

Background note

Results-Based Finance (RBF) in the water sector: use, rationale and conditions for success

12th Roundtable on Financing Water
16-17 April 2025, Jeddah

This background paper will inform discussions at the twelfth meeting of the Roundtable on Financing Water (16-17 April 2025, Jeddah).

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Key messages

- Results-based finance (RBF) links financial rewards or penalties to a set of pre-agreed results. It can be appealing to funders looking to maximize impact and value for money.
- RBF has been deployed for results across the water sector, from rural sanitation to stormwater management, with successful outcomes.
- RBF can be embedded in grant and repayable finance mechanisms and has been used in contracts with private service providers as well as public sector organisations.
- Whilst initial RBF models focused on rewarding output-level results, such as the number of water supply connections, there has been a gradual integration of outcome-level results relating to services' sustainability.
- RBF seeks to achieve results by disrupting "business-as-usual", whether by incentivising organisations to increase service levels (increasing coverage rates in hard-to-reach areas or improving quality of services) or to adopt innovative climate-responsive technologies and operational processes. RBF can also be used to incentivise institutional reforms, which requires strong organisational buy-in.
- The introduction of RBF models should be carefully assessed against potential limitations and challenges, which include: (i) design and implementation costs (particularly for setting commonly agreed performance metrics and for the verification agent); (ii) the capacity of funding recipients, which may require providing them with technical assistance to mitigate the risks of failure; (iii) the risk of service providers' relying on results-based grants rather than identifying opportunities for efficiencies and more sustainable sources of funds; (iv) replicability at scale: few large-scale development finance organisations have adopted results-based contracting, limiting the adoption of this funding modality at scale.
- Funding facilities that have adopted results-based payment structures, such as the Uptime Catalyst Facility, offer the opportunity to pool funding from different sources and could help overcome funders' internal barriers to RBF.

Questions for the Roundtable

- What is the state of play in the use of result-based finance for water?
- Can result-based finance increase the sustainability of water investments and how?
- How to incentivise outcome-result levels (e.g., service's sustainability), in addition to output-result levels (e.g., number of new connections)?
- Are certain types of RBF mechanisms (grants, loans, PPPs, bonds, etc.) particularly well-suited sustainable water investments?
- To what extent can RBF mechanisms act as a catalyst for political or institutional reforms?

Introduction

Results-based financing (RBF) refers to a variety of instruments linking financial rewards and/or penalties to the achievement of pre-agreed results. RBF mechanisms are set in contracts between funders and funding recipients that typically feature the following components:

- Clearly defined targets for agreed results;
- A payment structure for each specific result; and
- Independent verification of the achieved results prior to payment release.

RBF appears increasingly relevant considering emerging funders' priorities and profiles. The focus of RBF tools on results with payment triggers strictly attached to their achievement can appeal to public funders facing budget constraints and seeking value for money. RBF can also be attractive for private impact investors, increasingly interested in water-related investments and keen to see financial as well as social and environmental returns. Innovative RBF instruments are emerging, such as sustainability-linked bonds, which tie the cost of capital to the achievement of pre-agreed results (ICMA 2024).¹

Can such instruments help tackle water sector challenges? Globally, 400 million people lack access to improved water supply and nearly one billion lack improved sanitation (WHO, 2022). In addition to access to services, the water sector is confronted with the challenges of sustainability, inclusion and climate resilience. Far too often, investments in infrastructure provision do not lead to sustainable services. In many countries, wastewater treatment plants are under-utilised, due to limited sewerage connections, resulting in plants severely under-performing (Kennedy-Walker, et al. 2020). Investments in urban water supplies are wasted in leaking pipes as many cities and utilities lack capacity and incentives for asset maintenance. A study estimates that up to 346 million cubic meter of water are lost daily, representing a financial loss of USD 39 billion every year (Liemberger and Wyatt 2018). In some regions, rural water infrastructure is at an even greater risk of failure, with water systems sometimes left for non-professional groups to manage (Kativhu, et al. 2022). In addition, in some countries, services' expansion has mostly benefited the more well-off and more densely populated areas, leaving pockets of peri-urban and rural populations under-served (Mitlin, et al. 2019). Climate change only exacerbates these challenges, as it increases the risks of service failure through the impact of droughts and flooding events.

This background note examines the use of RBF contracts in the water sector for improving the sustainability, efficiency and impact of water-related investments. It first analyses the extent of the use of RBF for water-related results, noting an emerging focus on rewarding services' performance improvements and the different types of funding instruments embedding the RBF element. The note then presents how RBF has been deployed to

¹ Sustainability-linked bonds are bonds where the proceeds are exclusively applied to finance or re-finance a combination of both green and social projects. Its financial and/or structural characteristics are contingent on the issuer achieving predetermined sustainability objectives, incentivising organisations to improve their sustainability performance.

incentivise changes within organisations' *modus operandi* for greater impact at service level. Finally, this note draws lessons on conditions of success of RBF schemes.

Findings in this paper build on eight selected case studies of RBF initiatives for water-related investments. These initiatives include one-off RBF contracts and dedicated funding facilities deploying multiple RBF contracts simultaneously. The choice of case studies was guided by their scope (geography, sector and funding instrument), but also the availability of documentation. This paper has been prepared based on a literature review and some complementary interviews. Authors did not access independent evaluation reports of these initiatives.

How is RBF applied in the water sector

A broad range of application, with an emerging focus on services' performance

RBF has been deployed to deliver results across the water sector, from rural sanitation to stormwater management (Table 1). RBF programmes are initiated and managed by different types of funders and implementers, including IFIs, foundations, private impact investors, NGOs and utilities. Recipients of RBF are central governments themselves, utilities, SMEs as well as NGOs.

Table 1: Water and sanitation-related RBF projects and initiatives discussed in this note

Project/initiative Sub-sector - country	Funder	Fund manager	Funds recipient(s)	Expected results and payment triggers (selected)
Programme for- Results (PforR) Rural sanitation - Egypt	World Bank (IBRD)	World Bank	Government of Egypt	New household wastewater connections Improved operating ratios of public utilities Adoption of a National Rural Sanitation Strategy
Urban Water Catalyst Initiative (UWCI) Urban water - Global	Bilateral donors,	Urban Water Catalyst Initiative Turnaround Facility	Selected utilities	Utility KPIs (selected on a case-by- case basis)
Development Impact Bond (DIB) Rural sanitation - Cambodia	USAID	Stone Family Foundation	iDE	Number of toilets installed
Results-based loan programme for water utilities Urban utilities - Kenya	Bilateral donors, philanthropies	Aqua for All	Selected utilities	Non-Revenue water Energy efficiency Metered connections
Social Impact Incentives (SIINC)/Impact- linked Financed (ILF) Water & sanitation - Global	Bilateral donors, philanthropies	Aqua for All/ Roots of Impact	Local SMEs	Increase in household connections in designated areas
Uptime Catalyst Facility (UCF)	Bilateral donors,	Uptime Catalyst Facility	Selected rural water service	Waterpoint uptime (uninterrupted service)

Project/initiative Sub-sector - country	Funder	Fund manager	Funds recipient(s)	Expected results and payment triggers (selected)
Rural water - Global	philanthropies (via Uptime Global)		providers	Volume of water sold Revenue generated
OBA for sanitation Urban sanitation- Ghana	World Bank	GPRBA	Service providers	Number of toilets constructed
Environmental Impact Bond Stormwater – US	Goldman Sachs and Calvert Impact Capital	N/A	District of Columbia Water and Sewer Authority (DC Water)	Reduction in stormwater runoff

These RBF contracts set two broad types of objectives, which can be categorised as follows:

1. **Increase access to infrastructure:** this type of results is measured by indicators on the availability of the infrastructure at one point in time. Typical indicators include the number of water and sewerage connections or the number of toilets installed; and
2. **Improve service performance:** this type of results is measured by metrics related to operational and financial performance, such as Non-revenue Water (NRW), stormwater runoff, treatment efficiency, metered and working connections etc. In some cases, improving services' performance may also require intermediary results, such as organisational changes, measured through the adoption of new tools (e.g. business plans, sector strategy), or procedures and technologies.

Initial RBF contracts only focused on the availability of infrastructure. In Accra (Ghana), the Global Partnership for Results-based Aid (GPRBA) programme for urban sanitation to the number of toilets constructed.² The programme was initiated in 2014 at a time when the Government of Ghana started to embrace non-sewered sanitation as a potential technology for densely populated areas. The output-based payment, amounting to 70% of the total toilet cost was introduced to incentivise service providers promoting the technology and to reduce the cost of purchase for households. In total, an estimated 70,000 toilets were constructed in Accra using a similar approach since 2014 (GPRBA 2021).

More recent initiatives continue to focus on infrastructure development. This is the case of Aqua for All's impact-linked finance portfolio, which provides grants to selected SMEs for developing piped water services in harder-to-reach rural areas. The impact-linked finance instrument deploys output-based grants to reward enterprises for achieving additional social and environmental impact – for example, water connections (Aqua for All 2024).

RBF has also been used to incentivise improved water service performance beyond the delivery of infrastructure. The World Bank rural sanitation “Programme for Results (PforR)” in Egypt combines payment triggers for infrastructure delivery, organisational development and improved service performance. The US\$ 1.15 billion programme has been running since 2015 with US\$ 550 million financing from the World Bank with a specific focus on the development of wastewater services in rural areas. World Bank financing is delivered on achievement of results measured by so-called “Disbursement-Linked Indicators (DLIs)” that were pre-agreed with the government. These payment triggers combine results at institutional level (for

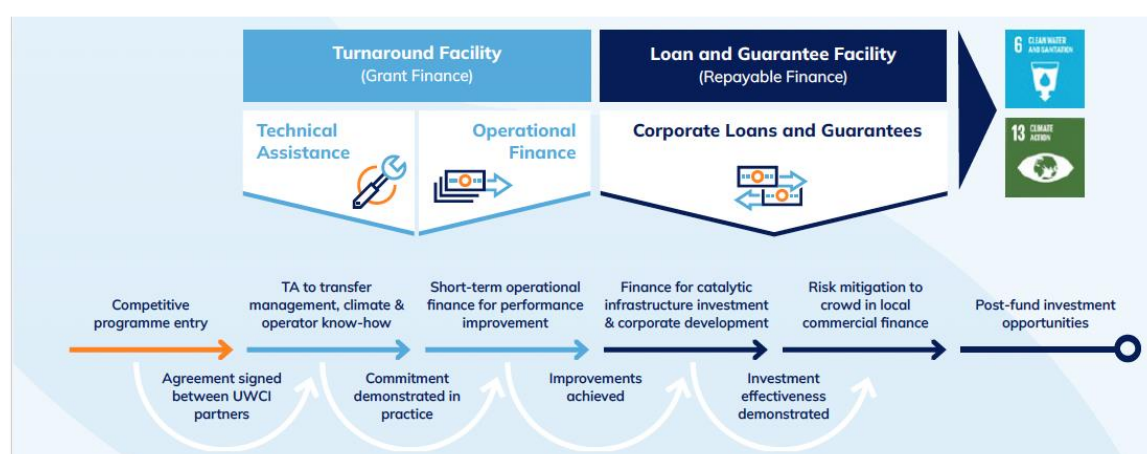
² GPRBA is a Trust Fund managed by the World Bank. Initially named Global Partnership for Output-based Aid (GPOBA), it has allocated 29% of its resources to water sector projects since inception in 2003 (GPRBA 2024).

example, the approval of a revised strategy for rural sanitation), organisational level (for example the operating ratio of local Water and Sanitation Companies or WSCs) and infrastructure coverage (World Bank 2018).

Other recent RBF programmes are dedicated to rewarding the operational and financial performance of selected service providers. These include:

- The **Uptime Catalyst Facility**: this funding facility strictly focuses on incentivising improved operational and financial performance. The facility was set-up in 2020 to address the lack of sustainability in rural water service provision. In response to this challenge, the facility offers results-based grants to selected service providers operating in selected rural areas on the condition that infrastructure is functioning for at least 96% of the time. Results-grant payments are structured to match the volume of water sold and the sales revenues (see Box 5). As of 2024, Uptime Catalyst Facility estimates that 5 million people in 11 countries globally have benefited from its funding (Uptime Global 2024).
- The **Urban Water Catalyst Initiative (UWCI)**: it was officially launched in 2025 to improve operational and financial performance of selected urban water utilities and enable them to access repayable finance. The programme, supported by the German and Dutch cooperation and the EU, has a two-stage approach, building on technical assistance grants to reward eligible utilities with potential access to repayable finance at attractive terms, enabled by a loan and guarantee facility. The second phase of the programme still relies on development finance (with loans and guarantees provided by KfW, the European Commission and other interested financial institutions), but development finance is set to play a catalytic role to unlock local finance – and local currency lending – through the provision of guarantees (UWCI 2025). The main rationale for the programme is to better link finance (especially development finance) to performance and sustainability of service provision, measured through utility KPIs such as NRW, working ratio and energy efficiency.

Figure 1: UWCI – a programme to incentivise operational and financial performance and unlock finance (UWCI 2025)



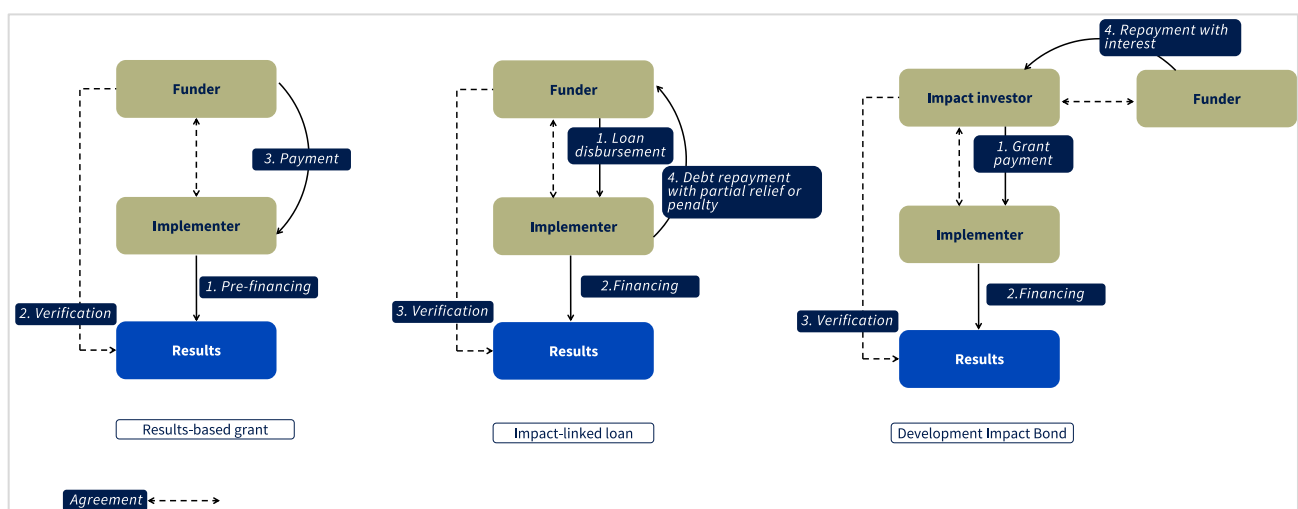
- **Aqua for All-Co-op Bank-Water.org partnership in Kenya**: The programme is set to kick-start in 2025. Aqua for All partnered with the local bank Co-op Bank and the international NGO Water.org. The three-year programme will support investments in

efficiency improvement for public utilities targeting non-revenue water (NRW) reduction, energy cost saving (solarization and efficient pumps), metering and last mile connectivity. According to the programme concept, such improvements require small operational capital of around KES 50 million/US\$ 385,000. Aqua for All has secured Co-op Bank's participation for the provision of commercial loans to eligible utilities – up to 15 utilities will receive technical assistance from Water.org to prepare loan proposals. Aqua for All will disburse grants to eligible utilities, amounting to 25% of the loan principal, only after utilities have achieved their pre-agreed performance targets and have repaid their loans in full. Co-op Bank has committed to disburse US\$ 3.85 million in loans to selected utilities, whilst Aqua for All will disburse a total of US\$ 825,000 in results-based grants and Water.org US\$ 257,000 in technical assistance.

Embedding RBF in grants and repayable finance

RBF has been deployed using both grants and repayable finance (Figure 2). The typical or traditional model, as initiated by GPRBA in the water sector, is a results-based grant delivered upon achievement of pre-agreed results, as verified by an external agent.

Figure 2: Selected RBF funding channels and instruments



Source: Authors

In a typical grant-based RBF structure, service providers take on the bulk of financial risks. This is the case, for example, of the Uptime Catalyst Facility which only pays service providers *after* results have been achieved. It therefore shifts the financial risks on the service providers, who face the prospect of implementation costs not being recovered if pre-agreed results are not achieved. Such a funding structure requires service providers to have the capacity to deploy funding for these investments and operations upfront.

Shifting this risk to service providers and requiring them to fund all investments upfront can limit the deployment of RBF at scale. The Development Impact Bond designed to increase the uptake of sanitation facilities in Cambodia sought to address this limitation of RBF instruments, whilst retaining a focus on results. Unlike in a typical RBF structure, service providers do not pre-fund investments and operations. Initial funding is provided by an impact investor who only recovers the investment from an “outcome funder” after results are achieved. In a DIB, impact investors, rather than service providers, bear the bulk of financial risks (**Error! R**

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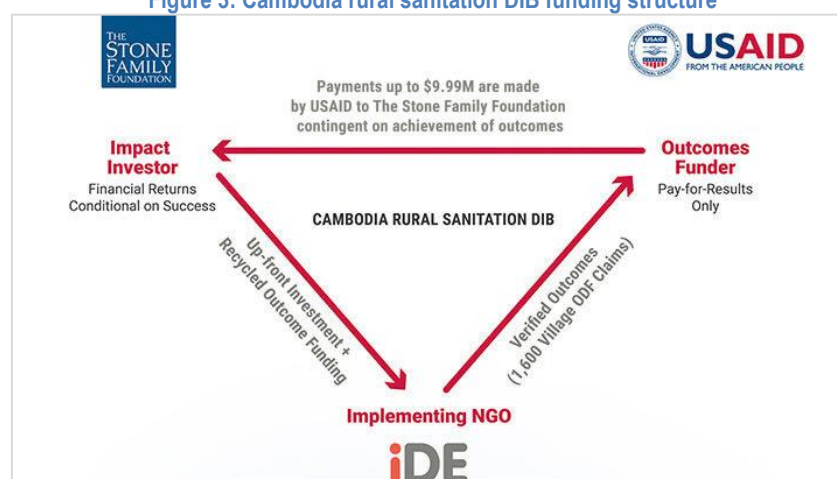
Box 1: What are Development Impact Bonds (DIB), and how they work

DIBs are a spin-off from Social Impact Bonds. SIBs are performance-based financing mechanisms in which the ultimate funder (outcome payer) only disburses funds based on the achievement of pre-agreed outputs and/or outcomes. Unlike earlier performance-based financing structures with an outcome funder and a service provider, SIBs involve an additional, intermediary funder. This intermediary funder (the impact investor) provides upfront capital to the service providers. If and when intended results are achieved, the impact investor recoups its investment (with interest) from the outcome payer. The major benefit of the model is the availability of capital for service providers. Specific outputs/outcomes are pre-agreed and targeted at the design stage, and pre-funding to service providers is made available. Service providers do not have to concern themselves with building the initial working capital, as is often required in more classic results-based schemes.

The DIB in Cambodia is the first globally for sanitation – and for WASH in general. It involved four main actors (Figure 3):

- The Stone Family Foundation (SFF) provided the upfront working capital, which enables the service provider iDE to plan securely all required activities;
- iDE provided service provision expertise;
- USAID provided outcome funding (up to US\$ 10 million worth of outcome-based payments), which included a return on investment (premium) for the impact funder and therefore an incentive for the investor (SFF); and
- Government of Cambodia as the verification agent.

Figure 3: Cambodia rural sanitation DIB funding structure



The programme aimed to ensure that 1,600 villages in six Cambodian provinces were open defecation free (ODF) through the adoption of low-cost toilet facilities. In addition to reaching impact, the project aimed to serve as a demonstration project for DIBs for water and sanitation. By the end of 2023, the DIB outperformed its initial targets with over 1,700 villages declared ODF.

Source: (Stone Family Foundation, iDE & USAID 2019)

RBF can also be embedded in impact-linked loans or bonds in a manner that incentivises borrowers through debt repayment terms. Examples of this use of RBF in the water sector include:

- The NGO Aqua for All's loan product, which interest and principal repayment may be reduced if the borrower over-achieves pre-agreed targets; and
- The Environmental Impact Bond (EIB) with the public utility DC Water, which has to adopt green infrastructure for stormwater management (US EPA 2017) (Box 2).

Box 2: The results-based element in the Environmental Impact Bond for stormwater management

In 2016, the public utility DC Water issued an Environmental Impact Bond (EIB) to finance green infrastructure aimed at reducing stormwater runoff and mitigating combined sewer overflows. The US\$ 25 million tax-exempt bond, purchased by Goldman Sachs Urban Investment Group and Calvert Impact Capital, introduced a **Pay-for-Success model, linking investor returns to the actual effectiveness of green infrastructure in stormwater retention**. The project implemented 20 acres of green infrastructure, including bioretention rain gardens, permeable pavements, and green parks, in the Rock Creek sewershed. Performance was independently monitored, with financial payouts contingent on runoff reduction levels. The payment was structured to overcome DC Water's reluctance to invest in green infrastructure: the city was already heavily investing in grey infrastructure and there was limited evidence of the effectiveness of green solutions. Transaction advisors estimated a range of runoff reduction (between 18.6% and 41.3%), above which DC Water would pay investors a US\$ 3.3 million bonus. If the green infrastructure underperformed (below 18.6%) it would trigger a US\$ 3.3 million payment to DC Water. If the reduction was within the expected range, no additional payment was made. Results showed a nearly 20% reduction, within the expected range, demonstrating the viability of green infrastructure for urban stormwater management, without financial losses to any party.

Source: (World Water Council 2022) (US EPA 2017)

RBF as a lever of change

RBF is typically introduced to disrupt “business as usual” and incentivise shifts in funding recipients’ *modus operandi* for greater impacts. Using reward and/or penalty mechanisms, RBF seeks to generate greater ownership of the process and buy-in for the pre-agreed results, critical to secure the achievement of desired outcomes. Drawing on the case studies, this section examines the different pathways to change RBF have introduced for achieving greater results at service delivery level.

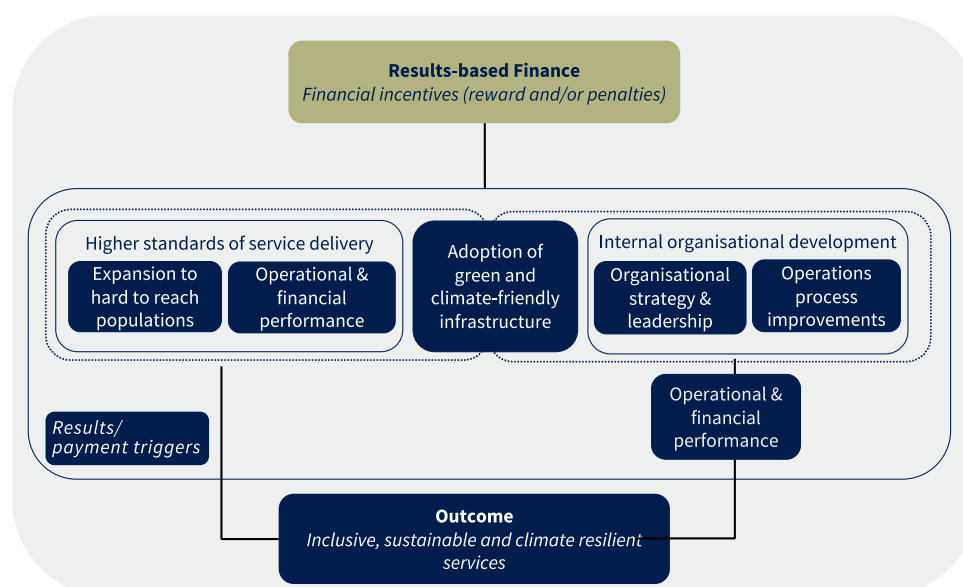
RBF to disrupt business as usual

RBF instruments have been used to incentivise three broad types of changes within organisations:

- Internal **organisational development**, as demonstrated by institutional reforms at government level and the adoption of improved organisational processes at corporate level;
- The delivery of **higher standards of services**, as evidenced by the expansion of services to underserved areas and the achievement of higher performance indicators; and
- the adoption of **green and climate-friendly infrastructure**.

For some organisations, results are first expected at the organisational level – without which service level results will not be achieved (Figure 4). In the case of better performing organisations, significant changes at the organisational level may not be required, but RBF are introduced to stimulate higher impacts, more challenging to achieve and representing a shift in the way the organisation would “normally” operate.

Figure 4: Different pathways to disrupt “business as usual” and enable greater impact



These three types of changes are further discussed below.

Internal organisational development

One main objective of RBF schemes has been to incentivise organisational development, including at the level of government institutional systems. The PforR instrument of the World Bank is an example of RBF introduced to incentivise governments' system change. The instrument is designed to build capacity within country recipients and enhance the effectiveness, efficiency and sustainability of results. Unlike other World Bank instruments, PforR uses countries' own institutions and processes for project implementation, linking the disbursement of funds directly to the achievement of specific programme results. The World Bank and the government agree on disbursement-linked indicators, which can relate to service delivery, institutional reforms or any other intermediary results. As the programme builds around government systems, it offers the opportunity of co-funding and therefore leverages partnerships with other funders. The rural sanitation programme in Egypt illustrates the rationale for using the RBF instrument when a whole government system change is required (Box 3).

Box 3: The government system's change under the rural sanitation programme in Egypt

In Egypt, the PforR for rural sanitation was introduced following previous traditional project lending that failed to deliver the expected services. This experience showed that planning for infrastructure alone was not sufficient: by the end of the project, although wastewater networks had been laid, wastewater treatment plants (WWTPs) were not operational, with beneficiaries lacking access to the full chain of services.

The PforR set to address these issues by strengthening government systems for stronger impacts at the service level. The PforR built on the national sanitation programme and identified all intermediary steps that were missing for effective service delivery. Discussions between the World Bank and the government established the disbursement-linked indicators, which would incentivise the implementation of reforms and accelerate the achievement of results. Such intermediary indicators included, among others: the introduction of a sanitation strategy (setting clear goals, targets and strategic measures for the sector); land acquisition (to avoid construction delays) in addition to KPIs on utility performance. By 2023, when the first phase came to a close, the programme had achieved

all expected results, both in terms of improving government systems and service levels (Table 2).

Table 2: Results achieved under Phase 1 the Egypt PforR (2015-2023)

Government systems level	Service level
- National rural sanitation strategy adopted to provide clear objectives and strategic directions - Standard Operating Procedures (SOPs) for land acquisition approved to streamline the process for future infrastructure expansion - Sector monitoring system in place through the Egyptian Water Regulatory Agency (EWRA), with annual performance reports published on rural sanitation	167,000 new household connections to working sanitation systems have been established across the governorates of Beheira, Dakahliya, and Sharkiya. 833,000 people with improved sanitation services across the service chain 10% of the new household connections established in satellite areas, which are remote and underserved populations

RBF has also been deployed to incentivise changes at utilities' organisational level.

Among the case studies, the UWCI has a strong focus on utilities' performance improvement, which can require significant organisational changes, such as leadership development, business planning, processes and procedures for asset maintenance as well as efficient human resources policy. In the first phases of the programme, the UWCI intends to provide technical assistance to partner utilities to build their capacities in these areas through Water Operator Partnerships (WOPs). Participating utilities will be able to access finance from the Facility only when deemed to have made significant improvements, as reflected in their financial performance. The PforR in Egypt also includes measures (and payment triggers) related to Water and Sewerage Companies' performance (measured by their operating ratios).

Higher standards of service levels

For many funders, reaching remote areas and populations is the main outcome expected through the RBF model. The rural sanitation Development Impact Bond in Cambodia and the Ghana's output-based aid for urban sanitation, for example, were designed to incentivise service providers to enter markets they would not necessarily consider because of perceived risks. The results-based feature of the grant acted as an incentive for service providers to accelerate the pace of services' uptake. In Cambodia, the NGO iDE who was the funding recipient of the Development Impact Bond was already involved in rural sanitation provision and had significant hands-on experience with "selling" sanitation. The RBF project was designed for iDE to use this experience in remote areas where open defecation was high. Aqua for All also entered into an RBF contract in Cambodia to enable poorer or more remote communities to benefit from services from an operator that was already well-performing (Box 4).

Box 4: Aqua for All's contract to incentivise utility services' expansion in hard to reach areas

Aqua for All implements an RBF programme (referred to as "Social Impact Incentives" or SIINC) that delivers grants to established utilities for serving remote areas. In 2020, the water enterprise Khmer Water Supply Holding (KWSH) entered into an agreement with Aqua for All for a SIINC. At signing, KWSH already offered clean and affordable water services to about 12,000 (semi-) rural households, demonstrating a strong capacity for impact. It had already acquired and upgraded five license areas. Due to higher investment costs, more difficult-to-reach and often poorer households and areas were in some cases left behind. The SIINC for WASH was designed to encourage and reward the enterprise for going the extra

impact mile. This is measured through two metrics that incentivise KWSH to create additional impact: (i) percentage of connected households; and (ii) additionality level of new license areas. The second metric aims to steer KWSH's decision to acquire stations in the next three years, where their intervention would have deeper impact. The extent of new license areas' impact is assessed using three criteria: i) Percentage of poor households; ii) coverage rate (expressed in percentage); and iii) percentage of people with access to clean water. SIINC for WASH only rewards medium and high additionality areas. In total, the transaction involved EUR 350,000 in impact-linked funding (non-repayable) over three years, with impact verification scheduled every 12 months.

Source: (Aqua for All 2024)

Whilst all RBF initiatives target the improvement of services, some put particular emphasis on increasing the quality of services, with the disbursement of funds linked to the achievement of specified standards. The Uptime Catalyst Facility, for example, was set-up to address the lack of sustainable water services in rural areas due to a lack funding and limited performance incentives. Its agreements with selected service providers include strict performance measures, in addition to incentives for improving financial performance.

Box 5 illustrates the Uptime Catalyst Facility's model based on one of its contractors' experience, Uduma, a rural water operator. Additional revenues generated through the RBF agreements incentivise the operator to keep service levels in communities where water consumption is relatively low.

Box 5: Rewarding performance for higher service levels and the sustainability of services: Uduma and the Uptime Catalyst Facility

The Uptime Catalyst Facility provides results-based grants to selected operators based on performance data related to water systems' "uptime" (referring to the continuity of services), the volume of water sold and revenue generated by rural water operators. The model was designed to address the lack of sustainability of rural water services, in the context of poor capacity to pay and lack of access to predictable funding.

Uduma is a private company specialised in water services operating in four countries in Africa. It mainly operates under lease contracts with governments for the management of standpipes and water connections in rural and small town water systems. The company has a funding agreement with the Uptime Catalyst Facility for results-based grants for 38 water points in Burkina Faso and 272 water points in Mali.

The grant amount disbursed by Uptime is determined every quarter based on the performance of each water point. The payment comprises:

- A "results payment" or a top-up on the revenues from water sales for each water point that is functional 96% of the time: for water systems using a flat fee, UDUMA receives US\$50 per water point, minus local revenue collected; for systems using a volumetric tariff, UDUMA receives US\$0.50 per m³ of water sold, minus what the enterprise already collected from users;
- A "matching payment": UDUMA gets an additional 50% of the local revenue collected to encourage cost recovery.

Such results-based grants provide strong incentives for operators such as UDUMA to enter markets where operating water systems require some subsidies and to ensure water systems offer continuous services. At the same time, the matching payment based on revenue incentivises operators to continue to seek revenues from sales rather than relying on grants only.

Source: Interview with Uduma & www.uduma.net

Adoption of green and climate-friendly infrastructure

RBF have also been used to incentivise the adoption of greener and climate-friendly technologies, which service providers are not always able or willing to prioritise. DC Water's Environment Impact Bond is a case in point. When the bond was designed, DC Water was already implementing a US\$ 2.6 billion grey infrastructure project to control sewer overflow. This mega project was a response to intense rainfalls, which have led to combined sewer systems overflowing into river ways – an estimated 2 billion gallons of raw sewage was dumped into river ways each year. The Environmental Impact Bond set up a results-based financing structure to test an alternative and complementary flood management system via green infrastructure. As DC Water was reluctant to invest in the green infrastructure, the bond (the first of its kind in the US) was structured such that DC Water would incur an additional one-time payment to investors if the reduction in the runoff was better than anticipated (contributing to sewer overflow reduction); or if the green infrastructure performed less, with greater runoff, then DC Water would receive a one-off payment from investors.

Making RBF work: conditions for success

RBF schemes hold potential for delivering a range of results in the water sector, but they also come with limitations and implementation challenges. These include:

- **Costs:** RBF contracts can be costly to design and manage: resources are required to identify results that will be payment triggers and to structure the associated financial reward (or penalty). The success of RBF schemes is also dependent on setting up adequate performance verification mechanisms, which come with an additional cost;
- **Higher risks for implementers (funding recipients):** in most RBF contracts, payments are strictly linked to the achievement of results, which may put service providers in a difficult financial position and in turn affect project implementation. In addition, as discussed above, RBF can be used to incentivise significant changes at the organisational level, which implementers may not be ready for;
- **Perverse incentives:** Where grants are provided to service providers (for example, for serving remote areas), RBF risk creating a dependency on external funding rather than more sustainable sources of funds (for example, tariffs); and
- **Performance data management:** with funding dependent on results, only reliable performance data management systems (from reporting to verification) provide credibility to RBF initiatives. This requires strong capacity and data management systems on both the funder and implementation side.

Funders seeking to use RBF should consider these limitations and challenges and establish mitigation measures from the project preparation stage.

Project preparation: consulting and building on experience

RBF are partnerships between funders and implementers and require a collaborative effort from the project preparation stage for setting ambitious yet achievable targets. During the project preparation stage, funders can assess, in consultation with the implementer, all the risks involved together with potential mitigation measures. These consultations should lead to a consensus on (i) the level of results to be achieved and potential intermediary results, striking the balance between ambition and the risk of non-achievement, (ii) the funding amount

and (iii) the level of flexibility of the agreement in case of unforeseen events.

RBF models emerging from a previous partnership between funders and implementers are better positioned to identify this balance. This is the case of the World Bank PforR in Egypt, the Development Impact Bond for rural sanitation in Cambodia and the Urban Water Catalyst Initiative, for example. Previous experience between stakeholders can be a stepping stone for the development of results-focused programmes and can facilitate a common understanding of the results to be achieved, of potential challenges and of any intermediary results that should also be considered.

Providing technical assistance where needed

Since payment is contingent on results and entails significant risks for implementers, RBF may necessitate robust technical assistance. In the case of the PforR in Egypt, the World Bank provided technical assistance to the government for carrying out the necessary reforms. Technical assistance was funded through the Global Water Security and Sanitation Partnership (GWSP), which enabled the government to meet expected results at government systems levels. Aqua for All has also embedded technical assistance in several of its results-based grants and lending programmes. The results-based loan programme for water utilities in Kenya, for example, includes a technical assistance activity for project preparation and business case development (provided by Water.org), to enable utilities access loans. The UWCI has integrated technical assistance in the first phase of utilities' participation to strengthen their operations and financial capacities.

Addressing risks of perverse incentives in results-based grants

RBF models can address the risk of substituting more sustainable sources of funds for grants. First, funders can restrict the use of RBF to selected geographies, where alternative sources of funding are difficult to secure due to affordability constraints. This requires funders to screen geographies and clearly identify targeted areas. Second, RBF can embed specific measures to incentivise financial performance, in addition to service coverage or quality. The Uptime Catalyst Facility, for example, uses revenues from water sales to determine the funding that grantees will receive: the higher the revenue, the higher the grant. Rather than substituting for water sales income, Uptime rewards the generation of higher revenues (Uptime Global 2024). In the case of Aqua for All's results-based grant programme, eligible funding recipients are private entities that have the capacity to access repayable finance. The impact-linked grant is strictly linked to the expansion of the entity into areas where it would not "normally" operate.

Strengthening the results verification process

RBF approaches are as credible as their results verification processes, which start with the setting of performance measures. Some RBF schemes have set sophisticated results indicators, requiring high level expertise for establishing the baseline, measuring and rewarding improvements. The Environmental Impact Bond for stormwater management through green infrastructure (DC), for example, required hydraulic engineering to set the baseline and establish measures of payment triggers. DC Water monitored rainfall and sewer flow for 12 months in the specific areas where the green infrastructure was to be installed. The analysis allowed DC Water to estimate the baseline (current amount of stormwater runoff) and then estimate the performance of the green infrastructure (in terms of reduction of stormwater

runoff).

The adoption of outcome-level indicators as payment triggers can be a challenge for measuring performance. As shown in this paper, several schemes aim to achieve improved services' performance, which may be more difficult to measure compared with output-level indicators (for example, access to infrastructure). The Uptime Catalyst Facility monitors the performance of thousands of water points and multiple service providers. To address this challenge, the Facility has set-up a multi-layered data management system, combining reporting from service providers, onsite verification and data analysis to identify anomalies (**Error! Reference source not found.**).

Box 6: Uptime data management system

The Uptime Catalyst Facility's data management system is designed to maximise data integrity. The system integrates automated anomaly detection, on-site verification and independent financial audits. Uptime ties financial disbursements to objectively verified service results, reducing the risk of inefficient spending. At the data validation stage, Uptime uses timestamped infrastructure usage logs and digital revenue tracking to cross-check reported uptime and financial transactions. This simplifies the verification process, minimizing administrative costs while maintaining transparency. A part of this data is collected through sensor-based monitoring, such as temperature sensors on handpumps, which provide independent, real-time confirmation of functionality. However, sensor deployment remains uneven across Uptime's grantees and some regions are still reliant on manual reporting, which introduces potential discrepancies. Data audits and site visits verify operating times, water volumes and revenue collected, with major discrepancies leading to financial penalties or withholding of payments. Uptime is planning to introduce water safety metrics, including sanitary inspections, microbiological and chemical testing, expanding verification beyond infrastructure reliability to long-term water quality insurance.

Source: (Uptime Global 2024)

In some cases, the RBF approach, because it requires data for verification, can enhance organisations' own sector data management systems. This is the case in the World Bank-funded rural sanitation programme in Egypt. The programme introduced a key performance indicator, and payment trigger, related to the financial performance of water and sanitation companies in charge of wastewater assets. As a result, and due to reporting requirements, the programme led to the establishment of a sector monitoring system through the Egyptian Water Regulatory Agency (EWRA), which publishes annual performance reports on the rural sanitation sector.

Conclusion

RBF is used across the water sector, demonstrating multiple approaches to better tie funding with results. At least four of the initiatives reviewed in this paper have led to improved and higher standards of service delivery: the Development Impact Bond in Cambodia, which outperformed expectations, the PforR in Egypt, which has delivered on all results initially defined and received additional financing, the Uptime Catalyst Facility and the Environment Impact Bond with DC Water. Other initiatives are promising but are at early stages of implementation.

Increasingly, RBF are embedding sustainability indicators, moving away from narrow infrastructure-level results (e.g. number of connection). Indicators relate to the performance of water and sanitation services (continuity of supply, green infrastructure performance) as well as organisational performance (working ratios and revenue, for example, in the case of utilities). This use of RBF demonstrate they can be deployed to shift the focus towards more sustainable outcomes. However, measuring associated results can be challenging, requiring adequate skills and resources.

Although they can address multiple water sector challenges, from inclusion to climate resilience, RBF contracts are not a panacea. There should be a clear rationale for introducing RBF based on the results to be achieved, the capacity of implementers and an assessment of risks of failure.

A key factor of success of RBF initiatives is a transparent and constructive partnership between funders and implementers. Such a partnership contributes to designing RBF contract terms that are challenging, yet achievable. It is also critical to identify potential requirements for technical assistance, especially for utility and government organisational level results.

Going forward, further engagement between funders and implementers is needed to replicate and scale RBF approaches. Few international finance institutions are equipped for such RBF mechanisms in practice. When the Development Impact Bond in Cambodia ended, despite its impressive results and interest from impact funders, the model did not replicate due to the lack of interested outcome funders. The lack of interest can be linked to the absence of structures within some international finance institutions for RBF.

A model that could be explored further to overcome the challenge of funders' systems, is the funding facility model. The Uptime Catalyst Facility is an example of such a facility. It can receive funding from multiple sources and manage results-based payments on behalf of funders. The challenge, however, with this type of pooled funding, is to ensure that the scope of the facility (in terms of targeted services, implementers and geographies) is wide enough to address funders' policy concerns. To date, for example, Uptime is tailored for small water systems, which can be easier to manage than larger urban systems.

Finally, further analyses should be carried out to better understand the value for money of RBF schemes. To date, there is limited evidence on the cost-effectiveness of RBF versus other funding modalities. Whilst the initiatives reviewed in this paper show that RBF have succeeded in delivering expected outcomes, there is limited data on the costs of designing and managing such contracts.

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