



Delivering Global Rural Water Services through Results-Based Contracts

How a standard contract design with payment for results can ensure resilient water services at scale



Working Paper | October 2021



Delivering Global Rural Water Services through Results-Based Contracts

How a standard contract design with payment for results can ensure resilient water services at scale

Working Paper | October 2021



Uptime is a global consortium to deliver drinking water services to millions of rural people through long-term, performance-based funding to achieve Sustainable Development Goal 6.1.



Lead authors

Dr Duncan McNicholl
Uptime

Prof. Rob Hope
University of Oxford

Dr Alex Money
University of Oxford

With support from

FundiFix

Cliff Nyaga
Dr Jacob Katuva

UDUMA & Vergnet Hydro

Mikaël Dupuis
Thierry Barbotte

University of Oxford

Dr Johanna Koehler
Dr Patrick Thomson

Water for Good

Adrienne Lane
Jon Allen

Whave

Dr Adam Harvey

Water Mission

Seth Womble
Andrew Armstrong
Lara Lambert
Mike Staub

Further acknowledgements

We extend special thanks to the GIZ Sector Programme Water Policy – Innovations for Resilience and the coalition of funders supporting the Uptime Catalyst Facility and the Uptime consortium.

This report was developed with support from



On behalf of



of the Federal Republic of Germany

With support from

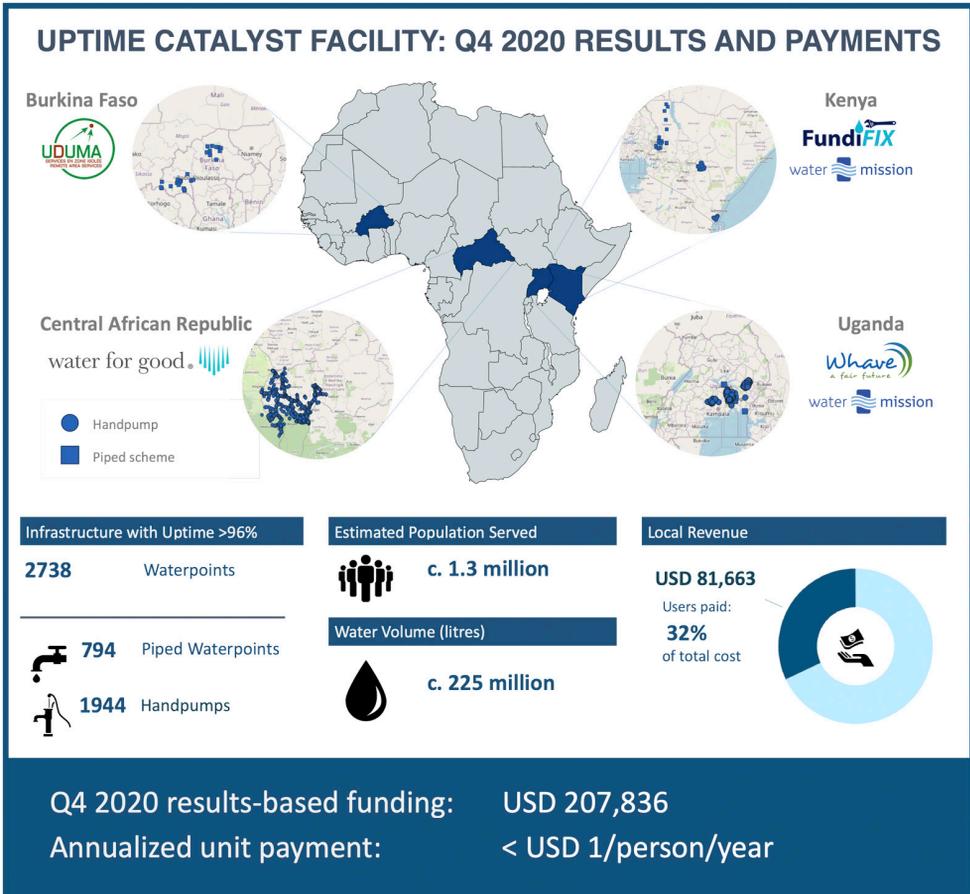


Suggested citation: McNicholl, D., Hope, R., Money, A., Lane, A., Armstrong, A., Dupuis, M., Harvey, A., Nyaga, C., Womble, S., Allen, J., Katuva, J., Barbotte, T., Lambert, L., Staub, M., Thomson, P., and Koehler, J. (2021). *Delivering Global Rural Water Services through Results-Based Contracts*. Uptime consortium, Working Paper 3. Available at: <https://www.uptimewater.org/s/Delivering-Global-Rural-Water-Services-through-Results-Based-Contracts.pdf>

Executive Summary

The first multi-country pilot for results-based funding of rural water services was launched in October 2020. The Uptime Catalyst Facility, a UK-registered charity, issues non-repayable funding to rural water maintenance providers after reliability results are confirmed. Services are now being funded in seven countries serving an estimated 1.5 million rural people.

The initial scope of the initiative covered five service providers across four African countries to support **reliable water services for 1.3 million rural people at a cost of less than USD 1 per person per year. Water users paid one third of the costs.**



Experience from this pilot is now informing how the results-based approach can be streamlined to enable resilient services at the scale of 100 million people. Through the pilot, we have adapted the contract design, with the ultimate ambition of scaling service provision to 100m people.

Strengthening Incentives

Learning from the pilot, contract design has been refined to incentivise revenue growth, accommodate a broader range of service providers, and improve transparency. The **'revenue-matching' contract design** accommodates services with different levels of unit revenue – either per volume or per infrastructure unit, depending on how user payments are collected.

Revenue-Matching Contract

Quarterly payment contingent on waterpoint reliability and two types of revenue match



Simplifying Verification

The revised contract design reduces the cost of verification while maintaining high standards of monitoring. Key indicators relevant to payment calculations can be verified with just two types of data:

- 1 Timestamped infrastructure use** – Tracking when infrastructure is used and by how much can confirm both uptime and volumetric use. A growing range of technologies can meet this need. Importantly, data need not be transmitted in real-time since payments are retroactive. Lower cost loggers that store data for collection at a later date may be as appropriate as remote transmitting technologies.
- 2 Local revenue** – Increased uptake of digital payment technologies mean that revenue records can progressively be verified remotely. Use of digital payments has the added benefit of reducing collection costs for service providers.

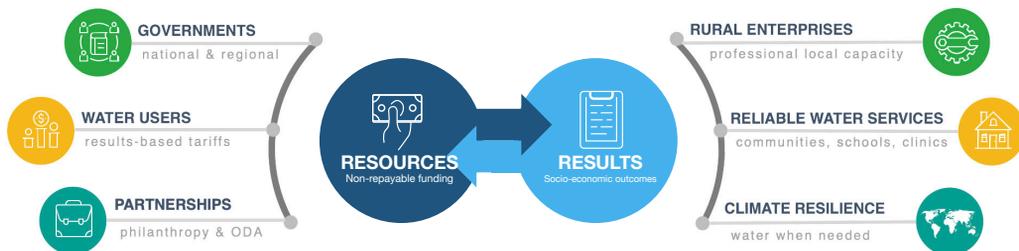
Reducing verification needs to a realistic number of key indicators that can be tracked by a variety of technologies now has the potential to widely scale verification systems needed to deliver results-based contracts.

Unlocking Resources

Rural services supported by the Uptime Catalyst Facility continue to require non-repayable funding as they scale and optimize their service models. We believe that new and sustainable sources of funding can enter the rural water sector to meet this need if results are transparent, targeted, scalable and cost-effective. **The simplicity and transparency of the results-based approach makes it scalable to a global range of funders and services.** Specifically, the approach overcomes the key constraint of tracking payments to verifiable results and allows a shift to reward delivery of water services each day to amplify impacts of existing and new water supply infrastructure investments. A system that matches sources of non-repayable funding to guaranteed results through a proven contract design has potential for global scale.

Going forward, we aim to apply the data systems and contract designs used by the Uptime Catalyst Facility to a wider group of service providers and outcome funders towards the goal of enabling reliable services for 100 million rural people by 2030.

MATCHING RESOURCES TO RESULTS AT SCALE



Next Steps

Early results from the Uptime Catalyst Facility demonstrate that a multi-country results-based funding model for rural maintenance services can be scaled. Next phase developments will pursue three main areas of work:

Continued contract testing with strengthening verification

– The Uptime Catalyst Facility will continue to run through 2024 to refine the results-based approach and report on lessons learned. The initiative will progressively strengthen verification systems and capacity for data and contract management as it supports services for c. 1.5 million people in seven countries.

Developing a pipeline of new service providers –

Partnership with REACH and the Rural Water Supply Network is engaging new service providers globally to identify candidates for scale up¹. Next phase growth aims to expand results-based funding to directly support service providers serving an additional 5 million people in Africa, Asia and Latin America.

Engaging new funders and institutional partners – Scale towards services for 100 million by 2030 requires wider partnerships beyond direct engagement of service providers. Governments, philanthropies and development partners have the opportunity to either adopt or fund the results-based model. Governments with appropriate policy frameworks and ability to allocate public finances to rural water maintenance services can directly adopt and adapt the results-based approach.



¹ <https://www.rural-water-supply.net/en/collaborations/details/119>

Background

Global progress to provide safe and reliable drinking water services is off-track for over one billion people with the most vulnerable at greatest risk. Increasingly unpredictable droughts and floods expose the enduring failure to keep water flowing for hundreds of millions of rural people. COVID-19 increased the challenge with negative impacts affecting basic services for communities, schools and healthcare facilities.

Rural water users are paying some but not all of the costs to keep water flowing. In 2020, Uptime began developing and testing a multi-country results-based payment approach for funding rural water maintenance services. Non-repayable funding combines with user payments to ensure service reliability. This working paper summarizes the story of these results-based contracts so far: what has been achieved, what has been learned and how this approach is being adapted for global scale. Our experience suggests that results-based funding linked to local revenues offers a simple, scalable and transparent way to accelerate development of rural water maintenance services across countries, contexts and service models.

Results to Date



Results-based contracts have supported reliable water services for 1.3 million rural people across four countries at an annualised payment of less than USD 1 per person. Users pay approximately one-third of operational costs.

Our 2020 working paper on Results-based Contracts for Rural Water Services² proposed an approach for issuing grant funding to rural water maintenance services on a performance basis. The contract design builds on three key performance metrics in the 'Uptime Framework':

- 1 the number of waterpoints that work reliably;
- 2 the volume of water produced; and
- 3 the amount of local revenue generated.

These metrics are used to calculate non-repayable funding for service providers after they have delivered results.

To test this contract design, the **Uptime Catalyst Facility** (UCF) was established in October 2020 as an independent and legally-registered entity (under UK charity law)³, to contract and pay for results-based rural water services. The UCF is designed to pool grant funding from various sources and then issue non-repayable grants to contracted service providers when results are confirmed. The approach shifts operational risk to service providers that get paid only after service results are achieved.

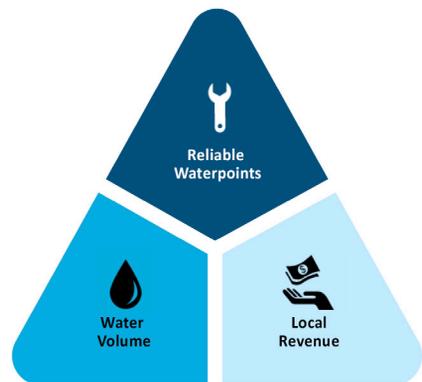


Figure 1 – the 'Uptime Framework'

2 <https://www.uptimewater.org/s/Results-Based-Contracts-for-Rural-Water-Services.pdf>

3 Registered Charitable Incorporated Organisation in England and Wales Number 1192062

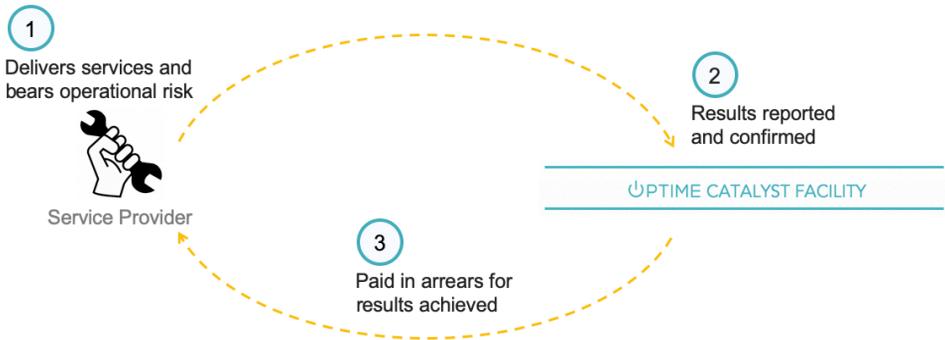


Figure 2 – Results-based funding process used by the Uptime Catalyst Facility

Approximately USD 1 million in grant funding was committed by a group of WASH funders for the first year of the pilot. For services delivered in Quarter 4 of 2020 (October-December), contracted service providers maintained rural infrastructure serving c. 1.3 million people across four countries and received USD 207,836 in results-based funding⁴. Despite challenges including the COVID-19 pandemic, the results-based approach has successfully been able to link targeted funding to rural service outcomes.

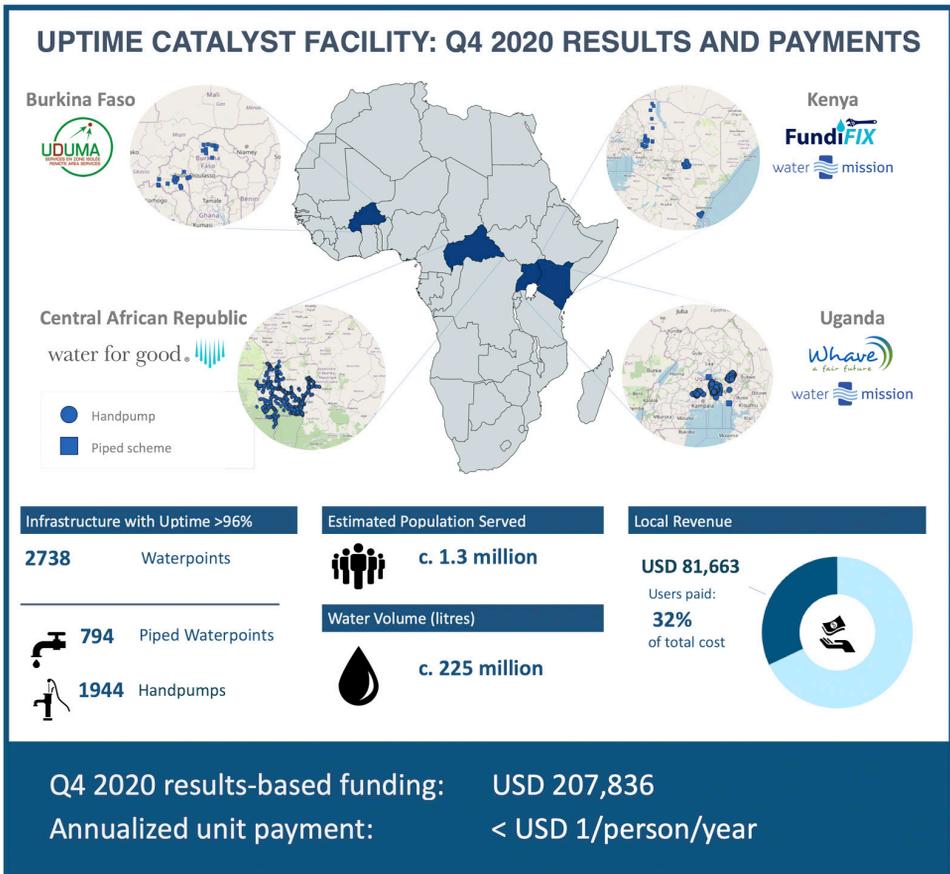


Figure 3 – Uptime Catalyst Facility Q4 2020 Results and Payments

4 <http://www.uptimewater.com/global-dashboard>

The Uptime Catalyst Facility is demonstrating how a common results-based contract design can be applied across multiple countries, contexts and service models. Current work directly engages service providers, but could readily be applied to larger scale services by utilities and governments. This working paper summarizes how the results-based approach is being refined for scalability by:

- 1 strengthening incentives;
- 2 simplifying verification requirements; and
- 3 creating a compelling impact opportunity for non-repayable funding sources.

Strengthening Incentives

Matching revenues is a better incentive than covering costs

A scalable funding model must accommodate variation across different contexts. The approach must sustain reliable services while motivating them to be progressively self-financing. Data from Uptime service providers continues to highlight how multiple factors influence the subsidy requirement including institutional contexts, service models, revenue collection methods and population demographics.

In a scalable funding model, services with large gaps between costs and revenues should not appear disproportionately rewarded, yet the higher costs of working in remote areas must be recognised. The approximate operational subsidy per person needed by services contracted under the UCF in Q4 2020 ranged from zero to USD 0.60.

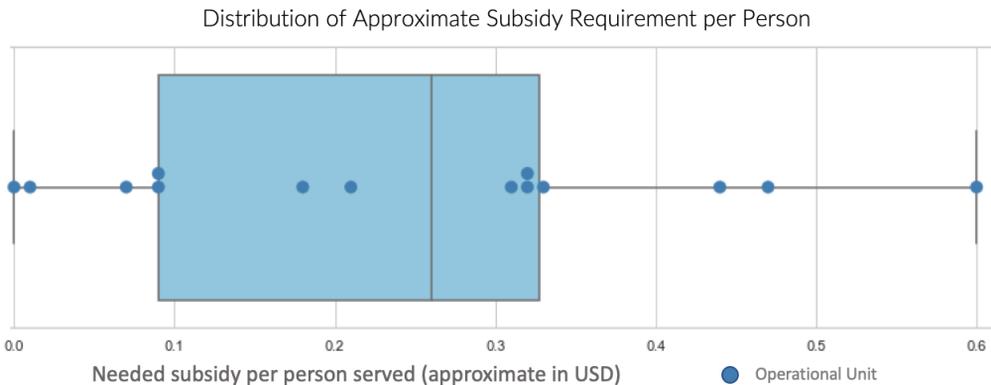


Figure 4 – Range of needed operational cost subsidies per person in Q4 2020

The first results-based contracts, paid quarterly, responded to the challenge of differing subsidy needs with a ‘cost-plus’ approach. Assuming satisfactory service results, the contract design covered 100% of the needed subsidy, plus a 15% margin. Results-based payments were therefore capped in proportion to the need defined by quarterly cost and revenue data. Figure 5 illustrates how, under the cost-plus approach, an identical service with a higher cost, and therefore higher subsidy need, would receive a larger payment.

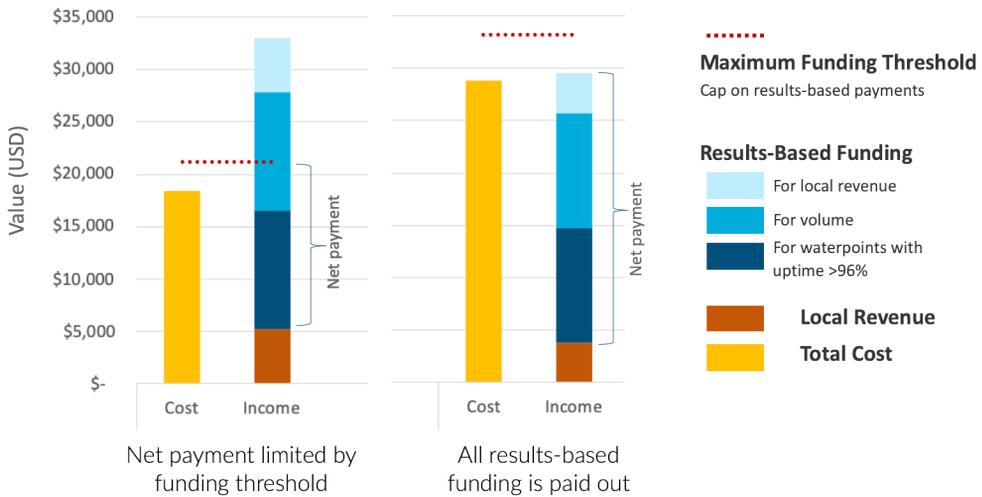


Figure 5 – Conceptual illustration of results-based payments under the cost-plus contract

Experience with the first contracts found that calculating quarterly payments based on costs created complications. Payments proportional to costs created a potential incentive to increase expenditure or manipulate cost figures, which can be difficult to verify remotely. Higher payments for higher costs also appear to disproportionately reward lower financial performance. Alternatively, linking payments to local revenue, independently of cost considerations, provides both a strong incentive to improve revenues and removes potentially negative incentives and verification challenges around costs.

The 'revenue-matching' contract design, adopted by the UCF in January 2021, calculates quarterly results-based payments in two parts:

- **Minimum unit revenue** – Results-based funding supplements user payments to ensure a minimum total level of unit revenue, either per volume or per waterpoint, depending on the revenue collection approach of the service model.
- **Revenue matching** – Continued from the original contract design, a portion of locally generated revenue received is matched as an incentive to generate user payments and funding from local authorities.

This 'revenue-matching' contract offers two sets of payment values, depending on the revenue model of a service. **The units are either per volume or per waterpoint** to accommodate services that charge per volume consumption and services that charge per waterpoint maintenance subscription fees. In both cases, infrastructure must have uptime of at least 96% to be eligible for payment. Payment values are informed by analysis of over 1000 months of financial data from services managed by Uptime consortium members. Both contract options combine metrics in the Uptime Framework to consider unit revenue as a key measure of financial performance that can link directly to results-based payments.

Revenue-Matching Contract

Quarterly payment contingent on waterpoint reliability and two types of revenue match



Figure 6 – The ‘revenue-matching’ contract design pays for reliable infrastructure and partly matches local revenue

Despite removal of cost as a consideration in the payment formula, this revised contract design can still support services with differing financial performance. Services with lower unit revenues receive little revenue matching but a larger unit revenue supplement payment for infrastructure that works reliably. Services with higher unit revenues receive less of a supplement but more revenue matching. In all cases, increasing local revenue increases total revenue for the service. An example (Figure 7) illustrates the results-based payment calculation for a maintenance service that receives revenue per waterpoint it maintains.

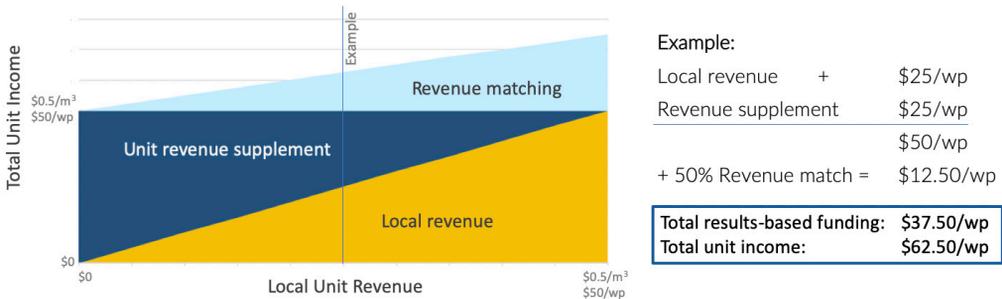


Figure 7 – Revenue-matching contract example

The revenue-matching component can also continue once local revenue exceeds either USD 50/ waterpoint or USD 0.50 per m³, provided that a clear subsidy need remains (Figure 8). To prevent against bias towards working in wealthier areas, results-based contracts could additionally specify areas for service delivery, identify specific infrastructure to be maintained, or adjust payment values for specific contexts. Services that begin to achieve financial viability from local revenues no longer require non-repayable funding and can exit the funding model in pursuit of blended or commercial financing sources.

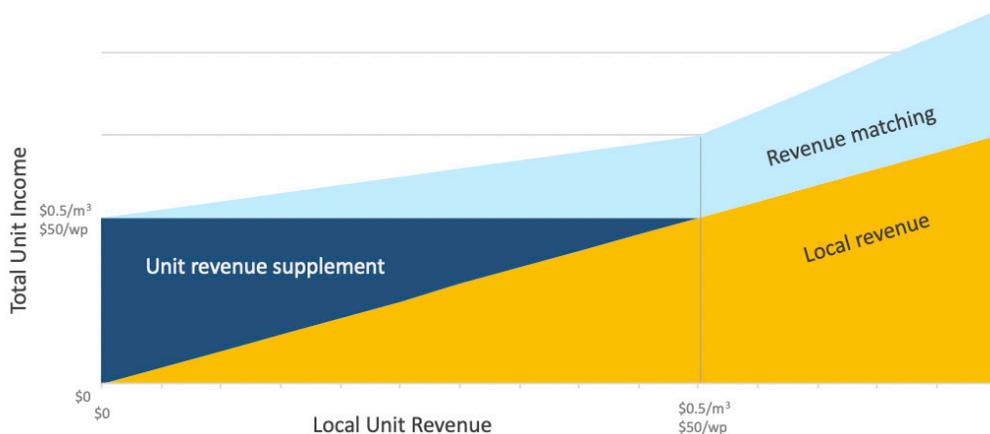


Figure 8 – Revenue matching for services exceeding the minimum unit revenue

Reframing the contract design to determine payments from revenues rather than costs has two important implications:

Revenue ‘catalyst’ v. 100% subsidy – Decoupling payments from costs means that a revenue-matching contract model does not necessarily provide all of a needed subsidy. The service provider needs to manage costs to ensure that local revenue plus other income can sustain the service. From this perspective, the revenue-matching contract plays a catalytic role rather than that of a comprehensive subsidy.

Costs measured v. costs linked to payment – Costs and revenues are still measured and reported to the UCF under a revenue-matching contract. The data reporting format for service providers remains unchanged and continues to provide important information on the subsidy requirements of rural water maintenance services. The difference is payment incentives; there is no longer any benefit linked to cost figures.

Although the revenue-match contract design does not guarantee a complete subsidy in all cases, the revised contract design is still able to provide funding that is proportional to the aggregate subsidy need. Figure 9 compares the total results-based payments calculated for services supported by the Uptime Catalyst Facility in Q4 2020.

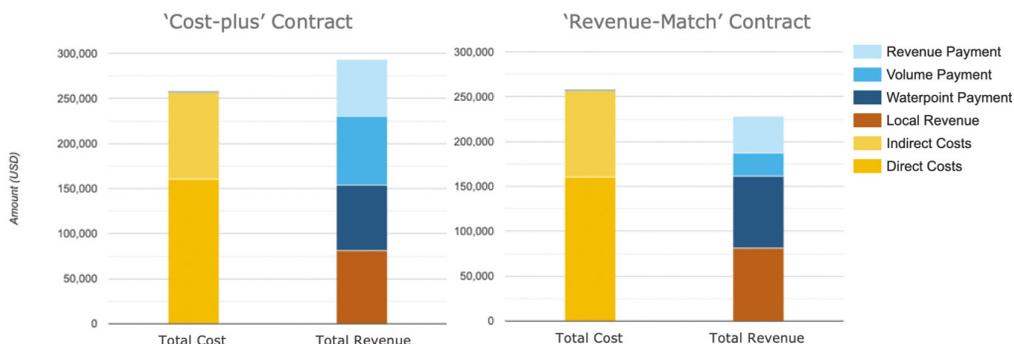


Figure 9 – Q4 2020 comparison of quarterly results-based funding calculated using ‘cost-plus’ (left) and ‘revenue-matching’ (right) contract designs. The ‘revenue-matching’ contract provides most of the needed funding but not a complete subsidy.

Stronger Incentives for Scale

Experience from contracts issued by the Uptime Catalyst Facility finds that the revenue-matching contract design still accommodates a variety of services across different contexts while reducing the risk of contract gaming. Removing consideration of service costs focuses incentives squarely on the Uptime Framework metrics of infrastructure reliability, use and payment for services. Service providers are directly motivated to improve these results as their priority. Although results-based payments might not cover the entire subsidy requirement in all contexts, a revenue-matching approach to results-based payments appears to be a simple, scalable and robust way to catalyse the development of these rural services.

Simplifying Verification

Infrastructure use and revenue data can be verified at scale

The revenue-matching contract design simplifies verification requirements by excluding cost considerations from payment calculations. Requirements are reduced to:

- 4 verification of revenues;
- 5 and timestamped infrastructure use data.

Both data types are becoming increasingly digital. This section explores how simplified verification requirements can work with existing and emerging technologies to scale up data systems that underpin results-based funding.

Check Revenues, Not Costs

Costs are more difficult to verify than revenues for several reasons. The central issue is that service providers have considerable discretion over what they spend and when. Examples include:

- **Deferred maintenance costs** – Service providers can increase or decrease cash costs by deciding when repairs are conducted. If costs are accrued, assumptions about deferred amounts need to be justified, which poses an additional verification challenge.
- **Indirect cost allocation** – Costs related to administration and overhead are often only partially allocated to specific service areas. Different assumptions about cost allocations can produce significantly different figures.
- **Governance and systems strengthening activities** – Some service providers invest time and resources in shaping the institutional and policy environments around their work. Accounting for this is tricky. Assumptions are needed to determine how much of these costs should be met by revenue from service users when considering overall financial performance of the service operator.

Revenues are less ambiguous. Local revenue, such as tariffs, becomes especially clear when defined as cash received rather than accounts receivable. Service providers need to simply sum the amounts they actually collect from users and local institutions.

Cash itself can be difficult to confirm, but the increasing prevalence of digital payment technologies makes user payments more verifiable. Mobile money is widely available, even in many remote and rural contexts. Most service providers also prefer digital payments where possible; collecting cash is a costly hassle.

With the trend towards digital payments likely to continue, focusing exclusively on revenue makes

financial verification systems easier to scale. Service providers can simply make digital payment and banking records available. Without the need to probe assumptions about cost allocations or attempt to reconcile unaudited records, the number of service providers that can be assessed grows exponentially.

Tracking Infrastructure Use

For infrastructure, the need to confirm only uptime and volumetric use means that verification needs can be met by a range of technologies. Timestamped use data supports tracking of both uptime and volumetric consumption. Importantly, since results are paid for in arrears, real-time monitoring is not necessary; although real-time monitoring can have wider benefits for improving operational performance. From a results-based contract verification perspective, any technology that can eventually provide unmanipulated data over the relevant period could be used.

Such usage data is standard for piped infrastructure; handpump monitoring technologies are still developing. The challenge of remotely transmitting data continues to be a significant barrier for handpump monitoring, both in terms of cost and technical feasibility. Relatively few options are available for directly measuring handpump volumetric use. Technological progress is reducing costs and increasing reliability, but simplifying data collection needs might provide the biggest opportunity for technological adoption. Simple data loggers are cheaper, more versatile and more robust than monitoring systems with integrated sensing and data transmission capabilities. Furthermore, service providers may be willing to invest in larger quantities of monitoring technology if it is affordable, reliable and linked to opportunities for results-based funding.

The Economics of Monitoring Technologies

Results-based funding tied to infrastructure use data influences the potential return for service providers considering investing in monitoring tech. Monitoring every remote waterpoint might not be feasible, but requiring a reasonable and randomized sampling could become an eligibility requirement for results-based funding.

All involved stand to benefit:

- **Funders** with increased attributability and confidence in results delivered;
- **Service providers** with insights for service improvement and incentives for reaching the most vulnerable; and
- **Governments, investors and climate specialists** that can leverage large, high quality datasets to improve policy delivery, planning transparency and performance regulation.

Verification Systems for Scale

A simplified contract design dependent on a small number of key metrics simplifies verification requirements. Removing the need to verify costs avoids some of the biggest potential problems. Possibilities exist for remotely tracking revenues and infrastructure use, even if data are not transmitted in real-time. Logged data records, collected at a later date, align with a results-based funding model that pays after results are delivered. By clearly defining and simplifying verification requirements, the potential to expand digital verification systems globally becomes much more realistic.

Unlocking Resources

Simple, scalable and transparent funding models are more likely to engage sustainable sources of non-repayable funding

Beyond incentive and verification considerations, simplicity and transparency of the results-based funding model is a key design goal with the aim to use existing resources more effectively and to engage new types of funders. Key metrics, incentives and contract structures need to quickly resonate with a wide range of audiences that are willing to commit resources towards a compelling opportunity for impact at scale.

We believe that a simple, standardized and scalable contract design makes the approach both more compelling and easier to understand. The results-based payment structure makes it clear how services are supported to continue developing while being motivated to become progressively self-financing. Incentives and results are both transparent and desirable.

UPTIME CATALYST FACILITY

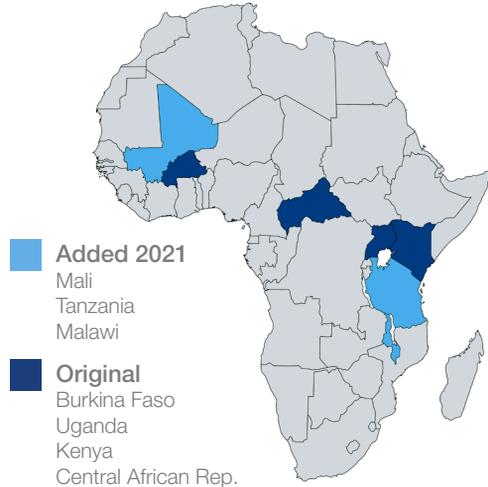


Figure 10 – UCF contracted service countries

Expanding to New Countries

The funding approach can be intuitively applied to any available data to summarize performance and determine payments. This type of assessment is now enabling the expansion of the Uptime Catalyst Facility to contract new services in Mali, Malawi and Tanzania, delivered by UDUMA and Water Mission, respectively. With the contract model and data systems established, modeling and executing on scale up was straightforward when new resources became available. Since January 2021, the Uptime Catalyst Facility is supporting services for c. 1.5 million people in seven African countries.

A webapp developed by the Uptime consortium now automatically generates results summaries and projected results-based payments from historical data. A universal results-based contract design and standardized data systems can be used to model possibilities for scale up. Figure 11 shows modeled results and payments based for all available data from Q2 2020. The standardized contract model and data platform shows where results are being reported and could link to results-based contracts. In this instance, services for c. 1.7 million people on three continents could be engaged at an annualized cost of under USD 1 million. Projections like this can illustrate to potential outcome funders what their funding might achieve.

Q2 2020: Revenue-Match Contract Modeled Payments from Data



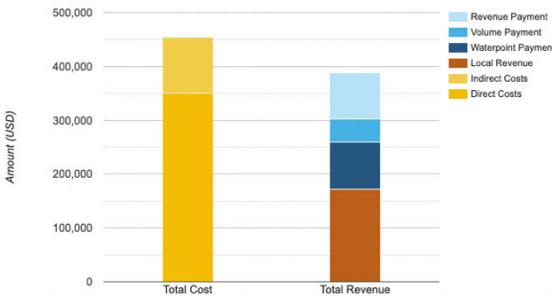
- 4,894**
Waterpoints with uptime >96%
- \$172,494**
Payment from users
- 1.7 million**
Estimated population served
- 408 million**
Estimated total litres:

Quarterly results-based payment:

\$216,520

Estimated payment per person served: \$0.13
Annualized total: \$866,083 | Annualized per person: \$0.52

Financial Performance



Working Ratio

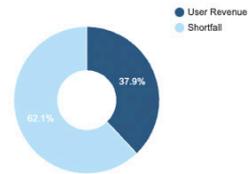
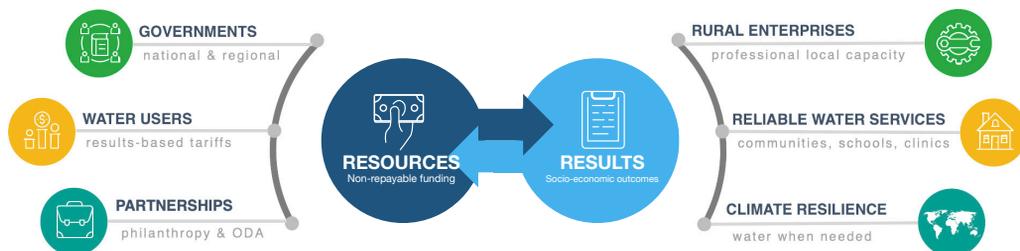


Figure 11 – Web application automates calculation of results and payments for projections and transparent reporting www.uptimewater.com

Matching Resources to Results

To achieve scale, a proven contract model and underlying data systems can also be made available to different funding sources to support new groups of services. The Uptime Catalyst Facility and services delivered by Uptime members is one instance of matching resources to results. We believe that a transparent and effective results-based model can attract sustainable sources of non-repayable funding for rural service outcomes such as governments, development partners and philanthropies.

MATCHING RESOURCES TO RESULTS AT SCALE



Such a platform would allow a variety of outcome funders to efficiently link with clusters of services through a transparent and scalable approach. Services with sufficient quality and data can be grouped and made available to funders seeking socio-economic returns. Country governments will become more likely to engage as successful track records are established. In parallel, data captured from the process can inform wider strategies for policy design, investment and climate risk mitigation.

Sustainable Sources of Non-Repayable Funding for Scale

A proven results-based funding design opens up possibilities to engage both new types of outcome funders and to use existing sources of non-repayable funding more effectively. A scalable data system can transparently and efficiently demonstrate how resources translate into results at scale. These systems can be readily made available to existing foundations and philanthropies, to development partners and to governments managing or overseeing services. As a platform for results-based funding develops, opportunities to engage governments and other institutional partners can accelerate the potential for global scale.

Conclusions and Next Steps

Experience from the Uptime Catalyst Facility pilot finds that a results-based contract design with subsidy payments determined from revenues rather than costs creates stronger incentives and is easier to verify. The new 'revenue-matching' results-based contract is now being tested across seven African countries to support reliable water services for an estimated 1.5 million rural people. Results-based payments are projected to be less than USD1 per person per year while users continue to pay approximately one-third of service operational costs.

A simple and transparent opportunity to fund results at scale has potential to use existing sources of non-repayable funding more effectively and to engage new types of funds to participate in the rural water sector. Early results from the Uptime Catalyst Facility demonstrate that a multi-country results-based funding model for rural maintenance services can be scaled. Pursuing wider scale up, including beyond Africa, will be essential for testing the durability of the model and for achieving the vision of reliable universal water services.

Next phase developments will pursue three main areas of work:

Continued contract testing with strengthening verification – The Uptime Catalyst Facility will continue to run through 2024 to refine the results-based approach and report on lessons learned. The project will progressively strengthen its verification systems and capacity for data and contract management as it supports services for c. 1.5 million people in seven countries.

Developing a pipeline of new service providers – Partnership with REACH and the Rural Water Supply Network is engaging new service providers globally to identify candidates for scale up⁵. Next phase growth aims to expand results-based funding to directly support service providers serving an additional 5 million people in Africa, Asia and Latin America.

Engaging new funders and institutional partners – Scale towards services for 100 million by 2030 requires wider partnerships beyond direct engagement of service providers. Governments, philanthropies and development partners have the opportunity to either adopt or fund the results-based model. Governments with appropriate policy frameworks and ability to allocate public finances to rural water maintenance services can directly adopt and adapt the results-based approach.

5 <https://www.rural-water-supply.net/en/collaborations/details/119>

This paper was developed with support by
Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ) GmbH

Friedrich-Ebert-Allee 32 + 36
53113 Bonn, Germany
T +49 228 44 60-0
F +49 228 44 60-17 66

Dag-Hammarskjöld-Weg 1-5
65760 Eschborn, Germany
T +49 61 96 79-0
F +49 61 96 79-11 15

E info@giz.de
I www.giz.de

URL links:

This publication contains links to external websites. Responsibility for the content of the listed external sites always lies with their respective publishers.

When the links to these sites were first posted, GIZ checked the third-party content to establish whether it could give rise to civil or criminal liability.

However, the constant review of the links to external sites cannot reasonably be expected without concrete indication of a violation of rights. If GIZ itself becomes aware or is notified by a third party that an external site it has provided a link to gives rise to civil or criminal liability, it will remove the link to this site immediately.

GIZ expressly dissociates itself from such content.

In partnership with



Uptime is a global consortium to deliver drinking water services to millions of rural people through long-term, performance-based funding to achieve Sustainable Development Goal 6.1.



