



PRIVATE SECTOR ENGAGEMENT AND WATER SUPPLY SYSTEMS: An Example from Ethiopia

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ABSTRACT

Strengthen PSNP4 Institutions and Resilience (SPIR) is a Resilience Food Security Activity (RFSA) funded by the United States Agency for International Development (USAID) Bureau for Humanitarian Assistance. SPIR is implemented by World Vision, Care International, and Organization for Rehabilitation and Development in Amhara (ORDA), and has activities in two Ethiopian regions: Amhara and Oromia. In order to improve water point reliability, SPIR has worked across a number of complementary areas including improving tariff collection, enhancing the participation of low-income households in water management committees, improving private sector capacity to carry out operation and maintenance, and introducing financial innovation such as local insurance products for water points. Outcomes have included improved water point functionality, better-informed community participation, and establishment of viable private sector service providers that work with local government to respond to breakdowns more efficiently.



INTRODUCTION

Poor access to safe drinking water, alongside inadequate sanitation, is associated with between 60 and 80 percent of all communicable diseases in Ethiopia, greatly contributing to undernutrition and infant mortality.¹ In many cases, rural water supply schemes are unreliable or break down soon after they have been installed. For example, during the 2015–16 El Niño drought in Ethiopia, a study of more than 5,000 rural water supply points showed that only 60 percent of motorized boreholes and 75 percent of hand-pumped boreholes were functional (MacAllister et al. 2020). Malfunctioning rural water supply schemes, in Ethiopia and elsewhere, is one of the major underlying reasons for poor access to safe water. Another contributing factor is the limited ability of local Water, Sanitation and Hygiene committees (WASHCOs) to manage rural water supply schemes (Wilson et al. 2018).

Failures of water points can often be traced to a problem with operation and maintenance (O & M). O & M is a broad term that includes regular maintenance, repairs, routine checks and adjustments, and, just as importantly, the financial, human, and institutional resources that support these services. Failures related to O & M may be due to simple problems like broken taps, broken or blocked check valves, or broken pipes, but the consequences may include long repair times and, as a result, lack of safe drinking water.

Part of the problem is the complexity of O & M. Although such tasks as changing worn parts may be relatively straightforward, they rely in turn on many institutional factors to ensure that people with the right skills and right tools are on-site at the right time to carry out the repairs or maintenance. Spare parts and repairs must be paid for, so the financial sustainability of a water supply scheme is important. For remote areas, such as the mountainous parts of Ethiopia, the logistical, communication, and transport challenges alone can be daunting. Although there are common frameworks and principles for O & M, there is no standard, global approach. Costs, responsibilities, spare parts, skills, accountability frameworks, and technical requirements all depend on the type of infrastructure and its context.

For this reason, innovative and sustainable solutions to O & M are more likely to succeed when the local context is considered and well understood. Strengthening the O & M of water points has the immediate benefit of making those water points more reliable, which improves the supply of clean drinking water and thereby reduces the incidence of diarrhea in children. Better arrangements for O & M can also help households generate income, either directly by providing employment opportunities related to O & M or indirectly by making available time and energy that would otherwise be spent on collecting water from distant sources. Additional income can, in turn, support improved O & M.

This learning brief describes successes in O & M of rural water points achieved by an Ethiopian RFSA called SPIR. It includes suggestions and recommendations for other RFSA that might face similar challenges.

¹ <https://www.unicef.org/ethiopia/water-sanitation-and-hygiene-wash>.

THE SPIR RFSA

The SPIR RFSA is a five-year (2016–21) program funded by USAID’s Bureau for Humanitarian Assistance and designed to improve the lives of vulnerable Ethiopians through multisectoral activities. SPIR stands for “Strengthen PSNP4² Institutions and Resilience,” and the program is active in two of Ethiopia’s ten regional states: Oromia and Amhara. SPIR is a World Vision–led consortium implemented in collaboration with Care International and ORDA. SPIR focuses on the following four interdependent purposes:

1. increase income, productive assets, and equitable access to nutritious food for vulnerable women, men, and youth;
2. improve nutritional status of children under two years old, pregnant and lactating women, and adolescent girls;
3. increase women’s empowerment, youth empowerment, and gender equity; and
4. strengthen the ability of women, men, and communities to mitigate, adapt to, and recover from human-caused and natural shocks and stresses.

As part of these purpose areas, the SPIR program works to reduce the incidence of diarrhea among children under five years old.³ Part of SPIR’s approach to this serious problem has been to strengthen the O & M of water points. Since its inception, SPIR has constructed 187 water points benefitting a total of 98,643 people.

SPIR’S FOCUS ON WATER POINT O & M

Studies show that to ensure the sustainability of rural water supply services, there must be community contribution and social participation, assured cost recovery, and development of distributed services (Horecha 2018). SPIR has concluded that water point O & M requires a comprehensive approach encompassing multiple initiatives. These include training technicians, strengthening local businesses to carry out O & M (see Box 2 on page 8), improving cost recovery, and working with financial service providers. SPIR has identified the private sector as an important potential partner in water point O & M as long as constraints to private sector participation, such as access to training or materials, can be overcome. Furthermore, the Ethiopian woreda water offices (see Box 1 on page 4) constitute the government agency responsible for water points and work closely with community WASHCOs. Strengthening ties with woreda water offices is, therefore, important.



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² PSNP4 refers to the fourth phase of the Ethiopian government’s Productive Safety Net Program. This program works to support the poorest and most vulnerable households in Ethiopia by providing critical resources, usually during the agricultural “lean” season, and engaging participants in public works projects to build long-term resilience to shocks and stressors.

³ This is linked in particular to SPIR’s work in nutrition.



Box 1. WASHCOs, Woreda Water Offices, and Water Point O & M in Ethiopia

Many rural communities in Ethiopia rely on groundwater, usually accessed via springs or hand pumps on hand-dug or drilled wells. Spring boxes and fenced-off areas to keep livestock away generally protect springs from contamination. Gravity distributes spring water to water points or water “kiosks.” Both protected springs and hand pumps require periodic maintenance, as well as repair if they malfunction. In some locations, diesel-powered generators pump water, and these systems have much greater O & M requirements. Local administrative districts in Ethiopia are known as woreda. Woreda are subdivisions of zones, which are, in turn, subdivisions of regions. There are about 670 rural woreda in Ethiopia. These can be further subdivided into wards, or kebele.

In Ethiopia, there is a focus on community management of rural water points supported by woreda water offices at the local government level. Each community has a WASHCO tasked with recovering costs from water users, carrying out simple repairs, and liaising with the relevant woreda water office. WASHCOs are intended to handle simple maintenance tasks and basic repairs. Anything more serious is usually referred to the woreda water office. Woreda water offices are also involved with the collection of funds for O & M of water points from community members and the disbursement of these funds when necessary. This is done in collaboration with the WASHCOs. However, while woreda water offices have their own repair teams, these are thinly stretched and may not have the capacity to respond rapidly to community requests for repairs to malfunctioning water points. Woreda water offices are also responsible for providing spare parts for water systems, but these are not always in stock or available when needed.

These issues can lead to extensive periods in which water points are nonfunctional, with potentially serious effects on community health, safety, and well-being. The SPIR RFSA has identified that additional support to WASHCOs and communities in water point O & M is required to improve the reliability of water systems and the supply of safe drinking water.

CONTEXTUAL CHALLENGES

- **Improved water tariff collection.** Water tariffs paid by water users are essential to the O & M of water points in Ethiopia. SPIR has a deep understanding of how tariffs are set and collected and of the various issues that can cause a tariff system to break down. In a typical water scheme, a water tap attendant collects a water tariff from water users at the water point. In other cases, a specially appointed cashier or tariff collector goes house to house to collect water tariffs. These tariffs are then reconciled with the scheme's water meter reading, and the WASHCO deposits them into a special savings account. However, the setting of tariffs is not straightforward: community members, village elders, and the woreda water office must agree to them. Taking gender into account is important.⁴ Tariffs also depend on the complexity of the water supply system, its expected O & M requirements and replacement costs, and the community's ability to pay. The Ethiopia national water sector strategy confirms that the rural water supply system tariffs are based on the size, complexity, affordability, and location of the water facility. In other words, tariffs are not standard. After tariffs are agreed to, the district water office typically approves them through documented meeting minutes. Because tariffs may be subject to debate and further change, most WASHCOs do not document tariff regulations in their bylaws but instead keep track of tariff pricing (and its changes) through meeting minutes. Problems may arise after tariffs have been set. For example, the Grawa woreda water office had to increase the water tariff at one scheme after final tariff approval due to the additional complexity of the mechanized pumping system used. The community did not agree to the increased tariff rate, forcing the water office to reduce the salaries of the water operators and guards to make up the shortfall.
- **Facilitating participation by low-income households.** The issue of tariff complexity is related to the need to make water available to households that cannot afford to pay the regular tariffs. For example, in one community that SPIR project members interviewed, there were ten households that could not afford the tariff fees the WASHCO set. Following discussion, the community and the WASHCO allowed these households to take their water for free, with these costs spread across the rest of the paying users. These households represent only a small proportion of the community and have only a small impact on cost recovery and private sector engagement. Other communities and WASHCOs might come to different arrangements as they work to ensure that all community members have access to safe water. Tariffs are uniformly paid per unit volume—for example, per jerry can. Households that cannot afford to pay for tariffs are exempted from payment through a discussion facilitated by the water office and agreed to by the WASHCO and community.

SPIR'S INITIATIVES

SPIR has worked on a number of complementary activities aimed at improving water point reliability in partnership with WASHCOs, communities, and woreda water offices. These activities can be summarized as follows:

- **Working with WASHCOs to boost savings.** SPIR worked with 187 WASHCOs to boost cost recovery through a pilot in Amhara region. Each WASHCO agreed to save ETB 100⁵ (approximately \$2.27) per month for water supply maintenance services following discussion of agreed-upon costs of maintenance payments for different water schemes. The WASHCOs collectively managed to save ETB 240,108. This was deposited in a consolidated account in the local microfinance institution (MFI). WASHCO members are not paid, but they are often active members of the community who see the advantage of an improved water supply. SPIR also provides training

⁴ SPIR ensures that women are represented in the WASHCOs and that community meetings in all SPIR kebeles involve women. Women's voices receive priority as they are primary custodians of water supply in their vicinity. Almost all water use fee collectors are women.

⁵ ETB = Ethiopian birr. One US dollar = ETB 43.2 in June 2021. WASHCOs are selected by the community based on leadership skills. WASHCO leaders are treated equally with the rest of the community and pay for the water they use.



to WASHCOs focusing on roles and responsibilities, including willingness to pay. SPIR conducts biannual review meetings with WASHCOs and provides an initial supply of maintenance tools. In general, communities are greatly incentivized to pay for water use when the supply is more reliable, leading to virtuous circles in which payment by community members supports sufficient O & M funds, in turn boosting supply reliability. WASHCOs regularly discuss systems for water tariffs as these must be widely agreed to before they can be implemented.

- **Financial management innovation.** The pooling of funds from the WASHCOs into consolidated accounts at MFIs allows SPIR to support innovative insurance solutions. The woreda water office oversees and approves payments from these accounts and provides auditing services according to a transparency and accountability mechanism. If a community water supply breaks down and the cost of repair is greater than the savings the WASHCO holds, that WASHCO can draw on funds held in the collective account to achieve the repair in a process managed by the woreda water office through the local MFI account. In this way, repairs that would have been impossible in the past can now be carried out by pooling resources and collaborating. For example, a replacement hand pump for one hand-dug well in Wadla woreda cost ETB 2,900. The WASHCOs regularly provide updated revenue and expenditure information to the community. Woreda water offices regulate the WASHCOs and request WASHCOs submit their savings statements from the MFIs. The WASHCOs could not cover this cost but could obtain money from funds pooled with the MFI. WASHCOs may also opt out of this system and use their funds for their water supply schemes only.
- **Working to establish private sector O & M capacity.** In Ethiopia, technical and vocational education training (TVET) colleges teach youth technical skills, including plumbing and water scheme maintenance. At the same time, unemployment is high and water points break down due to lack of O & M. SPIR has worked to address both of these issues by supporting and training emerging small businesses on the O & M of rural water supply schemes. SPIR has offered training in business management, as well as the engineering and technical aspects of water point O & M, mainly using existing training materials and government manuals.⁶ SPIR was also able to help with the initial provision of the basic tools necessary for O & M tasks. For example, in Wadla woreda, SPIR was approached by Adam Mekuriaw, a graduate of the local TVET school. In collaboration with the woreda water office, SPIR helped Adam and six other young technical training school graduates establish a private enterprise focused on O & M of Water, Sanitation and Hygiene (WASH) infrastructure (see Box 2 below). SPIR and the woreda water office supported these private entrepreneurs by providing an initial supply of maintenance tools and technical training.

⁶ <http://www.cmpethiopia.org/page/1347>.

- **Through its community engagement work**, the SPIR RFSA has developed a practical system for improving water point sustainability at the village level in rural Ethiopia. This work is described in a SPIR report (Bekele 2019) describing the necessary steps to achieve better water point sustainability. The first step was an assessment of a community's water system and water needs as well as the wider institutional and governance context. This was done in collaboration with the relevant woreda water office following the drafting of a list of terms for the work. An assessment of private sector capacity was carried out, including of local businesses with suitable capacity such as auto garages, metalworks, woodshops, and similar. The presence of local private entrepreneurs and the availability of microfinance providers also form part of this assessment, including a discussion of MFI insurance products and services with the microfinance provider. The roles and responsibilities of the WASHCO, the woreda water office, and potential private sector service providers are defined and documented. Tariff setting and the collection and consolidation of water tariffs are then discussed and agreed upon. The incorporation of tariffs into the WASHCO bylaws is encouraged where possible. A surprising amount of documentation may be involved, including meeting minutes, a signed memorandum of understanding, signed bylaws, agreed-upon tariff procedures, communication materials, and so on. Such documentation requires checklists and appropriate storage.

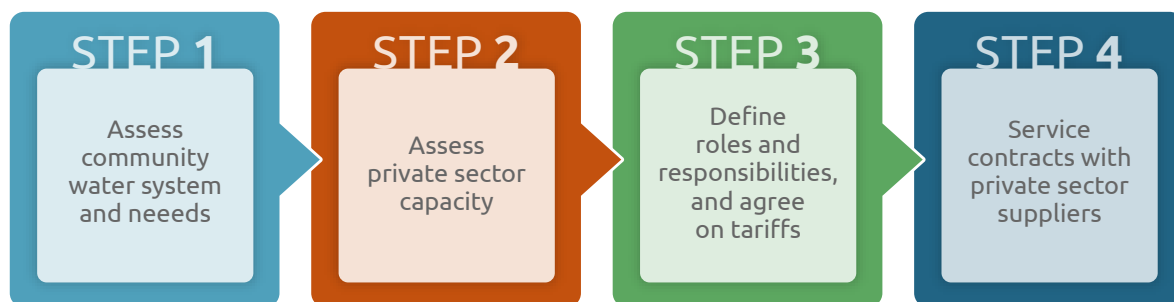


FIGURE 1. Steps in improving water point sustainability.

RESULTS

To date, SPIR has helped to establish five private sector O & M small businesses in five separate woredas, each with between five and ten members. Collectively, they have provided maintenance services to more than 200 water schemes.⁷ Resources amounting to more than ETB 240,000 have been saved by 187 WASHCOs. The first of the O & M small businesses has now been running successfully for over a year. An example of one of these firms is the private enterprise established in Wadla woreda, which so far has provided maintenance services for 55 water schemes. Payments for the maintenance services are made from the consolidated account of the WASHCOs with the approval of the woreda water office. The private enterprise is also a source of income for its members, who were previously unemployed.

Endalek Worku, 25, one of the members of the enterprise, said, “Previously I was jobless, but now I get money by maintaining dysfunctional water schemes and support my family.” One of the WASHCO members, Demis Alemu, 40, said, “Previously water schemes maintenance was conducted by woreda water office technical experts who are assigned upon request from WASHCOs. However, due to many requests from different WASHCOs, the water schemes’ maintenance was much delayed. After this enterprise’s establishment the water schemes are being maintained immediately.”

⁷ There are plans also to diversify the O & M businesses to help them produce other WASH products such as soaps and latrine slabs in the next phase of the project.



FIGURE 2. Endalek Worku and local entrepreneurs trained by SPIR maintaining a community water supply point.

Box 2. A New Enterprise: Juneydi Nure and Friends in Kurfachale Woreda

After graduating from TVET college, three young friends—Juneydi, 30; Abdi, 22; and Eibroshe, 26—began job hunting. They decided to compete for SPIR grant support at the woreda level and were successful in being selected for the project. SPIR provided them with professional training on water supply maintenance, fittings, specifications, water discharge measurement, and water supply extension. The project also supplied them with an initial stock of spare parts and fittings and fostered contacts with water workers and WASHCOs in Kurfachale woreda and in neighboring woredas such as Grawa woreda. The friends started operations in May 2020 on a shared ownership basis using ETB 20,000 of their own money, supplemented at the end of January 2021 by another ETB 60,000 as part of the SPIR project support. Their first customers were water boards, individuals, and WASHCOs, which helped them gain visibility and become known in the community. Customers from other woredas soon began calling and asking for spare parts and advice. They made twenty-one sales between January and June 2021, with around two-thirds of these made to neighboring woreda water boards and kebele WASHCOs making up the bulk of the rest of the sales. Individuals seeking repairs to pipelines and other WASH infrastructure have also made frequent (but mainly small) purchases.



FIGURE 3. Juneydi Nure, a local entrepreneur trained by SPIR, sells water scheme maintenance spare parts to the community.



LESSONS AND RECOMMENDATIONS

The SPIR RFSA has worked to improve O & M systems for rural water schemes by improving tariff collection and helping private sector service providers carry out routine repairs and maintenance that the woreda water office cannot attend to immediately. SPIR's approach to ensuring consistent O & M has been to understand, encourage, and implement a multipronged strategy that includes an assessment of local conditions, improvement of tariff collection, facilitation of insurance products with local MFIs, and capacity strengthening of local O & M entrepreneurs. SPIR regularly facilitates community meetings on tariff setting with the relevant woreda water office and provides other support to WASHCOs. WASHCOs meet twice a year in the presence of the woreda water office to review their progress and the challenges they face with regard to tariff setting. Additionally, SPIR recommends setting bylaws that enforce tariff collection.

SPIR leaders understand that private sector involvement can greatly improve O & M outcomes but realize that this involvement depends on several other factors, including equitable tariff collection at appropriate rates agreed to by the community, the support and participation of the woreda water offices, and the presence of suitably trained and motivated candidates for technical O & M roles. The challenge is to understand how to unlock private sector potential and make the most beneficial use of private sector participation.

Lessons learned include the following:

- **The availability of MFIs can be important.** MFIs not only safeguard deposits made by WASHCOs but also may offer innovative services such as collating deposits from different WASHCOs to create insurance products for dealing with breakdowns or outages that would be too expensive for a single WASHCO to deal with. Such services require accountability and transparency mechanisms in order to retain trust in the system and prevent short-term thinking. SPIR, together with the water offices, has identified several ways to achieve this, such as auditing accounts.

- **Engagement with the Ethiopian government is vital.** This extends from alignment with national policies on water supply and sanitation to close collaboration with local government woreda water offices and officials. With the growing number of water schemes within a given woreda, SPIR identified a gap in the capacity of local woreda water offices to monitor and maintain local water systems. By training a cadre of small business service providers to address the relatively simple maintenance and repair needs of spring and hand pump water points, SPIR helped woreda water office technicians focus their time on repairs of more complex water systems that involve mechanical and electric pumps, power generation supply, or relatively complex water quality monitoring.⁸
- **WASHCOs are crucial to providing O & M to rural water points.** For any given scheme, a capable WASHCO is paramount for O & M. As a result, SPIR has studied the ways WASHCOs are constituted, how they function, and how best to support them. SPIR regularly measures the functionality of WASHCOs through twice yearly review meetings conducted at the woreda level, where the WASHCO's plans, progress, and challenges are discussed jointly with the woreda water office and support is provided. Ensuring that WASHCOs represent the communities they serve makes them more resilient and responsive to the community's needs. These factors help to ensure WASHCOs function well and remain a sustainable institution.

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PHOTO CREDITS

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⁸ The Ethiopian government generally handles water quality issues at the woreda, zone, or state level. This is partly because water quality testing requires expertise, experience, and equipment not often available at the local level.