



USAID
FROM THE AMERICAN PEOPLE



Learning Note

April 2023

FINANCIAL INNOVATIONS

FOR RURAL WATER SUPPLY IN LOW-RESOURCE SETTINGS

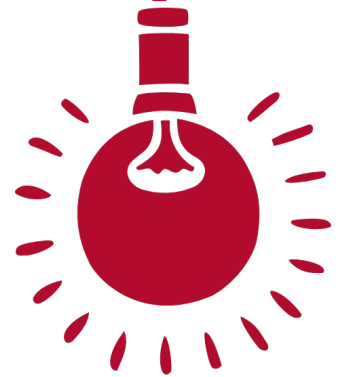
Rural Evidence and Learning for Water (REAL-Water) is a initiative from the United States Agency for International Development (USAID) and supports policy makers, development partners, and service providers to make strategic decisions and implement best practices for water management through implementation research.

CHALLENGE

Globally, the Sustainable Development Goals (2015–2030) are driving efforts to increase water service levels, while ensuring that services are affordable and no vulnerable population is left behind. In concert with global development goals, the United States Agency for International Development (USAID) Rural Evidence and Learning for Water (REAL-Water; 2021–2026) program focuses on identifying ways to expand water access and safety in rural areas of low- and middle-income countries. Rural water supply financing poses special challenges, as the populations are smaller, more dispersed, and poorer than their urban counterparts. This may reduce opportunities for economies of scale and complete cost recovery. **As of 2020, the majority of people lacking even basic water services (i.e., water from a protected source requiring no more than 30 minutes to collect) lived in rural areas.**

OBJECTIVES

This report aims to provide an overview of financing or funding mechanisms or applications related to water service that are innovative (i.e., not yet commonplace) and promising (i.e., show potential for benefits exceeding the status quo) in rural areas such as small villages



and dispersed settlements. It highlights categories of novel financial concepts that might offer a greater range of options to government agencies, donors, practitioners, and communities who develop and manage rural water supplies. The concepts may have sufficient merit to warrant further exploration within later stages of REAL-Water or other implementation research programs; however, the REAL-Water consortium does not endorse or relatively rank specific topics or service providers. Financial choices should be weighed relative to one's local setting and context. We summarize the information to evaluate conditions and trends in rural water financial innovation, leading to overarching recommendations.

FINANCIAL INNOVATIONS

I. VILLAGE SAVINGS FOR WATER

Community-based savings and credit associations offer rural dwellers in low-income settings an opportunity for member-only access to loans, emergency support, and small annual investment returns. With abundant existing savings groups in sub-Saharan Africa and India, the mechanism has been leveraged in some cases to improve financial management of rural water systems.

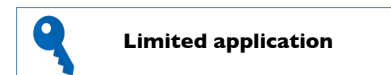
THEY OFFER A FRAMEWORK FOR CREATING DEDICATED, AFFORDABLE, AND TRANSPARENT SAVINGS FUNDS TO PAY FOR HIGH-QUALITY MAINTENANCE AND REPAIRS.

Groups may dissolve over time, though, and require periodic external support. Field results from **limited-scale** water initiatives in several African countries have maintained an above-average reserve fund to support water point maintenance, repairs, or upgrades.

FINANCIAL SCALE CATEGORY



STATUS FOR RURAL WATER





Members develop a constitution, defining savings and borrowing terms along with group bylaws.

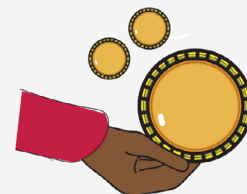


Monthly members deposit the agreed amount of money into a common fund.

Members can take small, low-interest loans from this internally-generated capital.



A small % of everyone's savings is "locked" into a water fund that can only be used for water point expenses such as maintenance or infrastructure upgrades.



At the end of the cycle, members get back their savings plus a portion of the overall interest earned from loans.

Typical community savings group approach (Source:Vanessa Guenther,The Aquaya Institute)

2. DIGITAL FINANCIAL SERVICES

Digital financial services have penetrated many aspects of daily life, including water services.

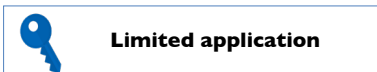
PREPAID METERING OF AUTOMATED WATER DISPENSING DEVICES AND POSTPAID DIGITAL WATER SERVICE ACCOUNTING PROVIDE BENEFITS FOR BOTH WATER SYSTEM OPERATORS AND CUSTOMERS, IMPROVING FEE COLLECTION CONSISTENCY AS WELL AS CONVENIENCE. THEY MAY LIKEWISE SIMPLIFY SUBSIDY DELIVERY TO VULNERABLE CUSTOMER SEGMENTS.

Converting to digital payment brings some hurdles, such as added transaction fees and costly startup infrastructure. Local training support and social inclusion outreach could benefit digital service expansion. **Limited rural deployment** is ongoing in Africa, Asia, and Latin America.

FINANCIAL SCALE CATEGORY



STATUS FOR RURAL WATER





3. WATER QUALITY ASSURANCE FUNDS

To reduce the risk of newer markets such as rural water supply testing services, work agreements can be “guaranteed” by external parties, who ensure on-time payment.

CREATING AN ASSURANCE OR RESERVE FUND EFFICIENTLY LEVERAGES DEVELOPMENT AID AS BACKSTOP FOR MOSTLY SELF-SUFFICIENT LOCAL BUSINESS ARRANGEMENTS.

Should debt arise, the upfront account can be mobilized quickly. One primary example is a novel water quality testing assurance fund that allows larger professional laboratories to provide low-cost, centralized monitoring services to smaller rural water systems. This improves efficiency and incentives for wider-scale testing, but requires some implementation oversight and quality control. Interesting **pilot** examples come from a few African countries.

FINANCIAL SCALE CATEGORY

-  **Local**
-  **Regional**

STATUS FOR RURAL WATER

-  **Under pilot evaluation**



Training a customer in Ruiru, Kenya on how to use his phone for making water payments (Source: Joyce Kisiangani, The Aquaya Institute)

4. PERFORMANCE-BASED FUNDING

Repayable water supply investments often risk losses, due to the pervasive challenges of serving low- and middle-income rural settings.

PERFORMANCE-BASED FUNDING IS DESIGNED TO MAXIMIZE ACCOUNTABILITY AND EFFICIENCY OF THE SERVICE PROVIDER.

Its elements generally include: (a) targets and/or ceilings of repayment, (b) an agreed per-unit payment amount for each output and/or outcome (e.g., new household water connection), and (c) independent verification of results prior to payment disbursement. This type of mechanism can accelerate innovation and efficiency if designed well and if service providers are motivated to participate. Encouraging water-related examples have been **increasingly deployed** in Asia, Africa, and Latin America, although this approach may not offer advantages under all circumstances.

5. DEVELOPMENT IMPACT BOND

One type of performance-based funding is a development impact bond, which moves some risks from service providers and primary donors to a third-party investor, while rewarding water development outcomes. After designing a funding arrangement, the social investor gives the service provider added capital for planned activities. Once outcomes are verified, the primary donor (outcome funder) reimburses the other investor, adding interest or subtracting losses depending on outcome achievement.

WHEN DESIGNED AND EXECUTED SUCCESSFULLY, DEVELOPMENT IMPACT BONDS SHOULD DRIVE EFFICIENCY AND ACCOUNTABILITY, SUPPORTED BY DATA COLLECTION AND PERFORMANCE MANAGEMENT SYSTEMS THAT ALLOW DESIRED OUTCOMES TO BE ACCURATELY MEASURED.

Development impact bonds have **yet to be planned** for rural water supply, but one is being piloted for rural sanitation in Cambodia.

FINANCIAL SCALE CATEGORY



Regional

STATUS FOR RURAL WATER



Widely implemented

FINANCIAL SCALE CATEGORY



Global

STATUS FOR RURAL WATER



Conceptual

6. STANDARDIZED LIFE-CYCLE COSTING

Sustaining service delivery for rural water supply depends on accounting for all costs (including operations, repairs, and maintenance) over the assets' lifespan.

AS ONE ELEMENT OF ASSET MANAGEMENT, LIFE-CYCLE COSTING TOOLS ALLOW VISUALIZATION, COMPARISON, AND TARGETED FUNDRAISING TO BETTER MATCH ANTICIPATED COSTS.

Consistent guidance on a life-cycle costing approach has been proposed for rural water supply, consisting of six cost categories, although it is not universally or easily performed by under-resourced service providers. As a result, the practice has seen **limited application** and data sharing in low- and middle-income countries, such as Vietnam, India, and Ethiopia.

7. BLENDED PUBLIC/PRIVATE FINANCE

Water supply development has traditionally relied on public or aid funding, rather than commercial financing.

“BLENDED” FINANCE REFERS TO LEVERAGING PUBLIC FUNDS (E.G., CONCESSIONAL LOANS OR GRANTS FROM NATIONAL GOVERNMENTS OR DEVELOPMENT BANKS) TO MOBILIZE ADDITIONAL CAPITAL FROM PRIVATE BANKS OR INVESTMENT GROUPS.

While not nearly as widespread as it is in other sectors (such as energy), this approach is growing in popularity, especially for attractive investment recipients such as well-run urban water utilities. For rural water supply, **limited applications** have taken root in Madagascar, Benin, and Senegal.

FINANCIAL SCALE CATEGORY



Adaptable to all scales

STATUS FOR RURAL WATER



Limited application

FINANCIAL SCALE CATEGORY





Adaptable to all scales

STATUS FOR RURAL WATER



Limited application

OVERVIEW OF FINANCIAL INNOVATION PROS AND CONS

INNOVATIONS		
Village savings for water	<ul style="list-style-type: none"> • Can self-manage for several years with limited external support • Have robust accountability mechanisms • Build social capital among members to promote collective action 	<ul style="list-style-type: none"> • Susceptible to disintegration (i.e., disbanding) • Must connect with reliable, skilled service providers • Integration with water payments may benefit non-members
Digital financial services	<ul style="list-style-type: none"> • Dramatically improves fee collection efficiency, especially for prepaid water services • Digital data can be used for analysis or decision-making • Automates customers' financial planning 	<ul style="list-style-type: none"> • Customers and operators require local training and troubleshooting support • Equipment requires continued maintenance and replacement parts • Poor connectivity could intermittently interfere with payment technologies
Water quality assurance funds	<ul style="list-style-type: none"> • Provides long-term support for local capacity building • Offers a cost-efficient approach for donors • When used to support water quality testing, professionalizes monitoring and enables managers to respond more quickly to contamination issues 	<ul style="list-style-type: none"> • Contracts and partnership arrangements take time and legal expertise to set up • Guarantor requires transparent access to payment information and resources to carry out due diligence • Funds may draw down over time, if repayment is inconsistent
Performance-based funding	<ul style="list-style-type: none"> • Codifies accountability of aid recipients, reducing risk to donors and investors • Can accelerate efficiency gains by incentivizing incremental service improvements 	<ul style="list-style-type: none"> • New schemes involve upfront design effort, as well as ongoing management and monitoring costs • Careful performance verification is needed to ensure borrowers are incentivized to innovate • Added labor burden may reduce interest among smaller service providers
Development impact bonds	<ul style="list-style-type: none"> • Like performance-based funding, may promote innovation, local problem-solving, and adaptation • Involving a third party reduces risks for governments and development partners, who pay only after verifying a successful result 	<ul style="list-style-type: none"> • Can be complex to design and execute, with high transaction costs • To date, none have been structured for water services • Service providers must have sufficient subject-matter expertise and practical experience in the area of operation

**Standardized
life-cycle costing**

- Allows visualization of the full cost of service delivery, which aids planning and securing funding
- Makes operation and maintenance budgets more realistic and accurate
- Motivates implementers to arrange appropriate savings and investment mechanisms

- Collecting and analyzing data is resource intensive, and costs must be updated regularly
- Applying a single framework could alienate certain implementers or fail to capture important nuances

**Blended public/
private finance**

- Can unlock private sector resources by reducing risk perceptions
- Transparency requirements of commercial lenders increase financial discipline
- Private financing for the most creditworthy water service providers allows redirection of public funding where subsidies are most needed

- Borrowing terms are initially less favorable than concessional loans
- Most water supply experiences come from middle-income countries and have not been replicated at scale
- Not all rural water service providers can be made creditworthy

RECOMMENDATIONS

All innovation categories described herein hold promise for advancing rural water supply efforts in low-resource settings. At the same time, financial innovation benefits from continued implementation research, marketing, and coordination to improve performance outcomes. The innovations may render benefits only under favorable conditions, where accountability, transparency, motivation, and reward structures support effective planning and implementation. External support needs may span lengthy time scales. To better facilitate financial innovation that serves rural water consumers in low- and middle-income countries, we offer several recommendations:

DEVELOPMENT FINANCE INSTITUTIONS AND GOVERNMENTS should encourage blending public and private investment in attractive water supply opportunities, while directing concessional lending, grants, and revolving loans to settings where commercial returns are less likely.

DEVELOPMENT FINANCE INSTITUTIONS should build performance incentives into financing and funding schemes if they are likely to translate to practice improvements and tracking is not overly burdensome.

GOVERNMENTS, SERVICE PROVIDERS, AND NONGOVERNMENTAL ORGANIZATIONS should begin establishing networks to better coordinate and pool risks and opportunities for small rural water supplies.

GOVERNMENTS, SERVICE PROVIDERS, AND NONGOVERNMENTAL ORGANIZATIONS should use robust planning to properly assess the lifecycle costs, as well as non-monetary benefits, of new rural water supply schemes.

SERVICE PROVIDERS AND NONGOVERNMENTAL ORGANIZATIONS should ensure they have ongoing mechanisms to share progress with consumers and understand and respond to consumer needs.

SERVICE PROVIDERS, NONGOVERNMENTAL ORGANIZATIONS, AND RESEARCHERS should share data on project or program implementation costs whenever such reporting is feasible.

NONGOVERNMENTAL ORGANIZATIONS should avoid installing new infrastructure in the absence of a clear plan for locally sustained operation and maintenance funding.

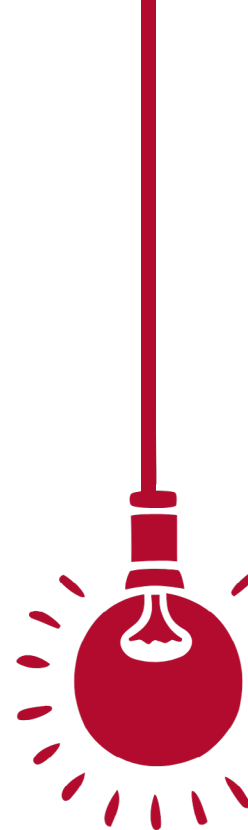
NONGOVERNMENTAL ORGANIZATIONS should emphasize building local capacity for rural water system financial management, for example through periodic technical assistance, to help sustain service effectiveness over time.

RESEARCHERS should rigorously evaluate mid-term and long-term results of varied rural water financing programs, to enable learning and innovation over time.

PROFESSIONAL NETWORKS (e.g., the Rural Water Supply Network) should ensure consistent global guidance is communicated to local institutions, and collate local experiences to provide a feedback loop to larger-scale institutions (e.g., regarding funding priorities).

PROFESSIONAL ASSOCIATIONS AND LEARNING INSTITUTIONS should ensure water professionals can access opportunities to gain water supply financial management skills, and ultimately receive recognition and compensation for their services.

ALL PARTIES should consider how water supply programs can be adapted to address potential future risks (e.g., demographic or climate shifts), and invest in approaches resilient to multiple water supply and demand scenarios.



Recommended citation:

REAL-Water. 2023. Learning Note: Financial Innovations for Rural Water Supply in Low-Resource Settings. United States Agency for International Development (USAID) Rural Evidence and Learning for Water.

Acknowledgments:

This learning note was prepared by Karen Setty, Vanessa Guenther, Jeff Albert, and Ranjiv Khush (The Aquaya Institute).

Contacts

Please reach out with questions or future suggestions!

Karen Setty, Senior Manager, Research Translation,

Ranjiv Khush, REAL-Water Project Director,

Jeff Albert, REAL-Water Deputy Project Director,

[Read the full report](#)

DISCLAIMER: This report is made possible by the support of the American people through the United States Agency for International Development (USAID). The contents of this report are the sole responsibility of The Aquaya Institute and REAL-Water consortium members and do not necessarily reflect the views of USAID or the United States Government.