

Caring for the Investments We Make

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The previous case study focused on the repercussions of suboptimal behavior on farms' productivity. This case study highlights the drivers behind water accessibility in rural areas and how to deploy infrastructure investments to ensure sustainability.

Common Perceptions

Development projects seeking to improve access to water in rural areas have often focused on building new infrastructure. In 2007, for instance, the government of Tanzania, together with multiple donors, launched the Water Supply and Development Program (WSDP). While significant efforts to increase the number of water points in rural areas were undertaken during the program's first phase, neither the state nor donors fully accounted for the financial, human, and material resources needed to maintain existing projects.

The focus on new infrastructure without fully accounting for needed maintenance meant that water infrastructure often fell into disrepair. One-fifth of communal water points (such as hand-pumps, boreholes, and protected springs) broke within their first year, and more than half of all water points were broken at any point in time. Despite billions invested in the sector, access to improved water in Tanzania only increased from 54 percent in 1990 to 56 percent in 2015.

In response, WSDP stakeholders designed the program's second phase to include a result-based financing approach, with most of the subsidies targeting local government actors to be delivered following specific performance targets that captured whether a water point was

functioning. This strategy was implemented to incentivize the maintenance of existing water points in rural areas rather than the construction of new ones. Repairing existing infrastructure provides an opportunity to lower the carbon intensity of water service expansion, while also increasing rural communities' resilience to a changing climate by ensuring water services are more reliable.

Questions We Should Be Asking

Water infrastructure sustainability can be unpacked into multiple potential drivers. Local factors—whether institutional, administrative, or financial—involve a range of actors, including government officials, local citizens and their village water management groups, development organizations, and civil society stakeholders. The first step of this process should be the identification of what makes a water point sustainable in the first place, followed by an analysis of what different stakeholders require to best deliver them. Only then can the problem of water access in rural communities be addressed effectively.

To answer these questions, we draw from six years of continuous quantitative and qualitative research capturing data on water infrastructure characteristics, village water management practices, local government incentives, and community engagement. These primary data sources were combined with secondary data on poverty rates, access to education and health services, and electoral results, among others, to create a holistic picture of activities in the water sector in relation to the broader national context.

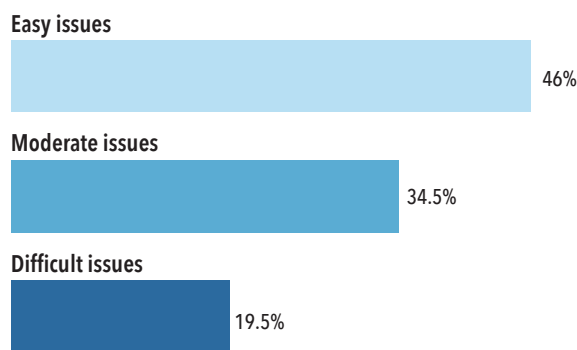
To further contextualize how the social, cultural, and political environment influences civil servants' decision-making, DIME researchers spent three months observing employees' daily routines in two Tanzanian water and sanitation departments. The researchers conducted in-depth interviews with civil servants, village water committee members, water users, and civil society representatives.

Our Findings

Our research explores infrastructure sustainability drivers through the lens of three of the key players in the process: communities, local government, and politicians.

Community: Despite half of the water points being broken down for 12 months or longer, most water points are deemed repairable at a lower

■ ■ **Figure 1.4** Hardware Issues Affecting Rural Water Points in Tanzania, by Degree of Severity



Note: "Easy issues" refer to water points having only simple problems (for example, a broken tap or no fuel or electricity for the engine). "Moderate issues" refer to water points experiencing problems that could be overcome by communities with some effort (for example, a broken core or well structure). "Difficult issues" refer to water points experiencing at least one structural problem that communities may be unable to fix themselves (for example, a dried-up source or a structure that was never completed).

cost than replacement. The most cited hardware problem is broken taps, and the main reason reported by local water committees for not having fixed the water point is a lack of funds. However, less than half of water points institute user fees, and when they are instituted, only 11 percent base fees on financial predictions about life-cycle costs. The presence of user fees is strongly correlated with actual functionality, and this has the strongest relationship when water points rely on complex technologies: complex water points that do not apply water fees are the most likely of any water points to break down. This suggests that a non-trivial share of water points may be fixable at a low cost (see figure 1.4), yet current community management structures are not well-positioned to address these issues on their own.

Local government: Despite communities presenting clear needs for government support, bureaucratic procedures tend to subvert the best intentions of civil servants eager to engage with these communities. In particular, the reporting requirements to central government structures shift civil servants' focus toward higher-level institutions and away from local priorities. Conversely, there are no formal procedures for ensuring that employees of water and sanitation departments meet with community-based institutions and village governments to discuss water access and service delivery issues, such as budgetary processes (Bailey 2017).

Politicians: Across Tanzania's political cycle, the quality of investment in water points seems to vary. In the run-up to elections, greater investments in water point design and quality lead to greater sustainability. However, just after elections, the quality of water point sustainability falls. This pattern is also found in Nigeria and Sierra Leone (Rogger and Somani 2021).

Policy Implications

This research presents a unique opportunity to unpack the roles of different actors in the water sector over time and identify important interaction points between them. This allows for an in-depth diagnosis of the sector’s challenges and potential solutions. We see that:

- Village water community management practices (such as setting user fees) are important determinants of water point functionality, but communities still heavily rely on local government support.
- Local government can provide backstopping support to communities, but they are constrained by political incentives, bureaucratic procedures, and an ambiguous delineation of the roles and responsibilities between communities and government.
- Results-based financing has the potential to overcome important constraints to securing sustainable water infrastructure, but incentives

may not directly address other types of constraints, such as improving the coordination between local government and communities needed to ensure funds can be effectively channeled toward sustainability objectives.

We find significant financial, behavioral, political, and institutional constraints to effective engagement between key partners in securing the sustainability of rural water infrastructure. By highlighting these constraints, this research supported changes in the water sector, including the establishment of a Rural Water Supply Agency in 2019. This agency is designed to streamline the government’s frontline support for water services. The introduction of FCDO and World Bank results-based financing projects to incentivize infrastructure maintenance has provided further impetus to address the significant sustainability challenges in the country.

While water point functionality remained constant and low through 2018, the country started

■ ■-Map 1.1 The Evolution of Functional Water Point Availability in Tanzania, 2019–21

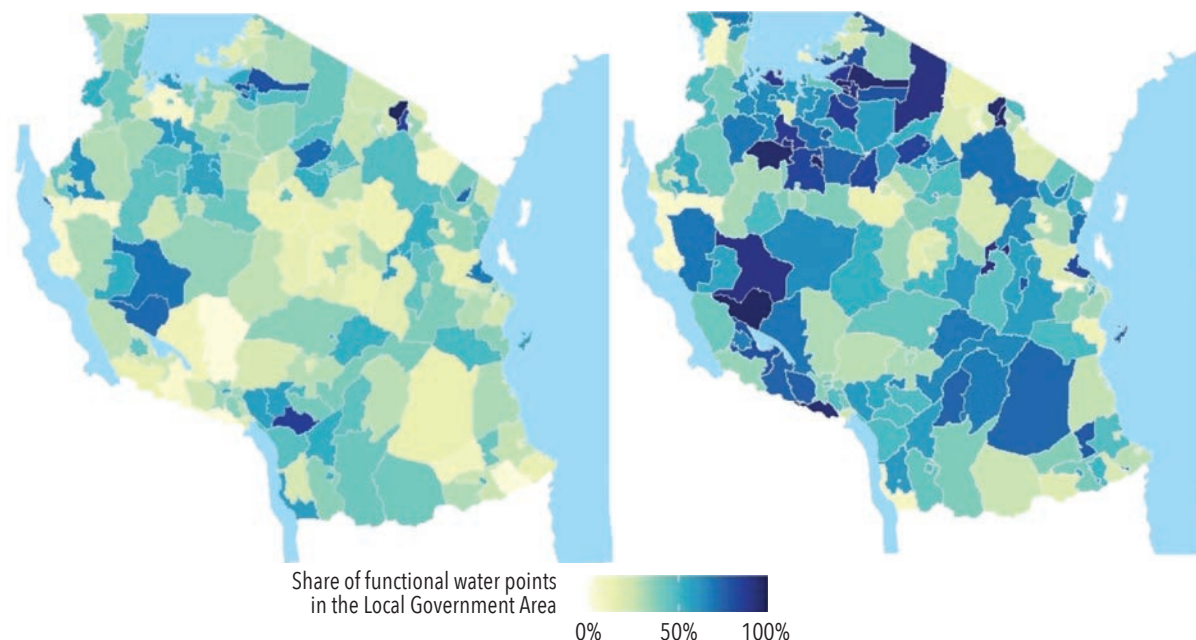
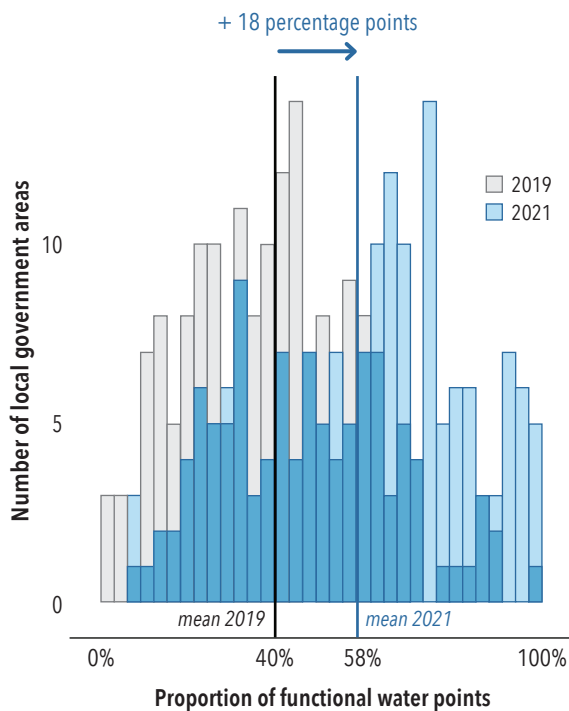


Figure 1.5 The Evolution of Local Government Areas' (LGA) Water Point Functionality, 2019–21



Note: Local government areas' water point functionality grew by an average of 18 percentage points between 2019 and 2021. The improvement was broad-based, as seen in the distribution shift.

to see a large increase in functionality rates from 2019–21 (see figure 1.4). Not only did water point functionality increase significantly (from 40 percent to 58 percent), but this improvement was broad-based, with gains being achieved in both low-performing and high-performing regions (see figure 1.5). While it is not possible to attribute these dramatic improvements to any single intervention or policy, the findings highlight that

significant, broad-based improvements in infrastructure sustainability are possible. This presents opportunities for countries across Sub-Saharan Africa that suffer from similarly low levels of water point functionality to make potentially significant gains in water access by focusing on improving infrastructure sustainability.

This joint initiative by the British and Tanzanian governments forms part of a global shift in public service provisioning that focuses on results. By rewarding measurable results, instead of paying for inputs, donors hope that public institutions will operate more efficiently and effectively.



This case study is based on an impact evaluation being conducted within DIME's Infrastructure and Climate Change research program.

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