses. In addition, most WPs failed to meet water quality standards. Despite people's beliefs that the MWA-EP water points provide clean drinking water, the majority of WPs (seven out of 10) tested positive for *Escherichia coli* (*E. coli*), and testing appeared to occur infrequently.

Water accessibility and reliability: Wait times at many WPs threatened accessibility. Respondents often reported wait times of more than 30 minutes, and WP observations confirmed crowding (averaging 10 containers/WP) and fill times (averaging 2.5 minutes/container) that put wait times at or around the 30-minute standard, a key criteria of the drinking water service ladder. With added travel time, water collection is not possible within a 30-minute standard in most activity areas. Reliability concerns appeared to be more mechanical than seasonal or environmental in nature, although seasonal fluctuations in water

availability did occur in a few of the sites. While WASHCOs made many small repairs to the WPs, typically taking a couple of weeks to complete, at the time of visit many more major repairs had not been completed due to a lack of funding.

Household sanitation: Households are not upgrading to better latrines, even as they replace them, and overall use is inconsistent. Coverage rates appear to have been sustained, but many of the original latrines still in use, and those built to replace them, are not maintained, resulting in a lack of privacy and potential safety concerns, both factors that discourage use. Despite education on the importance of latrines, usage lags behind latrine construction and appears to be less widespread than people report, according to both observation data and interviews with Health Extension Workers (HEWs).

Public latrines: None of the MWA-EP–supported public latrines are functional today. People dismantled them for firewood, indicating that the community’s short-term demand for firewood outstripped perceived benefits of public latrines.

Handwashing: Though most latrine owners reported washing their hands regularly, observation data and interviews with HEWs suggest this is an overstatement. None of the observations revealed handwashing stations or other signs of handwashing, and the HEWs noted significant challenges convincing people to wash their hands regularly.

DISCUSSION FACTORS AFFECTING SUSTAINABILITY

The managerial, financial, institutional, environmental, land tenure, and socio-behavioral factors that influence long-term sustainability are described below.

Managerial factors: To support the sustainability of WPs, MWA-EP worked to build community buy-in and establish community management structures (WASHCOs) consistent with the Government of Ethiopia’s approach to rural water supply. Despite these efforts and trainings, WASHCOs struggled to effectively manage their WPs. Maintenance and repairs posed significant challenges. In particular, WASHCOs have struggled to generate sufficient funds to cover maintenance and repair costs. This finding is in line with prior studies that have found that community management of infrastructure is difficult to sustain in the long term.³ Secondary data from an Amhara WP inventory suggest that fewer MWA-EP-supported WASHCOs were fully functioning, despite more of them having received management training.

For the public latrines, no information is known about the intended management or financial structures meant to maintain the latrines. Based on the finding that none of the public latrines remain, the management systems put in place were not successful.

Financial factors: The inability of most WASHCOs to collect sufficient funds to cover WPs’ life cycle costs proved to

be detrimental to their sustainability. Only seven of 13 had ever collected fees. While fee recovery rates were generally high, the fees themselves were low and thus most WASHCOs could not cover all of their costs. None of the visited WASHCOs had a detailed budget, and according to the WP inventory, fewer MWA-EP-supported WASHCOs had a maintenance budget than other WASHCOs.

| Key | | Fee Collection | | |
|------------------|-----------------------|-----------------|-----------------------|-----------------------------|
| | | Never collected | Collected but stopped | Collected while functioning |
| WP Functionality | Water point | | | |
| | Non-functional | ☹☹☹ | | |
| | Partially Functioning | | ☹☹ | ☹☹☹ |
| | Functional | ☹ | | ☹☹☹ |

Figure 2: Comparison of water fee collection and WP functionality.

Water points where the WASHCO was able to collect at least some fees typically had a more functional WP (see Figure 2). Key challenges to fee collection include resistance to payment by users and inability of users to pay. Notable differences in fee collection existed between regions. WASHCOs in SNNPR had more success collecting fees than those in Amhara. The likely reasons for the variations across regions include: poor management by the WASHCOs, no prior custom of paying for water, and availability of alternative surface and groundwater sources in the area.

The limited progress on construction or improvement of latrines at the household level is connected to both lack of finances and low prioritization of sanitation compared to other financial demands. Findings suggest that financial constraints also impact handwashing practices, particularly in water-scarce areas. Interviews suggest that when water is scarce—due to absolute or economic scarcity—people prioritize other water uses over handwashing.

Institutional factors: MWA-EP did not pay sufficient time or attention to establishing institutional support for WASHCOs by the government (at all levels), which significantly affected performance. For example, WASHCOs reported a lack of support from the water offices for post-project training and water quality testing. A significant issue is lack of clarity surrounding the roles and responsibilities of government actors in support of the WPs. For example, interviews uncovered widely varying reports regarding who is responsible for key supporting activities such as WP repairs and water quality testing, even among individuals within the same entity. This confusion around roles and responsibilities, coupled with lack of support, exacerbated management and financial challenges at the WASHCO level, hindering long-term sustainability.

In contrast to rural water supply provision, institutional roles and responsibilities for hygiene and sanitation at various government levels were well established, with all respondents agreeing that

hygiene and sanitation promotion fell within the purview of the health offices and the HEWs. Though their role is clear, the health offices and HEWs face challenges affecting the delivery of training and other support services, including: insufficient staff to cover their zones, difficulty in accessing remote communities, and competing outreach priorities. For example, among the many health promotion topics in their purview, the government prioritizes other health topics over the promotion of sanitation, hand hygiene, and water safety.

Environmental factors: Although environmental factors remain beyond the direct control of the activity (or the government), they can be planned for and anticipated in activity design. Respondents mentioned two environmental factors that may be relevant to the long-term success of the WPs: climatic concerns (e.g., rainfall) and hydrogeological water potential (e.g., aquifer depth and recharge rates). The evaluation results suggest that the implementing partners effectively addressed the water potential concerns by testing water availability and altering WP designs in response to the findings. This is likely reflected in the lack of significant seasonal reliability issues or drying up of wells.

Environmental factors may also play a role in fee collection and in hygiene and sanitation. Fee collection may be more difficult in areas where water is plentiful and free. In water scarce activity areas, people prioritize other uses for water over hygiene and sanitation.

Land tenure factors: Land tenure concerns did not receive significant attention during implementation but posed a challenge to post-implementation sustainability. Land tenure issues arose for MWA-EP in three areas: 1) community conflicts regarding selection and compensation of landowners where community WPs were built; 2) lack of incentives for both tenants and landlords of rental properties to invest in water and sanitation infrastructure; and 3) rights of landowners to access water resources on their property.

Social/Behavioral factors: The 2008 final evaluation of MWA-EP found that the approaches to behavior change varied significantly among activity implementing partners and that the approaches were poorly defined and coordinated. Respondents appeared to understand that they should be using latrines and washing their hands. However, that knowledge did not always translate into action or behavior change.

KEY IMPLICATIONS AND RECOMMENDATIONS

1. Position government entities (at all levels) to play a stronger role in sustained maintenance and oversight.
2. Examine alternative approaches to management of rural water services to improve upon the community management model.
3. Account for life cycle costs when planning for water infrastructure and tariff setting.
4. Assess the suite of water needs and sources when designing new water access projects.

5. Seek stronger, more consistent alternatives to simple education-based behavior change approaches in areas with poor sanitation and hygiene norms.
6. Improve people's understanding and appreciation of water quality.
7. Address land tenure issues during activity design and throughout implementation.



Evaluators found *E. coli* contamination at the majority of water points they tested. Photo credit: Kari Nelson/Water CKM Project

ENDNOTES

¹ Definitions: Basic water point functionality assessed if a WP produced water at the time of visit. Water quantity refers to the USAID standard of 20L/person/day of water. Water quality refers the water supply being free of contamination (e.g., *E. coli*) and chemicals, (e.g., fluoride and arsenic). WP accessibility refers to USAID's definition that water collection should take no more than 30 minutes round trip. WP reliability refers to USAID's common indicator, which requires year-round water point access without regular supply rationing or seasonal failure.

² The WP inventory data represent four of the activity's 22 woredas.

³ Peterson, A. and M. Kremer. 2007. "What Works in Fighting Diarrheal Diseases in Developing Countries? A Critical Review." *The World Bank Research Observer* 22(1), 1-24. <http://www.jstor.org/stable/40282334> and Lockwood, H. and J. Butterworth. 2016. Global Study on Sustainable Rural Water Service Delivery Models: Country Brief Ethiopia. World Bank Report.

The Water Communications and Knowledge Management Project is conducting a series of independent ex-post evaluations of closed USAID-funded water activities to further USAID's understanding of why the outcomes of its completed WASH activities have or have not been sustained. This Evaluation Brief summarizes results from the third full evaluation in the series. For more information and for the complete report visit Globalwaters.org or contact Holly Dentz, M&E Lead: HDentz@waterckm.com.

Cover Image* On the day of the evaluation team visit to this MWA-EP water point in SNNPR, 95 people waited in line to collect water because the taps only function a few hours every day. (Photo credit: Annette Fay/Water CKM Project)