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Millennium Water and Sanitation Program (PEPAM/USAID) Ex-Post Evaluation

PURPOSE AND OVERVIEW

Long-term sustainability of rural water, sanitation, and hygiene (WASH) projects is an ongoing concern for all stakeholders. WASH practitioners continue to debate what approaches lead to improved practices, quality service delivery, and lasting infrastructure. To improve sanitation, the once-common practice of providing subsidies to poor communities enabled them to access higher quality infrastructure, but these improvements did not necessarily lead to use or long-term changes in sanitation practices. Community-led total sanitation (CLTS), which traditionally does not rely on subsidies, is often credited with improving sanitation practices, but questions surround its long-term sustainability and whether CLTS actually moves households up the sanitation ladder. With no one approach clearly delivering the desired long-term outcomes, WASH stakeholders are now exploring the value of combining the two approaches to better meet the needs of rural households.^{1,2}

To examine these issues and others, USAID is supporting a series of independent ex-post evaluations of USAID's WASH activities to inform future programming. This brief summarizes the fifth evaluation in the series, which examines the Millennium Water and Sanitation Program (PEPAM/USAID) activity in Senegal four years after it ended.

Under PEPAM/USAID, Research Triangle Institute led a consortium of partners tasked with improving sustainable access to WASH in four regions of Senegal using three different approaches at the village level: CLTS with a water incentive (CLTS-WI), subsidy for water and sanitation services, and a hybrid of CLTS-subsidy. Within these approaches, PEPAM/USAID trained and supported local water entrepreneurs to facilitate the construction, rehabilitation, and maintenance of water points (WPs), as well as local sanitation masons to construct PEPAM/USAID-promoted latrines. The activity promoted handwashing at critical times and tippy tap construction. A wide array of behavior change interventions accompanied these activities using both the Participatory Hygiene and Sanitation Transformation (PHAST) and Self-esteem, Associative Strengths, Resourcefulness, Action planning and Responsibility (SARAR) approaches.

The results of the evaluation demonstrate limited long-term sustainability of water points and their management, with functionality rates on par with similar settings and studies. For sanitation, the evaluation team (ET) observed a potential trade-off between latrine quality and use when the CLTS-WI and subsidy approaches are compared. In aggregate, the data suggest that the hybrid (CLTS with a subsidy) approach strikes a balance and may be able to deliver lasting basic sanitation services to households (HH) and better establish norms.³

SCOPE

The evaluation answered seven overarching questions:

1. What is the level of service of PEPAM/USAID water points (WP)?
2. Which factors influenced sustainability of water services?
3. Are women actively engaged in WP management and governance structures?
4. Are HH using and replacing their latrines?
5. What factors, including choice of approach, contributed to sustainability?
6. What is the status of handwashing stations and practices today?
7. Which factors influenced sustainability of handwashing behaviors?

DESIGN

The ET conducted its research in November and December 2018, in the Kolda, Sédhiou, Ziguinchor, and Tambacounda regions using a mixed-methods design that included: structured observations of 169 WPs; water quality testing of 105 functional WPs; 514 water user surveys; 617 household sanitation/hygiene surveys with observations; and 56 qualitative interviews.

KEY FINDINGS

WATER POINTS

The ET examined key aspects of WP infrastructure, including basic functionality, quantity of water, water quality, accessibility, and reliability, as well as WP use, governance/management, and finances.

Water point functionality. While a majority (63 percent) of the water points remained functional, the performance varied significantly depending upon technology used. The Erobon rope pumps performed poorly (27 percent functional), while the India Mark II (74 percent functional) and mechanized pumps (70 percent functional) performed the best. These findings are in line with the broader literature, which shows similar functionality rates.⁴

Water point quantity and quality. A majority (84 percent) of water users reported being satisfied or very satisfied with the quantity of water produced at their primary water source. The India Mark II pumps performed best in terms of flow and stroke rates (Figure 1). Respondents generally believed the PEPAM/USAID WPs provided safe water; water quality testing supported these sentiments. Only 7 percent of WPs tested positive for E. coli, and fluoride (five of 105 were above the national standard), and iron testing revealed similarly low levels of contamination (one of 105 were above the national standard).

Water point accessibility and reliability. Most users (83 percent) spent less than 30 minutes round trip to get water but had to make multiple trips that totaled 53 minutes per day on average to meet their households' water needs. Most respondents (82 percent) reported their WP functioned year-round.

Water point use. Sixty-two percent of respondents reported using multiple WPs to meet their water needs, and most secondary water sources used were unprotected. In communities with functioning PEPAM/USAID WPs, respondents reported these WPs typically served as their primary source for water, and they used them most frequently for drinking and cooking purposes.

Factors affecting sustainability. Most WPs had an active water management committee in place, but few appeared to be following management best practices, such as holding monthly meetings. Only 33 percent of respondents said they paid water fees, and these fees were typically insufficient to cover the necessary operation and maintenance costs. The ET found a statistically significant and positive correlation between fee collection and functionality. PEPAM/USAID-trained local entrepreneurs could still be found and hired if a person or water committee had the means to pay for their services. However, none of the local entrepreneurs sustained active contracts with water committees.

HOUSEHOLD SANITATION

Status and use of latrines. Households in PEPAM/USAID villages surveyed reported high rates of sanitation access (92 percent) across all approaches and that sharing latrines was a common practice. While HHs in CLTS-WI villages reported the highest access to any latrines, subsidy and hybrid communities typically built latrines of higher quality. Among all approaches, only 47 percent of respondents qualified as having basic sanitation access,⁶ with those in hybrid villages performing best (56 percent).

The ET found fairly high levels of latrine use—both self-reported (89 percent) and observed (86 percent). Ninety-four percent of latrines in CLTS-WI villages and 89 percent of subsidy village latrines appeared to be in use (Figure 2); the hybrid approach performed relatively poorly in comparison (with 77 percent in use).

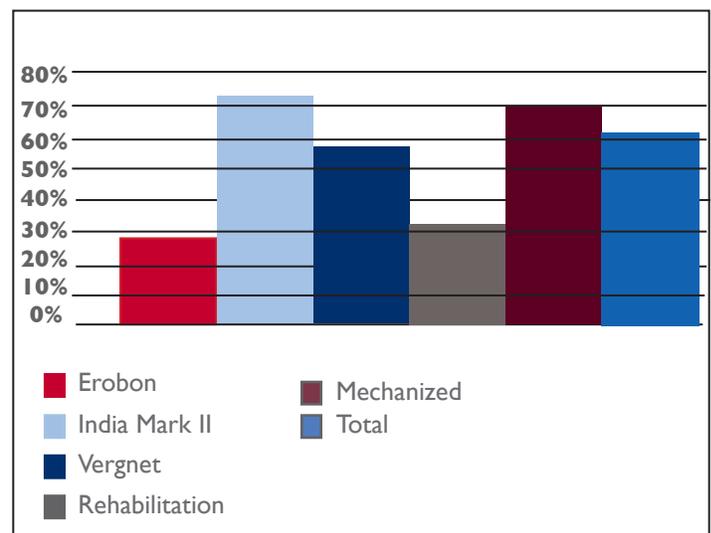


Figure 1. Percent of Water Points Functioning

Factors affecting sustainability. Overall, 49 percent of respondents indicated they had repaired their latrine when it had an issue, with those in hybrid villages reporting the highest rate of repair/replacement (Figure 2). Reported barriers to access and repair/replacement included insufficient access to financial and material resources. Some of the poorest households reported being in a cycle of building poor quality latrines that required frequent repairs or replacement, which adversely affected sustainability.

A trade-off appeared to occur between latrine quality and use. While the CLTS-WI approach seemed most effective at encouraging use, the poor quality of the latrines in these communities did not meet the requirements for basic sanitation service. In subsidy and hybrid communities, more respondents qualified as having basic sanitation service and more frequently reported repairing or replacing their latrine, yet actual use appeared to be lower.

HANDWASHING

Status and use of handwashing stations. Very few HHs had a fixed handwashing station (6 percent), and none used activity-supported tippy taps. Only 31 percent of households had access to both soap and water for handwashing. Despite the low rates of observed handwashing stations, soap, and water, 85 percent of respondents said they regularly washed their hands with soap and water. Only 38 percent of handwashing stations across the intervention approaches showed signs of use, indicating that handwashing promotion did not become normative.

Factors affecting sustainability. The PHAST/SARAR approaches used for behavior change messaging are now known to have several weaknesses, likely affecting long-term adoption of good practices. Respondents pointed to the need for sustained behavioral interventions and promoter presence to enable HHs to change habits and shift norms.

DISCUSSION

Water point sustainability. Overall, a majority of PEPAM/USAID WPs still functioned and served as high-quality, reliable primary drinking water sources. However, the PEPAM/USAID WP failure rate, while on a par with other studies, indicated a lack of sustainability. Several factors appeared to influence the status and use of the PEPAM/USAID WPs. Despite training, many of the water management committees struggled to implement best practices, and most did not collect water fees to ensure ongoing funding of WP operations and maintenance. Activity-trained local entrepreneurs continued to engage in construction and repair of WPs, but only communities with financial resources could afford to hire them. These findings are consistent with other studies in this series as well as studies of rural WP management more broadly.⁷ As long as these issues remain, rural water service will struggle to consistently function and be maintained.⁸

Household sanitation sustainability. Achieving a balance between quality infrastructure and high rates of use

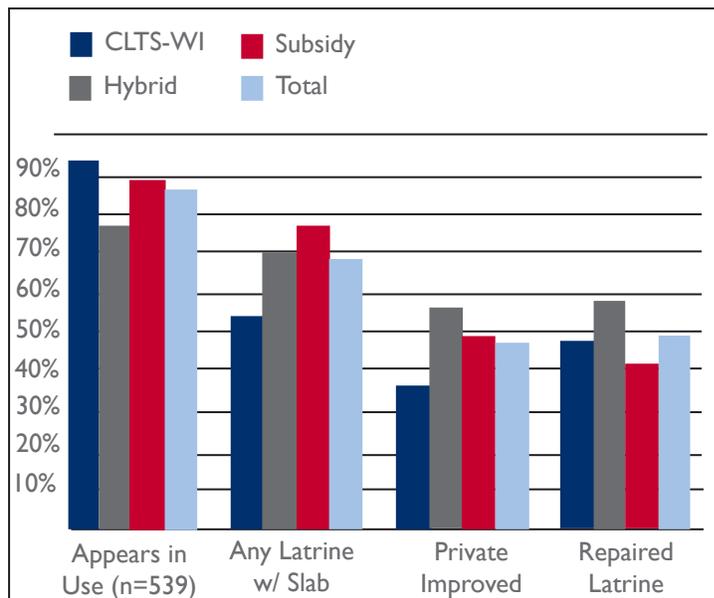


Figure 2: Status and Use of PEPAM/USAID Latrines

can be difficult. Latrine use and norm creation are dependent on a host of factors, but chief among them is access. In PEPAM/USAID villages, the ET noted a trade-off between quality and use. CLTS-WI communities had the highest evidence of use, but the lowest quality latrines, while subsidy and hybrid communities had lower evidence of use, but better-quality latrines that more frequently met basic service standards. A hybrid approach also has the potential to address sanitation service for economically disadvantaged HHs that reported limited financial, material, and physical resources. The approach could affect outcomes in multiple ways. For example, a hybrid approach could use open defecation free status as an incentive for WPs (as CLTS-WI did). It could motivate HHs to build or improve latrines through CLTS, while also deploying subsidies to address barriers to quality latrine construction and include economically disadvantaged HHs. PEPAM/USAID's hybrid approach introduced subsidies approximately three months after CLTS triggering, and the impact of this timeline on outcomes and sustainability is unclear. This lack of clarity further supports the sector's need to understand the optimal timing of subsidies and how they can be deployed with a CLTS approach. Future research should explore the impact of differences between approaches similar to those used in PEPAM/USAID and other rural sanitation activities and how they motivated behavior change around latrine use and open defecation practices.

As far as the sanitation subsidy vs. CLTS debate goes, in this context, the data indicate a trade-off between the approaches. However, in aggregate, the data suggest that the hybrid approach strikes a balance and may be able to deliver basic sanitation service to HHs and better establish norms. However, more research needs to be done to understand the factors that drove high latrine use in CLTS-WI villages and comparatively low use in hybrid villages; this analysis is beyond the scope of this evaluation given available information on PEPAM/USAID implementation.

Based on interviews and direct observations, the tippy taps PEPAM/USAID promoted no longer exist, and replacement has been limited, calling into question the promotion of these types of low-cost solutions. With less than half of all observed HHs possessing any materials or facilities to wash hands and in spite of self-assertions regarding handwashing practices, the behavior change strategy did not appear sufficient to change handwashing behavior long-term.

KEY IMPLICATIONS AND SELECTED RECOMMENDATIONS

- 1. Consider building on the hybrid (combined CLTS and subsidy) approach for future rural sanitation service programming.** Attention should be paid to improving promotion of quality latrine facilities and determining the appropriate subsidy amount.
- 2. Consider alternative models for small-scale WP management and governance.** Ensure that these models include linkages and consistent interactions with larger WASH governance and support structures.
- 3. Incorporate human-centered design of handwashing stations into future projects.** Consider improving access to fixed handwashing stations beyond the tippy tap as well as supply chains for quality materials. Also develop guidelines on handwashing station material quality.
- 4. Continue to engage in private sector partnerships that foster local capacity building and entrepreneurship training.** Ensure that specific plans are in place to transition financial systems (bank accounts/guarantee of payment) for WASH services when a project ends. Simultaneously, ensure that supply chain systems are sustainable after the project concludes.
- 5. Support system strengthening for sustained championing of WASH behavioral norms.** Promote self-reliance by working with host governments to strengthen systems that support community WASH champions to provide longstanding and consistent behavior change activities. Changing behavior and shifting norms around water, sanitation, and handwashing will require a sustained local presence.⁹
- 6. Conduct a cost-benefit analysis of WP pumps, well and borehole options, and the three sanitation implementation approaches.** Combine existing cost documents with benefit data as an aid in decision-making for future programming.

- 7. Support adaptive management recommendations in midterm evaluation reports and follow up to ensure that implementers have the flexibility to make course corrections.** Based on the data, it appears that implementing partners did not modify all implementation approaches in accordance with independent midterm evaluation findings regarding threats to sustainability.

ENDNOTES

1. Evans, B., C. van der Voorden, & A. Peal, 2009. Public Funding for Sanitation: The Many Faces of Sanitation Subsidies. Geneva: Water Supply & Sanitation Collaborative Council.
2. Le Blanc, D. 2007. Providing Water to the Urban Poor in Developing Countries: The Role of Tariffs and Subsidies. United Nations.
3. USAID. 2018. An Examination of CLTS's Contributions Toward Universal Sanitation. Washington, DC.: USAID Water, Sanitation, and Hygiene Partnerships and Sustainability (WASHPaLS) Project.
4. Banks, B. & S. Furey. 2016. What's Working, Where, and for How Long: A 2016 Water Point Update. Poster session presented at the 7th RWSN Forum, Abidjan, Cote d'Ivoire.
5. Flow rate measures the number of liters produced per second while stroke rates measure the number of liters per stroke of a manual water pump.
6. An improved sanitation facility that is not shared with any other households according to the WHO/UNICEF Joint Monitoring Programme. <https://washdata.org/monitoring/sanitation>
7. USAID's Water Office is supporting the study of new management models to overcome these challenges: <https://www.globalwaters.org/resources/assets/sws/ComparativeStudy-MaintenanceModels-CommunityManagedSchemes>
8. This link shares details on a comparative study of maintenance models for community-managed schemes: <https://www.globalwaters.org/resources/assets/sws/ComparativeStudy-MaintenanceModels-CommunityManagedSchemes>
9. A new consensus statement provides details on the implications of high time burden for multi-step processes related to WASH behaviors: <https://bmcmecine.biomedcentral.com/articles/10.1186/s12916-019-1410-x>

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 fifth evaluation in the series. For more information and for the complete report visit [Globalwaters.org](https://www.globalwaters.org) or contact Holly Dentz, M&E Lead: HDentz@waterckm.com.

Cover Image* A PEPAM/USAID beneficiary pumps water from a water point. (Photo credit: Photo credit: Alioune Watt)