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FINAL EVALUATION REPORT

ETHIOPIA MILLENNIUM WATER ALLIANCE PROGRAM EVALUATION

WASH Ex-Post Evaluation Series—Water Communications and Knowledge
Management (CKM) Project

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ACRONYMS

CKM	Communications and Knowledge Management
<i>E. coli</i>	Escherichia coli
ET	Evaluation Team
GOE	Government of Ethiopia
HEW	Health Extension Worker
IP	Implementing Partner
MWA-EP	Millennium Water Alliance-Ethiopia Program
PHAST	Participatory Hygiene and Sanitation Transformation
SI	Social Impact
SNNPR	Southern Nations, Nationalities, and People's Region
WASH	Water, Sanitation, and Hygiene
WASHCO	Community Water Management Approach
WP	Water Point

EXECUTIVE SUMMARY

PURPOSE AND OVERVIEW

Despite of decades of efforts to improve water, sanitation, and hygiene (WASH) in Ethiopia, its key WASH indicators remain some of the lowest in the world. As of 2015, only 30 percent of the rural Ethiopian population had access to water that meets its basic needs; 4 percent used improved, non-shared sanitation; and 99 percent lacked any handwashing facility.¹ With well over 14,000 children under 5 dying from diarrheal disease annually in Ethiopia,² it is imperative that WASH development activities are effective, efficient, and have long-lasting impacts. As in other sub-Saharan African countries, sustainability has been a challenge in Ethiopia. For example, a 2010/2011 national WASH inventory rated 25 percent of water points as non-functional.³ This reflects growing, though limited, evidence across the sector of high rates of water point failure, sometimes just a few years after construction.⁴ The consequences are wasted money and time, disappointed communities, and dangerous health conditions.

USAID is committed to identifying sustainable approaches to WASH to avoid such pitfalls and ensure the long-term impact of its global WASH activities. By understanding the extent to which past project outcomes have been sustained and the factors that drove these outcomes, USAID hopes to learn lessons that can inform the design and implementation of future projects. This report presents findings from the third in a series of six ex-post evaluations designed to learn from completed USAID-funded WASH activities. The subject of this evaluation—the Millennium Water Alliance-Ethiopia Program (MWA-EP)—provides an opportunity to learn about the long-term outcomes related to rural water point construction and rehabilitation, community management of those water points, as well as participatory sanitation and hygiene education and construction activities.

The Millennium Water Alliance (MWA) implemented MWA-EP in 24 rural *woredas* (districts) in Ethiopia between March 2004 and December 2009 with a budget of \$4,677,670 from USAID and a \$2,382,972 cost-share from MWA. A consortium comprised of eight MWA implementing partners (IPs) carried out the activity. The MWA consortium built and rehabilitated water points (WPs) and trained community-level water, sanitation, and hygiene committees (WASHCOs) to manage each of the WPs. The consortium also conducted hygiene and sanitation education, primarily using a participatory hygiene and sanitation transformation (PHAST) approach, and it supported the construction of household (both improved and unimproved) and public latrines.

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 activity?
2. **Water use:** To what extent are community members using the water?
3. **Water point management:** How have water schemes been maintained since MWA-EP?

¹ WHO/UNICEF. 2017. Progress on Drinking Water, Sanitation and Hygiene: 2017 Update and SDG Baselines. Basic water access is defined as drinking water from an improved source, provided collection time is not more than 30 minutes for a round trip, including queuing.

² WHO. 2016. Global Health Observatory. <http://apps.who.int/gho/data/view.main.ghe1002015-ETH?lang=en>

³ Ministry of Water and Energy, Government of Ethiopia. April 2013. *Monitoring Water Supplies and Sanitation in Ethiopia*. Presentation by Tamene Hailu Debela. <https://www.slideshare.net/ircuser/2-hailu-nwi-kpi-msf2>

⁴ Improve International. 2012. Statistics on Water Point Failures webpage: <http://www.improveinternational.org/2012/10/25/sad-stats/>

4. **Household latrine, handwashing facility use:** To what extent are household-level and shared community latrines and handwashing facilities supported by the activity still functional, adequately maintained, and used?
5. **Public latrine management:** What systems and financial mechanisms have communities used over time to maintain MWA-EP-supported public sanitation facilities and sustain outcomes?
6. **Why?** 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. The evaluation team (ET) conducted data collection 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). The ET also conducted IP interviews and meetings with USAID in Addis Ababa. Prior to fieldwork, the ET conducted a desk review of both MWA-EP activity documentation and relevant WASH literature.

KEY FINDINGS

WATER POINTS: CURRENT STATUS AND USE

The ET examined several aspects of the water points, including: basic functionality; quantity of water and use; and water quality, accessibility, and reliability.⁵

Most WPs visited had significant problems with basic functionality. Concerns about functionality arose during interviews and from direct observations. Only five of the 13 visited WPs were fully functional during ET observation. Three were not functioning at all. A secondary dataset representing 4,352 water points in the Amhara region showed that only 44 percent of MWA-EP-established water points functioned as of 2016. WPs constructed during the same period by other implementers/organizations functioned at a rate of 53 percent, implying that the MWA-EP water points may be underperforming compared to other rural water infrastructure in the same area.

WPs appeared to be well used, and most produced sufficient quantities of water, yet most people relied on multiple sources. Community members used MWA-EP water points daily, when functional, particularly for drinking water. Measured flow rates at six of nine visited WPs could theoretically provide sufficient water for domestic uses for their intended communities. In spite of this, many households relied on other water sources in addition to the MWA-EP water points to meet all their needs. Little is known, however, about why people used multiple sources or how MWA-EP planned for multiple uses of water.

Most WPs failed to meet water quality standards. Despite people's beliefs that the MWA-EP water points served as a clean drinking water source, most were not tested regularly, and the majority (seven out of 10) were contaminated by *Escherichia coli* (*E. coli*) and no longer provided safe water.

⁵ 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). Water point accessibility refers to USAID's definition, that water collection should take no more than 30-minutes round-trip. Water point reliability refers to USAID's common indicator HL.8.1-3, which requires year-round water point access without regular supply rationing or seasonal failure. Water point use refers to who is/is not using the WP and to what extent

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. With added travel time, water collection is not possible within a 30-minute standard in most activity areas visited.

Reliability was a concern, but primarily for mechanical rather than seasonality reasons. While WASHCOs made many small repairs to the WPs, typically taking only a couple of weeks to complete, at the time of visit, many major repairs that affected functionality had not been completed due to a lack of funding. Seasonal fluctuations in water availability occurred in only a few of the sites visited.

SANITATION AND HANDWASHING: CURRENT STATUS AND USE

Most households have replaced latrines as needed, but usage appears inconsistent, and users have not progressed up the sanitation ladder. Based on interviews and direct observations, most people who gained access to sanitation under MWA-EP have continued to replace their latrines when they fill. However, many of the original latrines still in use and their replacements were not well maintained, resulting in a lack of privacy and potential safety concerns, both factors that discourage use. As most of the observed latrines featured an “unimproved” design, it appears that, despite replacement, users have not progressed up the sanitation ladder and upgraded to better latrines.

Though latrine owners widely reported using their latrines, Health Extension Workers (HEWs) indicated that latrine usage is likely not as high as people indicate, and the observation data support this. Despite education on the importance of latrines, usage lags behind latrine construction. Though signs indicate that latrine coverage rates have been sustained, more work is still needed to change norms around usage.

No public latrines remain functional. 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.

People likely overstate the extent of 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

Myriad factors were found to influence long-term sustainability of outcomes described above, including managerial, financial, institutional, environmental, land tenure, and socio-behavioral factors.

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 (GOE) 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.⁶ Secondary data from an Amhara WP inventory suggest that MWA-EP-supported WASHCOs underperform compared to their peers, despite more of

⁶ 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.

them having received management training. Although information on the MWA-EP training efforts is not available, evaluation findings suggest that MWA-EP training was insufficient to ensure sustainability.

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 functionality and sustainability. Notable differences in fee collection existed at the regional and woreda levels. WASHCOs Amhara were significantly less successful in fee collection than those in SNNPR. The likely reasons for these difficulties, and for the variations across regions include: poor management by the WASHCOs, resistance to payment by users, inability of users to pay, 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 from government offices at all levels, which significantly affected performance. For example, WASHCOs reported a lack of post-project training and limited 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 noted two key environmental factors relevant to the long-term success of the WPs: climatic concerns and hydrogeological water potential. The evaluation results suggest that the IPs effectively addressed these 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 the 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 IPs and that the approaches were poorly defined and coordinated. To improve sanitation and hygiene behavior change outcomes, respondents suggested increasing follow-up and support after the end of the intervention as well as persistent messaging to increase uptake, a suggestion that has some support in the literature.⁷ To be sustainable, this role would have to be taken up by community or government actors.

KEY IMPLICATIONS AND RECOMMENDATIONS

1. **Position government entities to play a stronger role in sustained maintenance and oversight.** To ensure stronger institutional support, USAID should assist the government to clarify the roles and responsibilities for government support of the WPs/WASHCOs and to ease financial and logistical constraints faced by government offices in providing support.
2. **Examine alternative rural water approaches to improve upon the community management model.** Both the literature and this evaluation found significant barriers to the sustainability of community-managed rural WASH infrastructure, which suggests this approach may not be the most effective. Before implementing additional community-managed rural water infrastructure activities, USAID should examine potential models, their effectiveness, and sustainability.
3. **Account for life cycle costs when planning for water infrastructure and tariff setting.** All entities involved in operations, maintenance, and repair need to have sufficient resources to fulfill those roles. In addition to positioning government entities to fulfill their role in supporting life cycle costs (Recommendation #1), WASHCOs should be trained to budget and set tariffs based on the full costs of WP maintenance, repair, and replacement.
4. **Assess the suite of water needs and sources when designing new water access projects.** Understanding and planning for the full suite of community water needs will help ensure new activities can be designed to provide water for priority uses.
5. **Seek stronger, more consistent alternatives to simple education-based behavior change approaches in areas with poor sanitation and hygiene norms.** The lack of latrine use and handwashing indicates the varied, PHAST-based approach of MWA-EP was not sufficient to achieve true behavior change. Other approaches may be more successful and should be assessed.
6. **Improve people's understanding and appreciation of water quality.** In future activities, USAID and IPs should ensure that community education activities address the importance of water quality—both visible and invisible—and potential sources of contamination. They should also equip communities with strategies to measure and mitigate contamination at both the source and point of use.
7. **Address land tenure issues during activity design and throughout implementation.** Taking an intentional approach to land tenure, such as having a well-defined action plan for site placement, compensation and mediating potential conflicts, should become standard practice

⁷ Wantland, D., B. Bewick, and T. Palermo. 2009. (Ed). Ritterband, L. "Periodic Prompts and Reminders in Health Promotion and Health Behavior Interventions: Systematic Review." *Journal of Medical Internet Research*, 11(2). and Ory, M., M. Smith, N. Mier, and M. Wernicke. 2010. "The Science of Sustaining Health Behavior Change: The Health Maintenance Consortium." *American Journal of Health Behavior*, 34(6), 647-659.