

THE ROLE OF
PHILANTHROPIC CAPITAL IN
**SUPPORTING PRIVATE
FINANCE MARKETS FOR
RURAL WATER**



Acknowledgements

This brief was commissioned by the Conrad N. Hilton Foundation, whose commitment to strengthening sustainable rural water services provided the foundation for this work.

The report was developed by Aguaconsult in collaboration with many organizations whose insights, experience, and time greatly enriched this effort. While the contributors are too numerous to acknowledge individually, we wish to especially recognize the contributions of athaniel Mason, Water.org, Tanga UWASA, KWSH, TapEffect, Bidhaa Sasa, Aqua for All, UDUMA, Virridy, Millennium Water Alliance, Global Water Center, Catholic Relief Services, Danone Communities, FONADIN, Cewas, MajiFund, WaterAid, the Stone Family Foundation, and the Osprey Foundation.

Their perspectives helped ensure that the brief reflects both the realities and opportunities associated with funding and philanthropic support across the sector.



Preface

Rural water has structural barriers that prevent private finance from flowing: low and volatile revenues, high costs per customer, dispersed populations, and tariffs that rarely cover full costs mean that, in many contexts, private finance has reasons to stay away. This report is about the more specific role philanthropic capital can play within those barriers. Across eleven financing models now in use, philanthropic capital has repeatedly built the pipeline, shifted the risk, converted impact into revenue, or opened access to new pools of capital that a transaction needed in order to close. Deciding which intervention to pursue and the extent required depends on the market’s current stage, operator constraints, and how the mechanism is designed to develop the market.

The report builds this argument in stages. It begins with a typology of how private finance markets mature, and with the four levers philanthropic capital can pull within them. It then turns to eleven case studies, spanning green and blue bonds, guarantees, blended finance facilities, and outcome-based instruments across multiple countries, read not as success stories but as evidence for where each lever did and did not hold.

The cross-cutting findings and recommendations that follow are written for funders deciding how to deploy capital, but the case studies themselves are written for anyone trying to work out whether a specific transaction, in a specific market, is worth attempting.

Acronyms

ALN	Africa Legal Network
CO ₂ e	CO ₂ equivalent
COFIDE	Corporación Financiera de Desarrollo (Peru’s state development bank)
CWSPs	Community Water Service Providers
DFC	America’s Development Finance Institution
DFIs	Development Finance Institutions
ESG	Environmental, Social, and Governance
FSD	non-profit Financial Sector Deepening Africa
GBL	Guarantee Back Loans
ICDF	Taiwan’s International Cooperation and Development Fund
MISTI	Ministry of Industry, Science, Technology and Innovation of Cambodia
MXN	Mexican Peso
NPS	Net Promoter Score
PPP	Public-Private Partnerships
SIINC	Social Impact Incentives
SICAV	Société d’Investissement à Capital Variable (a French open-ended fund structure)
TA	Technical Assistance
TZS	Tanzanian Shilling
WPS	Water Service Provider

Glossary

Additionality

A mechanism is considered additional if it improves outcomes beyond what existing resources or markets would have delivered on their own.

Blended Finance

An approach that combines public or philanthropic funding with private investment to make projects viable that may not otherwise attract commercial interest. The goal is to unlock private capital for sectors or contexts where it would not flow on its own or scale the funds.

CO₂ equivalent (CO₂e)

A unit used to measure the climate impact of different greenhouse gases on a single, comparable scale. Because gases like methane or nitrous oxide trap more heat than carbon dioxide, each is converted into the equivalent amount of CO₂ it would take to produce the same warming effect.

Concessional Finance

Loans or equity investments offered on terms that are more favourable than what the market would normally provide. This typically means lower interest rates, longer repayment periods, or more flexible conditions.

Convertible Loan / Convertible Note

These two terms refer to the same instrument and are used interchangeably. A convertible loan is a loan that can be converted into ownership (equity) in the borrowing organisation at a later date, usually when certain conditions are met. It starts as debt, giving the lender repayment rights, but carries the option to become an investor with a share in the organisation instead.

ESG (Environmental, Social, and Governance)

A framework used to assess how an organisation manages its environmental impact, its relationships with people and communities, and the quality of its internal governance and decision-making.

ESG Mandates

Investment guidelines that require institutional investors to incorporate environmental, social, and governance criteria into their portfolio allocation decisions.

First-Loss Capital

Funding that is the first to absorb any financial losses if a project or investment underperforms. By taking on this risk, first-loss capital providers protect other investors, making it easier to attract additional funding.

Greenfield

Refers to a project or investment that is built entirely from scratch, with no existing infrastructure, customer base, or revenue history to rely on.

Institutional Investors

Professional investment organisations, including pension funds, insurance companies, sovereign wealth funds and asset managers that invest pooled capital on behalf of their clients or beneficiaries.

Mezzanine Finance

A hybrid form of capital that sits between senior debt and equity in the repayment hierarchy. It carries more risk than a standard loan but less risk than equity, and typically offers a higher return to reflect this.

Net Promoter Score (NPS)

A measure of customer loyalty based on a single question: how likely are respondents to recommend a product or service to others, on a scale from 0 to 10. The overall score ranges from -100 to +100, with higher scores indicating greater customer satisfaction and loyalty.

Patient Capital

Investment that accepts a longer timeframe to generate returns than conventional finance typically allows.

Preferred Equity

A form of ownership investment that gives holders a priority position over regular (common) equity investors when profits are distributed or capital is returned. Preferred equity investors receive dividends and repayment before common shareholders, but they rank below all debt holders.

Private Finance

Financing and revenue flows from non-public, non-grant actors. Private actors may seek financial returns, non-financial returns such as environmental or social outcomes, or both.

Quasi-Sovereign Risk

The credit risk associated with a state-owned or government-backed institution, such as a national development bank, rather than the central government itself. Investors treating an entity as quasi-sovereign are effectively treating it as nearly as reliable as the government, though without a full government guarantee.

Risk-Adjusted Return

The financial return on an investment measured in relation to the level of risk taken to achieve it.

Second-Party Opinion

An independent assessment provided by a specialised external reviewer, typically a ratings agency or sustainability research firm, that evaluates whether a bond issuer's thematic framework is credible, well-defined, and aligned with recognised international standards, such as the ICMA Bond Principles. It validates that the stated use of proceeds, eligibility criteria, and reporting commitments are consistent with the relevant principles.

Securitisation

A financial technique in which a pool of loans or other income-generating assets is packaged together and sold to investors as a tradeable security. This allows the original lender to free up capital and transfer risk, while giving investors access to returns generated by the underlying assets.

Senior Debt

The highest-priority layer of debt in a financing structure. This priority position makes senior debt the lowest-risk position in a capital structure, which is why it typically attracts the lowest interest rate.

Subordinated Debt

Capital that ranks below senior debt in the repayment order. If a project runs into difficulty, subordinated debt are only repaid after senior debt holders have been made whole. This higher risk is usually compensated by a higher potential return.

Subordinated equity

The holder has no legal right to repayment. They are last in line (or near last) to receive anything if the project fails. Their return depends on the performance of the business, not on a fixed repayment schedule.

Vintage (Carbon Credits)

The year in which carbon emission reductions were actually generated. Each year a project operates, it produces a new vintage of credits, which can be sold in that year or in subsequent years.

Water Replenished

The volume of water returned to local watersheds through a programme's interventions.

Water Service Providers (WSPs)

Organisations responsible for delivering water (and in some cases sanitation) services to communities. In the context of this report, WSPs are typically small-scale operators serving rural or peri-urban area.

Introduction



¹ A financial technique in which a pool of loans or other income-generating assets is packaged together and sold to investors as a tradeable security.

1.1 Overview

This report does not attempt to revisit the now-familiar estimates of the rural water financing gap, nor does it assume that private finance alone can resolve it. Rural water systems in low- and middle-income countries rarely generate the stable and predictable returns that private investors typically require. Low and volatile revenues, high per-user costs, dispersed populations, and politically constrained tariffs mean that rural water does not naturally present itself as an investable sector. Traditional public and donor financing, therefore, remain indispensable. Yet despite decades of reliance on these sources, the financing gap persists, and is likely to widen under mounting fiscal pressures, declining aid predictability, and continued (political) resistance to cost-reflective tariffs.

This report argues that private finance (see Box 1) can play a meaningful role, but only under specific conditions and for particular functions within the sector. The pathways through which private finance can enter the sector vary considerably. In most low- and middle-income contexts, the most realistic near-term opportunities lie in blended finance mechanisms. More sophisticated capital market instruments, including bonds, securitisation structures¹, and institutional investment vehicles, remain a longer-term prospect, dependent on conditions that are still largely absent. Nevertheless, such conditions are beginning to emerge in contexts where deliberate market-building efforts have taken place.

Box 1 Private and Blended finance definitions used in this report

Private Finance

In this report, private finance covers a wider range of actors than the term usually implies. It includes commercial finance, capital from banks and institutional investors such as pension funds, insurers, and asset managers, that requires a market rate return, and it also includes impact capital, capital from investors willing to accept a lower return or take on more risk in exchange for a defined social or environmental outcome.

Blended finance is one of the ways that private finance plays out in practice. A modest amount of public, concessional, or philanthropic funding sits alongside private capital, absorbing risk or improving returns just enough to make a project viable that would not otherwise attract commercial interest on its own. The purpose is not to replace private capital but to draw it in, unlocking money that would otherwise stay on the sidelines, or making what is already committed go further than it could alone.

A central argument of this report is that philanthropic capital has a specific and underappreciated role in creating those conditions by targeting the precise constraints that prevent private finance markets from functioning. Innovative finan-

cing models aim to reduce downside risk, enhance returns, or otherwise change the conditions under which private capital can participate. In almost every case reviewed, the catalyst behind these models is philanthropic capital in one form or another: grants, concessional investments, guarantees, or outcome payments that absorb risks, build track records, or underwrite the impact that private investors require before participating.

The difficulty is that philanthropic capital is often deployed in the form of grants only or in a uniform way as though all contexts were the same. In practice, different models do different things, and the right deployment depends on the stage of development the market is in. A guarantee-backed loan, a development impact bond, and a blue bond all draw on philanthropic capital, but they answer very different financing challenges and are needed under very different conditions. Without a shared framework for distinguishing these questions, catalytic resources can be absorbed, but without producing the market-level change they are intended to support.

This report explores how philanthropic capital supports the development of private finance markets in rural water. Drawing on empirical evidence gathered through a review of eleven financing models currently in use, including interviews with practitioners and analysis of deal structures, it sets out a framework for understanding how financing models contribute to market development. This includes typologies of market maturity, identification of the financial levers through which philanthropic capital acts, and a mapping of models against those levers. The aim is to help funders, operators, and stakeholders make more informed decisions to match the right model to the right stage of development.

1.2 How to use this document

2	Section 2	Introduces the three-stage market typology used throughout the study.		Three-stage market typology
3	Section 3	Sets out the four financial levers through which philanthropic capital acts and shows how these levers map to stages of market development.		Four financial levers and how they map to stages of market development
4	Section 4	Presents the 11 financial models examined in this report, grouped by the stage at which they typically intervene.		11 financial models grouped by stage of intervention
5	Section 5	Draws out the role of philanthropic capital in making each model viable.		Role of philanthropic capital in making each model viable
6	Section 6	Sets out recommendations.		Recommendations
7	Annex	Sets out case studies.		Lessons learnt and the role of philanthropic capital in each of them

Methodology note. The analysis draws on three primary sources of evidence: a structured review of deal documentation and published evaluations for each of the eleven financing models; semi-structured interviews with practitioners, fund managers, donors, and technical assistance providers directly involved in the cases examined; and secondary literature on blended finance, market systems development, and WASH financing. The eleven models were selected to represent the range of instru-

ment types that have been applied in the rural water sector across different geographies and market stages, not to constitute a statistically representative sample. Each model is captured in a standalone factsheet and further elaborated in section 4 below.

Limits of evidence. The cases are not statistically representative, and the findings should be read as analytical rather than predictive. In several cases, evidence remains early-stage, transaction-specific, or dependent on practitioner interviews and available deal documentation. The report therefore does not claim that any model is universally replicable, nor that successful mobilisation of private capital in one context will translate automatically to another. The framework is intended to support structured judgement, helping funders ask better questions about market readiness, operator maturity, risk allocation, revenue reliability, and the role of public and philanthropic capital.

Important considerations. The financing progression described in this report should not be understood as a transition from philanthropy and public finance to fully commercial finance. Particularly where the goal is universal access, the objective is not a purely commercial endpoint. Even at more advanced stages of market development, public finance continues to play a foundational role, funding infrastructure, enabling regulation, and supporting revenue where tariffs fall short, while private capital often remains shaped by impact objectives, ESG mandates, or public-interest considerations alongside financial return. Philanthropic capital, therefore, continues to play a role in strengthening the systems, standards, and credibility that allow impact-aligned private capital to participate.



Market Typology



Private finance enters a sector gradually and depends on the emergence of viable operators, dependable revenue streams, acceptable risk profiles, and institutional systems capable of supporting transactions and enforcing agreements. Because these conditions evolve unevenly over time, financing strategies must be tailored to the stage of market development.

The report therefore proposes a market typology to illustrate how conditions for private finance evolve across different contexts. Derived from the study's empirical findings, the framework is intended to distinguish the stages of development of private finance markets in the water sector, rather than to serve as a formal classification system. It focuses on the evolution of capital flows and the constraints that affect them as financing ecosystems mature, rather than on the overall maturity of the water sector. It is important to note that the maturity of service providers operating in the market sometimes varies independently of market conditions.

Box 2 Market definition used in this report

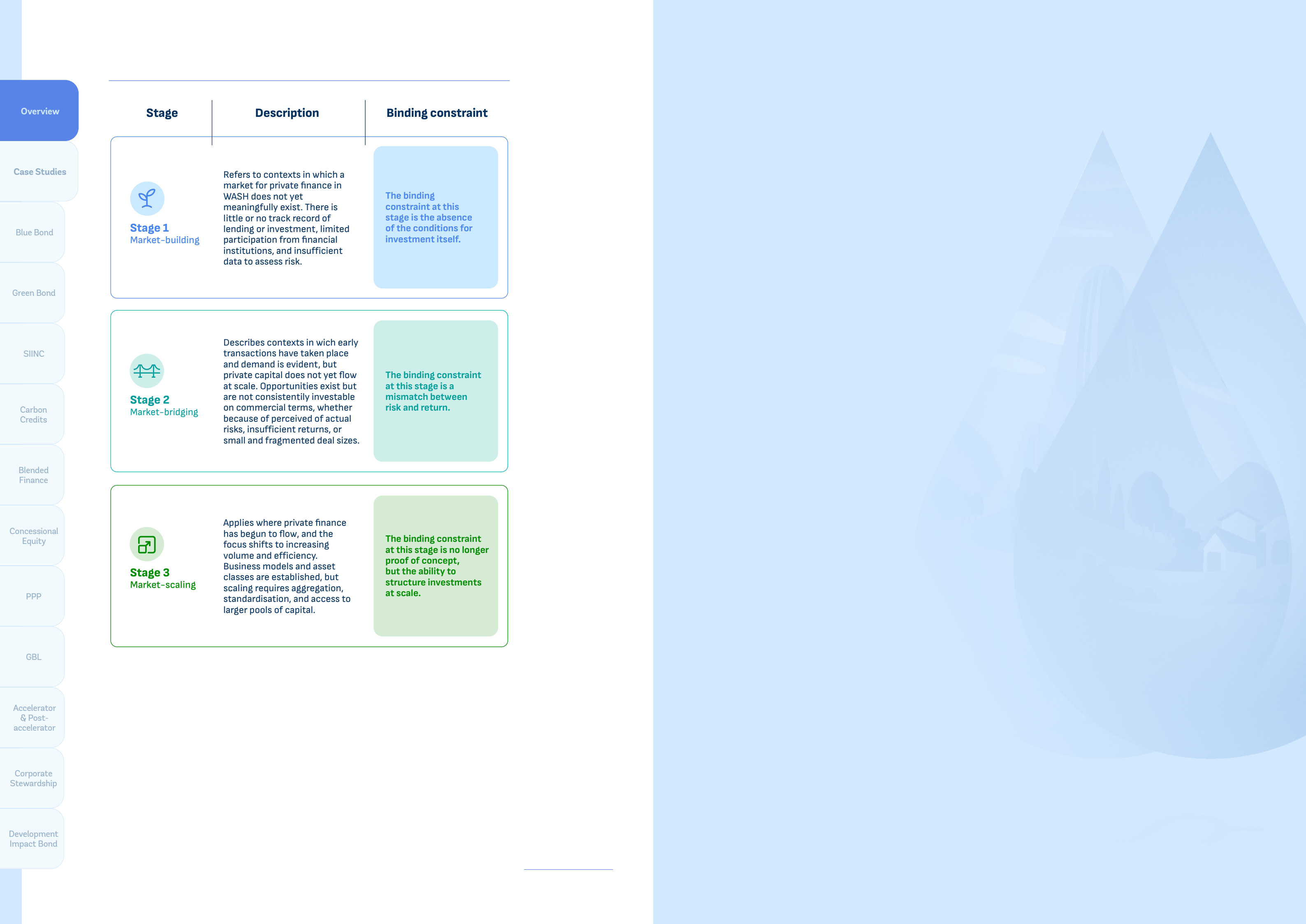
The term “financing market” or “market” is used throughout this report as shorthand for the ecosystem of actors, instruments, incentives, and institutional conditions that shape whether and how private capital can flow into the rural water sector. It does not imply a particular level of sophistication or the presence of formal capital market infrastructure.

This distinction matters because the viability, scalability, and replicability of the financing models presented in this report depend on the maturity of the market in which they operate. Conditions such as the presence of lenders willing to serve the sector, the creditworthiness of service providers, the availability of credit information, and the strength of contract enforcement vary considerably across contexts. A model that performs well in a relatively developed market may therefore require significant adaptation, or may not be feasible at all, where these foundations are weak, and the analysis in subsequent sections should be read with this in mind.

The typology is organised around three stages. The stages reflect qualitatively different configurations of market readiness, and the boundaries between them are not fixed. A given geography may shift rapidly following a regulatory change or the entry of a major anchor investor.

Overview
Case Studies
Blue Bond
Green Bond
SIINC
Carbon Credits
Blended Finance
Concessional Equity
PPP
GBL
Accelerator & Post-accelerator
Corporate Stewardship
Development Impact Bond

Stage	Description	Binding constraint
 Stage 1 Market-building	Refers to contexts in which a market for private finance in WASH does not yet meaningfully exist. There is little or no track record of lending or investment, limited participation from financial institutions, and insufficient data to assess risk.	The binding constraint at this stage is the absence of the conditions for investment itself.
 Stage 2 Market-bridging	Describes contexts in wich early transactions have taken place and demand is evident, but private capital does not yet flow at scale. Opportunities exist but are not consistently investable on commercial terms, whether because of perceived of actual risks, insufficient returns, or small and fragmented deal sizes.	The binding constraint at this stage is a mismatch between risk and return.
 Stage 3 Market-scaling	Applies where private finance has begun to flow, and the focus shifts to increasing volume and efficiency. Business models and asset classes are established, but scaling requires aggregation, standardisation, and access to larger pools of capital.	The binding constraint at this stage is no longer proof of concept, but the ability to structure investments at scale.



Financial Levers



² As defined in Box 1, private investors are non-public, non-grant actors that may seek financial returns, social or environmental impact, or both.

This section sets out the mechanisms through which philanthropic capital unlocks finance. Four distinct financial levers are identified. Each answers a different question about why private capital is not currently flowing, and each one operates most effectively in specific market conditions.

Lever 1 Builds pipeline and demonstrates viability

Creates investable opportunities and generates the performance data and track record required to demonstrate financial viability. This is a foundational function, establishing the conditions under which private capital can engage with the sector.

Lever 2 Shifts risk

Alters the risk profile of investments (see Box 3) through instruments such as guarantees, first-loss capital, or subordinated positions. This enables private investors² to participate in transactions that would otherwise fall outside their risk tolerance.

Box 3 Transactional risk vs. systemic risk

Transactional risk refers to the risk within a deal, the risk that financial levers are designed to address. Guarantees, first-loss capital, aggregation, and outcome payments can shift, absorb, or reprice this kind of risk enough for a transaction, or a portfolio of similar transactions, to close.

Systemic risk refers to the risk embedded in a market's underlying conditions, such as weak sector governance, inconsistent regulation, or other enabling-environment constraints.

Deal-level structuring cannot resolve systemic risk. Because it stems from the fundamentals of governance, regulation, and institutional capacity, addressing it durably requires sustained, long-term change in those areas.

The models in this report each mitigate a specific transactional risk, while also examining the enabling environment, the governance, regulatory, and institutional conditions, within which that transaction sits.

Lever 3 Converts impact into revenue

Creates new income streams by linking payments to verified outcomes. This lever bridges the gap between financial sustainability and social affordability by transforming positive externalities, such as environmental or service delivery outcomes, into predictable cash flows. These payments, which may come from governments, donors, corporates, or other outcome funders, enable organisations to generate revenue beyond user tariffs, helping them close the financing gap, where affordability

constraints or unpriced benefits would otherwise limit cost recovery. This lever attracts investors motivated by financial returns, as well as those driven by non-financial objectives, particularly the measurable social or environmental impact generated by the project.

Lever 4 Opens new investor pools

Enables access to capital from investors operating under impact, ESG, or sustainability mandates. This lever focuses on asset institutionalization: “packaging” water investments into standardized, scalable instruments (such as green or blue bonds) that align with the expectations, risk profiles, and operational constraints of larger investors. It is not only about identifying new sources of capital, but about adapting the structure of investments so they can flow through existing capital market channels.



Lever 1
Builds pipeline and demonstrates viability

This lever is needed where the sector lacks investable opportunities or the track record to attract investors in the first place.



Lever 2
Shifts risk

This lever is needed where opportunities exist, but their risk profile is too high for the private investors who could otherwise serve them.



Lever 3
Converts impact into revenue

This lever is needed where the outcomes being produced are not fully captured in tariff or fee revenue, whether because tariffs are structurally too low or because certain impacts are not priced by end-users at all.



Lever 4
Opens new investors pools

This lever is needed where capital exists but cannot currently reach the sector due to investor mandates.

While the levers are not stage-specific, clear patterns emerge across stages of market development. Lever 1 is most characteristic of market-building contexts, where the priority is to create a pipeline of investable opportunities and demonstrate viability. Levers 2 and 3 are most commonly associated with market-bridging, where interventions focus on improving the risk-return profile of transactions and generating additional revenue streams to make deals investable. Lever 4 is most prominent at the market-scaling stage, where the objective is to unlock access to larger pools of impact-oriented capital.

This report is structured primarily around the financial lever framework because they describe the immediate function of philanthropic capital and can be observed at the transaction level. However, the use of a particular financial lever does not, in itself, imply catalytic impact. Philanthropic capital is only catalytic if it stimulates changes in market behaviour that extend beyond the individual transaction. As these broader market effects develop over time and are highly context-specific, they are examined qualitatively within the individual case studies rather than assessed systematically across the report.

This distinction is particularly relevant in the rural water supply sector, where the evidence base for catalytic impact remains limited. Many initiatives are still at the pilot or demonstration stage, making it too early to determine whether they have generated sustained market transformation. Even among the more mature examples, evidence of replication and wider market adoption is only beginning to emerge. Consequently, the case studies focus on the mechanisms through which philanthropic capital may contribute to catalytic change while acknowledging that, in most cases, these effects are still evolving.

Financing Models and Cases Examined in this Report



In recent years, the water sector has introduced a range of financing models often described as catalytic, blended, or impact-linked. This study examined these models to identify recurring patterns in how they support market development and which levers they pull. On that basis, eleven financing models were selected for analysis, each illustrated by a real-world case study (presented in a dedicated factsheet in the Annex to this report).

4.1 Overview matrix

The models were mapped against the market stages and financing levers identified in the framework, showing where they most commonly intervene and how they support market development in practice.

The matrix below provides a consolidated overview, organised by the three market stages. Each row summarises the illustrative case study and rates its engagement with each of the four levers.

Each model was rated against each of the four levers on a three-point scale (Strong, Moderate, Limited, Not a primary function) using three criteria applied consistently across all 11 cases:

-  **Centrality:** Is this lever the primary mechanism through which the model works, a secondary effect, or incidental?
-  **Intentionality:** Was the lever deliberately designed into the instrument, or does it arise as a consequence of something else?
-  **Materiality:** Does the lever operate at a scale and with a reliability that would meaningfully influence an investment decision?

The matrix is intended as an orientation tool rather than a precise measurement instrument, and readers are encouraged to treat it accordingly³.

³ These ratings are necessarily indicative. They are based on the case evidence reviewed and the analytical judgements of the research team, and reasonable assessors may rate individual cells differently depending on the cases they weight most heavily or how they interpret the boundaries between levers.

Table 1. Mapping of 11 financing models against the four levers, grouped by stage of market development.

●●● Strong ●●○ Moderate ●○○ Limited ○○○ Not a primary function

Financing model and Case study	Lever 1 Pipeline & viability	Lever 2 Risk	Lever 3 Impact → revenue	Lever 4 Investor pools
 Stage 1 – Market-building Models Creating investable enterprises, pipelines and conditions where none yet exist.				
Accelerator + Post-Accelerator Case study: Cewas + Maji Fund — Kenya, Ghana, Uganda A programme combining grants, concessional loans and technical assistance to develop early-stage water enterprises into investment-ready operations. The Accelerator shapes business models and governance; the Post-Accelerator provides patient capital that bridges graduated enterprises toward mainstream investment.	●●●	●○○	○○○	○○○
Corporate Social Responsibility (CSR) vehicle Case study: Women + Water Collaborative — India A pooled structure that channels corporate contributions into WASH delivery, tied to companies’ sustainability, ESG and water stewardship commitments. A single implementing partner manages fund flows, delivery and impact reporting on behalf of multiple corporate members.	●●●	○○○	●○○	●○○
Development Impact Bond (DIB) Case study: Cambodia Sanitation DIB — Cambodia A results-based finance structure in which a private investor provides upfront capital and is repaid by an outcome funder only if verified results are achieved. The model transfers performance risk from the outcome funder to the investor and disciplines delivery around measurable outcomes.	●●●	●○○	●●○	○○○
 Stage 2 – Market-bridging Models Making first transactions investable by changing risk, revenue or structure.				
Blended Finance Facility Case study: Azure Source Capital — Central America A structured lending vehicle in which concessional equity absorbs first-loss risk, enabling senior debt from impact investors to participate. Parallel technical assistance strengthens borrowers’ operational and financial capacity.	●●○	●●●	○○○	○○○
Guarantee-Backed Loan Case study: NBK + African Guarantee Fund — Kenya A partial credit guarantee that covers a defined share of a commercial bank’s losses on its WASH loan portfolio, reducing its capital exposure. Complementary technical assistance builds the bank’s sector knowledge and product design capacity.	○○○	●●●	○○○	●○○
Concessional Equity Case study: Danone Communities / Naandi Water — India Patient equity provided at below-market returns, usually paired with board-level governance and operational support, to sustain enterprises in structurally low-margin contexts. The investor accepts full operational risk but also shapes the enterprise’s long-term strategy.	●●○	●●●	○○○	○○○

●●● Strong ●●○ Moderate ●○○ Limited ○○○ Not a primary function

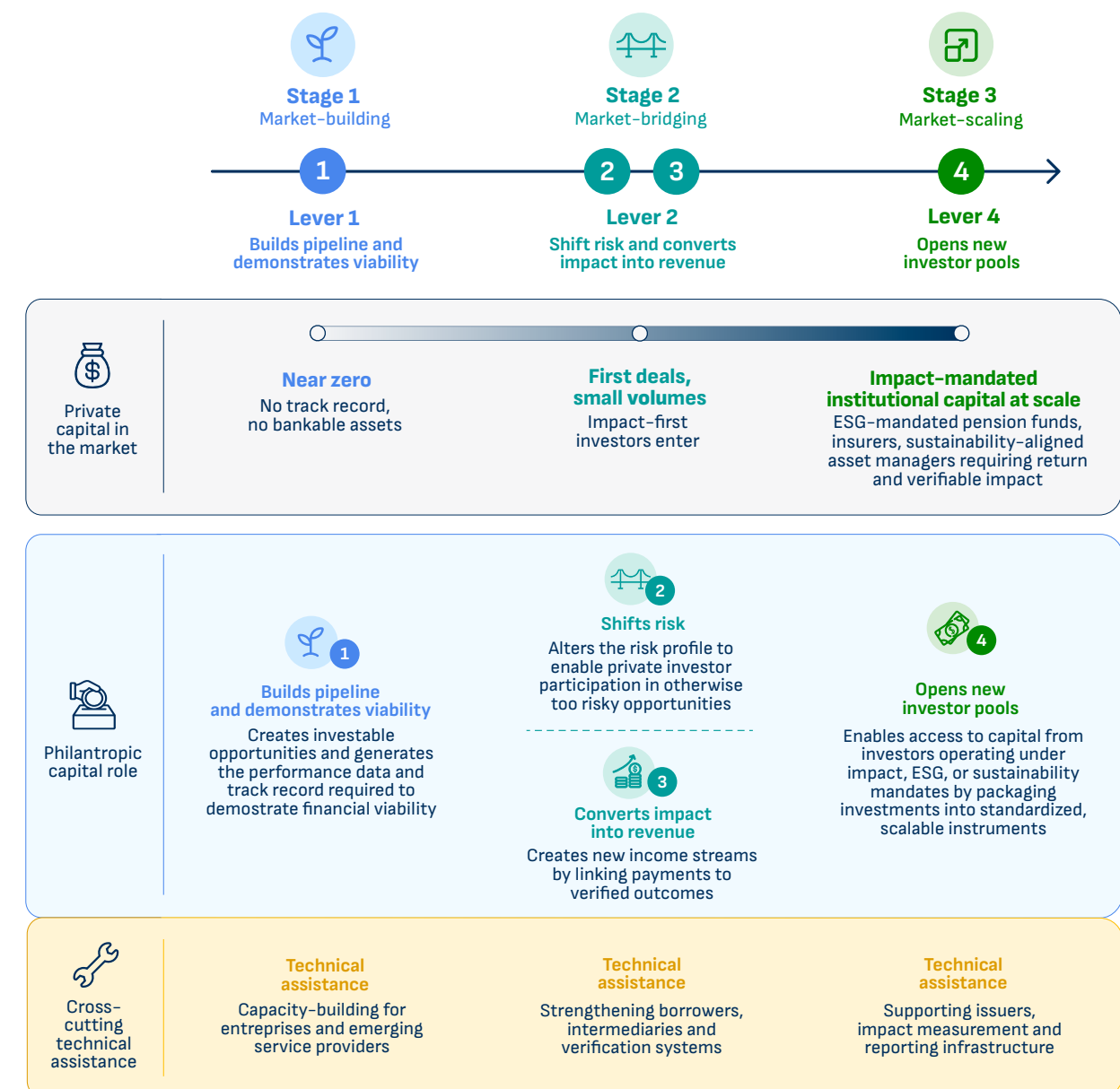
Financing model and Case study	Lever 1 Pipeline & viability	Lever 2 Risk	Lever 3 Impact → revenue	Lever 4 Investor pools
Social Impact Incentives (SIINC) Case study: Khmer Water Supply Holding — Cambodia Time-limited, outcome-based payments that top up an enterprise’s revenue in proportion to verified social impact, strengthening its financial profile so it can attract parallel commercial investment.				
	●●○	○○○	●●●	○○○
PPP linked to Blended Facility Case study: Guaymas—Empalme desalination PPP — Mexico A public-private partnership in which a viability gap subsidy reduces the private operator’s capital cost, and a government-backed payment mechanism secures the operator’s revenue stream over the life of the concession.				
	○○○	●●●	●●○	○○○
Carbon Credit Finance Case study: Uduma — Mali Revenue generated from verified emissions reductions or safe-water delivery, sold into voluntary carbon markets as a new income stream for water supply operators. Unlike grant or outcome payments, carbon revenue is priced by a market rather than a single payer.				
	●○○	○○○	●●●	●●○
 Stage 3 – Market-scaling Models Aggregating proven deals into capital-markets instruments that mobilise institutional capital.				
Blue Bond Case study: Peru Blue Bond (COFIDE / CMACs / Water.org)—Peru A thematic labelled bond issued on capital markets to raise funds for water and sanitation for a bundled portfolio of microfinance loans, strengthened by Water.org’s technical assistance to the participating institutions. Catalytic grant capital covers pre-issuance transaction costs including second-party opinion, framework development and investor engagement. Viable where a large and well-performing underlying loan portfolio exists.				
	●○○	○○○	○○○	●●●
Green Bond Case study: Tanga UWASA Green Bond — Tanzania A thematic labelled bond issued by an urban utility on capital markets to finance water infrastructure, aligned with ICMA Green Bond Principles and backed by a credible issuer. Catalytic grant capital supports pre-issuance preparation, structuring, and ongoing reporting infrastructure. Viable where enabling regulation allows a utility to issue debt against its own tariff revenues, such as through a revenue bond structure, rather than requiring a sovereign guarantee.				
	●○○	○○○	○○○	●●●

The Role of Philanthropic Capital



5.1 The Role of Philanthropic Capital at Each Stage

The volume of private capital that can flow into the rural water supply sub-sector depends on the stage of market development and the maturity of the service providers operating within it. As markets evolve from market-building to market-bridging and market-scaling, different constraints emerge, and different financial levers are required to address them. Philanthropic capital plays a catalytic role in this progression by deploying these levers at the most relevant point in both the market development and the service providers operating within it.



Across all stages, technical assistance acts as a cross-cutting enabler. Its role evolves alongside both the market and the provider: from building enterprise and system capacity in early stages, to strengthening borrowers and verification

systems as transactions emerge, to supporting issuers and impact-reporting infrastructure as markets scale.

In practice, the role of philanthropic capital is not to push the market for private finances upward in a linear way, but to apply the appropriate lever to the contextual constraint(s) at hand.

5.2 Role of Philanthropic Capital, case by case

The table below outlines the specific role philanthropic capital plays in each case study.

Table 2. Role of philanthropic capital in each of the 11 models

●●● Strong ●●○ Moderate ●○○ Limited ○○○ Not a primary function

Financing model and Case study	Lever 1 Pipeline & viability	Lever 2 Risk	Lever 3 Impact→ revenue	Lever 4 Investor pools	Role of philanthropic capital
Stage 1 – Market-building Models Creating investable enterprises, pipelines and conditions where none yet exist.					
Accelerator + Post-Accelerator Case study: Cewas + Maji Fund — Kenya, Ghana, Uganda A programme combining grants, concessional loans and technical assistance to develop early-stage water enterprises into investment-ready operations. The Accelerator shapes business models and governance; the Post-Accelerator provides patient capital that bridges graduated enterprises toward mainstream investment.	●●●	●○○	○○○	○○○	Philanthropy is the primary capital. Grants finance enterprise development and demonstrate viability, concessional loans provide patient capital through the post-accelerator, and technical assistance builds governance, unit economics clarity, and financial systems, all of which provide the structure needed to grow.
Corporate Social Responsibility (CSR) vehicle Case study: Women + Water Collaborative — India A pooled structure that channels corporate contributions into WASH delivery, tied to companies’ sustainability, ESG and water stewardship commitments. A single implementing partner manages fund flows, delivery and impact reporting on behalf of multiple corporate members.	●●●	○○○	●○○	●○○	Philanthropy plays a complementary and enabling role. Catalytic funding is required in the early stages to support innovation and strengthen implementation through partnerships with NGOs, thereby expanding reach and accelerating impact in underserved contexts.

●●● Strong ●●○ Moderate ●○○ Limited ○○○ Not a primary function

Financing model and Case study	Lever 1 Pipeline & viability	Lever 2 Risk	Lever 3 Impact→ revenue	Lever 4 Investor pools	Role of philanthropic capital
Development Impact Bond (DIB) Case study: Cambodia Sanitation DIB — Cambodia A results-based finance structure in which a private investor provides upfront capital and is repaid by an outcome funder only if verified results are achieved. The model transfers performance risk from the outcome funder to the investor and disciplines delivery around measurable outcomes.	●●●	●○○	●●○	○○○	Philanthropic capital plays a catalytic role by absorbing early-stage risks, funding transaction and implementation costs, and making innovative financing models viable. It helps build markets by supporting project development, technical assistance, and concessional financing.
Stage 2 – Market-bridging Models Making first transactions investable by changing risk, revenue or structure.					
Blended Finance Facility Case study: Azure Source Capital — Central America A structured lending vehicle in which concessional equity absorbs first-loss risk, enabling senior debt from impact investors to participate. Parallel technical assistance strengthens borrowers’ operational and financial capacity.	●●○	●●●	○○○	○○○	Concessional equity from philanthropic sources holds the first-loss position, shifting enough risk off the senior tranche to bring impact-investor debt in at acceptable terms. Philanthropy is the risk-absorbing capital and it enables the structure. Grant funding for TA is also another key entry point within the blended structure. It prepares Water Service Providers (or water operators) to become more creditworthy and entrepreneurial, enabling them to repay financing and adopt a utility-oriented approach.
Guarantee-Backed Loan Case study: NBK + African Guarantee Fund — Kenya A partial credit guarantee that covers a defined share of a commercial bank’s losses on its WASH loan portfolio, reducing its capital exposure. Complementary technical assistance builds the bank’s sector knowledge and product design capacity.	○○○	●●●	○○○	●○○	Philanthropy funds early-stage transaction costs, including the guarantee facility that covers a defined share of a commercial bank’s losses on its WASH loan portfolio. In addition, philanthropy supports the diagnosis needed to understand the main barriers to lending and helps design products that work for both banks and clients.
Concessional Equity Case study: Danone Communities / Naandi Water — India Patient equity provided at below-market returns, usually paired with board-level governance and operational support, to sustain enterprises in structurally low-margin contexts. The investor accepts full operational risk but also shapes the enterprise’s long-term strategy.	●●○	●●●	○○○	○○○	Foundations can invest in impact equity: accepting below-market returns, longer time horizons, and operational risk. The risk shift happens at investor level rather than through a separate instrument. TA funding can strengthen the pipeline-building function (Lever 1) and help mitigate the operational risks that concessional equity alone cannot absorb.

●●● Strong ●●○ Moderate ●○○ Limited ○○○ Not a primary function					
Financing model and Case study	Lever 1 Pipeline & viability	Lever 2 Risk	Lever 3 Impact→ revenue	Lever 4 Investor pools	Role of philanthropic capital
Social Impact Incentives (SIINC) Case study: Khmer Water Supply Holding — Cambodia Time-limited, outcome-based payments that top up an enterprise's revenue in proportion to verified social impact, strengthening its financial profile so it can attract parallel commercial investment.	●●○	○○○	●●●	○○○	Philanthropic outcome payments top up the operator's revenue in proportion to verified impact. The role of philanthropy is to turn impact into cash flow at the operator level, strengthening the commercial profile enough to attract parallel private capital without displacing it.
PPP linked to Blended Facility Case study: Guaymas—Empalme desalination PPP — Mexico A public-private partnership in which a viability gap subsidy reduces the private operator's capital cost, and a government-backed payment mechanism secures the operator's revenue stream over the life of the concession.	○○○	●●●	●●○	○○○	PPP through a Viability Gap Fund (VGF) requires significant preparatory work that philanthropy can fund. Feasibility studies, socioeconomic assessments, and procurement advisory are necessary before a project can access VGF. Additionally, foundations could provide a first-loss tranche that sits below the VGF grant in the capital structure, absorbing the highest-risk portion of the investment. More structurally, foundations are well placed to fund regulatory reforms, technical capacity building, and evidence-based policy change.
Carbon Credit Finance Case study: Uduma — Mali Revenue generated from verified emissions reductions or safe-water delivery, sold into voluntary carbon markets as a new income stream for water supply operators. Unlike grant or outcome payments, carbon revenue is priced by a market rather than a single payer.	●○○	○○○	●●●	●●○	Philanthropic funding is needed to share a portion of total project expenditures, including capital investment costs. Beyond individual projects, philanthropy can further support large-scale market development by providing concessional capital to pooled investment vehicles.
 Stage 3 – Market-scaling Models Aggregating proven deals into capital-markets instruments that mobilise institutional capital.					
Blue Bond Case study: Peru Blue Bond (COFIDE / CMACs / Water.org) — Peru A thematic labelled bond issued on capital markets to raise funds for water and sanitation for a bundled portfolio of microfinance loans, strengthened by Water.org's technical assistance to the participating institutions. Catalytic grant capital covers pre-issuance transaction costs including second-party opinion, framework development and investor engagement. Viable where a large and well-performing underlying loan portfolio exists.	●○○	○○○	○○○	●●●	Philanthropy builds the fundamentals behind these transactions: this means years of technical assistance to help institutions reach the operational volume needed and put in place the data systems, impact monitoring, and reporting processes that give investors the transparency they need. In addition, foundations can cover pre-issuance transaction costs: second-party opinion, use-of-proceeds framework development, investor engagement, and ongoing impact-reporting infrastructure.

●●● Strong ●●○ Moderate ●○○ Limited ○○○ Not a primary function					
Financing model and Case study	Lever 1 Pipeline & viability	Lever 2 Risk	Lever 3 Impact→ revenue	Lever 4 Investor pools	Role of philanthropic capital
Green Bond Case study: Tanga UWASA Green Bond — Tanzania A thematic labelled bond issued by an urban utility on capital markets to finance water infrastructure, aligned with ICMA Green Bond Principles and backed by a credible issuer. Catalytic grant capital supports pre-issuance preparation, structuring, and ongoing reporting infrastructure. Viable where enabling regulation allows a utility to issue debt against its own tariff revenues, such as through a revenue bond structure, rather than requiring a sovereign guarantee.	●○○	○○○	○○○	●●●	In addition to the ones mentioned above (i.e. blue bond), foundations have a systematisation and replication role. A foundation can fund the standardisation of legal frameworks, technical standards, and investment structures. This includes training local teams and partner organisations on the full technical lifecycle of thematic bond issuances, conducting feasibility assessments in new geographies, and facilitating high-level exchanges between development banks and institutional investors.

5.3 Cross-cutting findings

- Taken together, the eleven cases reveal several consistent patterns that go beyond individual models or geographies. The following findings are of particular interest for the design of philanthropic strategy in this sector:
- 1 Technical assistance is a precondition to capital deployment.** Every model examined required technical assistance to function, this study does not show a consistent pattern of TA and grant funding shrinking or growing over time but the form that assistance took varied by stage. At Stage 1, it supported enterprise development: building governance, financial systems, and unit economics from the ground up. At Stage 2, it strengthened borrowers and verification systems, enabling transactions to be completed with confidence. At Stage 3, it underwrote the reporting infrastructure and standards compliance that allow institutional investors to allocate to instruments under their mandates.
 - 2 Financing models should be matched to the maturity of both the provider and the financing market.** The effectiveness of any financing model depends not only on market maturity, which determines what types of finance the wider context can realistically support, but also on operator maturity, which determines whether a specific organisation can absorb and use that finance effectively. A market may be moving toward investability, but if the operator lacks reliable accounts, governance systems, revenue visibility, operational capacity, or performance data, more sophisticated instruments are unlikely to work. Conversely, an operator may be commercially and operationally strong, but if the surrounding market lacks enabling

Overview
Case Studies
Blue Bond
Green Bond
SIINC
Carbon Credits
Blended Finance
Concessional Equity
PPP
GBL
Accelerator & Post-accelerator
Corporate Stewardship
Development Impact Bond

regulation, credible payment mechanisms, investor confidence, local-currency capital, or public co-financing, the transaction may still fail to attract follow-on investment. These factors are critical to determining the limitations of what philanthropic assistance can achieve.

- 3
- Risk-transfer mechanisms work best when they reduce investor risk without ignoring borrower or project fundamentals.** Guarantees, first-loss capital, outcome payments, and viability gap funding can shift specific risks away from commercial actors, but they cannot solve weak revenues, poor reporting, limited collateral, or low ability to pay on their own. The Kenya guarantee-backed loan case shows that the guarantee helped reduce bank risk, but uptake remained constrained by borrower readiness, high credit costs, weak financial reporting, and policy changes around collateral. The Mexico PPP case shows that the viability gap funding reduced the upfront investment burden, but ongoing public payment support was still needed because tariffs alone could not sustain the project.
- 4
- Philanthropic and public finance can alter the risk-return calculation, but most larger-scale investments depend on managing transactional risks too, including through aggregation, intermediation, and diversification.** Bonds, facilities, and portfolio guarantees become viable when fragmented rural water needs are bundled into a form that investors can evaluate. In cases including the Blue Bond in Perú as well as Concessional Equity in India and the Blended Finance Facility in Central America, the models also bundled rural water customers with urban or peri-urban customers, permitting a degree of cross-subsidisation that altered the risk-return calculation for private investment. In the case of models operating mainly through lever three, the diversification of services to include, for example, environmental improvements, provided supplementary revenue streams or other investor incentives.
- 5
- Replication is constrained less by instrument design than by ecosystem conditions and systemic risks.** Several cases performed well operationally but remain difficult to scale or replicate. The Cambodia DIB exceeded targets, used tranche recycling efficiently, and generated a modest investor return, yet structural barriers have constrained replication. The evidence, therefore, challenges any assumption that financing models are transferable across contexts in a straightforward way. Instruments that perform well in one setting may fail in another, because the institutional conditions on which they depend are absent.
- 6
- Market-building requires longer timeframes than conventional grant cycles usually allow.** The cases show that philanthropic capital often creates value over the years: building trust, evidence, and institutional frameworks at the market level can take over a decade. At the individual operator level, where the broader market is forming, support cycles appear considerably shorter, closer to three to four years, though the fastest of these cases is explicitly flagged in the report as the upper end of what is achievable rather than the norm. Short funding cycles may be suitable for pilots, but they are rarely sufficient to build conditions needed for follow-on finance.

- 7
- Currency and macroeconomic conditions determine which instruments are realistically deployable.** The success of the Peru Blue Bond and the Tanga UWASA Green Bond depended in part on conditions such as local-currency issuance into domestic capital markets with sufficient depth and liquidity to absorb the instrument. In many of the geographies where rural water financing gaps are most severe, domestic capital markets remain shallow, institutional investor bases are limited, and local-currency instruments face either weak demand or prohibitive hedging costs if redenominated. The cases therefore show that instrument viability depends not only on provider readiness or transaction structure, but also on macroeconomic stability, capital market depth, and the availability of investors willing to hold longer-tenor local-currency assets.
- 8
- Catalytic mechanisms need to be designed, not assumed.** Philanthropic capital does not automatically produce market-level change simply because an individual transaction succeeds. The cases show that catalytic effects are strongest where the pathway from deal-level performance to broader market change is explicit (a more detailed discussion is provided in the box 4).

Box 4

From deal-level performance to wider market change

A market forms when the conditions that made one transaction possible become available to the next, and the one after that, without philanthropic capital and technical assistance being required each time. The cases in this report show that catalytic effects are strongest where the pathway from deal-level performance to wider market change is explicit. That pathway runs through four distinct mechanisms, each of which philanthropy is well placed to fund.

However, none of these functions generates a leverage ratio, and none can be linked to a single transaction. They are slow, structural, and often invisible in the reporting frameworks foundations use to demonstrate impact. They are also, the evidence suggests, the functions that determine whether individual deals remain isolated achievements or become the foundation of a functioning market, as long as governance and regulatory conditions are reliable enough to support that transition.

Demonstration. The first function is to show that providers can be investable under defined conditions. This means supporting the generation of audited accounts, revenue records, operational data, and verified impact evidence that investors can assess.

Aggregation. Individual rural water deals are often too small, fragmented, and unfamiliar for institutional investors. Aggregation can bundle them into portfolios or instruments that better match investor requirements for scale, structure, and risk. But pooling alone does not create investability, the underlying assets must still have credible cash flows, reliable intermediaries, and manageable risk profiles. Philanthropy’s role is therefore to aggregate

and fund the pipeline development, technical assistance, and transaction preparation that make aggregation viable.

Institutional embedding. One successful transaction has limited market value if institutions do not change how they operate. The third function is to embed new lending practices, appraisal tools, due diligence standards, and partnership models within banks, DFIs, utilities, and public agencies.

Standardisation. As legal frameworks, reporting systems, and performance metrics become more consistent across transactions, the cost and complexity of assessing new opportunities can decline for both investors and intermedia-ries. But standardisation must remain flexible enough to avoid excluding less mature providers or prioritising easy-to-measure indicators over service quality and inclusion.



Recommendations



Philanthropic engagement in rural water finance is still largely treated as grant-making, funding technical assistance, subsidising operations, or covering project costs. The cases examined in this report show that this framing underestimates what philanthropic capital can do. Foundations have the mandate, risk appetite, and time horizon needed to unlock private finance. Across the eleven cases, philanthropic capital was used to absorb first-loss risk, provide concessional loans, fund outcomes-based payments, and cover bond issuance costs that attracted institutional investors. These were targeted interventions that improved the risk-return profile for other financiers and helped markets grow.

The report, therefore, concludes with practical recommendations for how philanthropic funders can deploy capital more strategically: diagnosing market stage, identifying binding constraints, matching instruments to operator maturity, and designing for market-level catalytic effects rather than transaction success alone.

- 1 Diagnose the market stage before selecting an instrument.** Before committing philanthropic capital, funders should formally assess the stage of market development in the target geography and sub-sector. This diagnosis should be repeated at sub-market level rather than assumed at country level. A single country may contain market-scaling opportunities around urban or peri-urban utilities, while rural providers remain at the market-building stage.
- 2 Match the lever to the binding constraint(s).** Funders should select models on the basis of which of the four financial levers addresses the most binding constraint in their context. Where the main barrier is the absence of investable operators or assets, philanthropic capital should build pipeline and demonstrate viability. Where the main barrier is investor risk, it should shift risk through guarantees, first-loss capital, or concessional positions. Where revenues are insufficient, it should convert impact into revenue through outcome payments, carbon revenues, or viability support. Where transactions are too fragmented for larger investors, it should support aggregation, standardisation, and access to new investor pools. If several constraints are present, funders should identify the most binding one first.
- 3 Match instruments to both market maturity and operator maturity.** Funders should assess whether the target operator can absorb the proposed finance. More complex instruments should be reserved for operators with sufficient institutional capacity. For example, SIINC requires a commercially mature operator able to raise parallel investment and report against verified outcomes. Blended finance facilities require borrowers with at least some financial reporting and repayment capacity. Early-stage providers are more likely to require accelerators, technical assistance, patient grants, or concessional capital before they can use repayable finance effectively.
- 4 Treat technical assistance as core financing.** Technical assistance should be designed, budgeted, and governed as part of the financing structure, not treated as an optional add-on. Across the cases, technical assistance was central to making capital deployable, it built enterprise capacity, stren-

gthened borrower readiness, supported verification, enabled transaction preparation, and underpinned reporting systems.

- 5 Design for catalytic effect, not only transaction success.** Every philanthropic deployment should specify how it is expected to create market-level change beyond the individual transaction, testing this against the same centrality, intentionality, and materiality criteria applied to the financial levers, whether the mechanism is central to the model’s design, deliberately built in, and material enough in scale to matter. The catalytic mechanism itself may be demonstration, aggregation, institutional embedding, or standard setting.
- 6 Use success metrics that reflect market-building, not only capital mobilisation.** Private capital mobilised should not be the only measure of success. In many rural water contexts, the most valuable philanthropic contribution may be to create the conditions under which finance can flow later.
- 7 Deploy philanthropic capital where it is most additional.** Philanthropic capital should be used where it is most additional, least substitutable, and best aligned with the funder’s mandate. In higher-risk and lower-maturity markets, this may mean funding early market-building activities that no commercial actor would support. In more mature markets, it may mean absorbing specific risks, supporting transaction preparation, or funding shared infrastructure that allows larger pools of capital to enter.
- 8 Align funding timeframes with the market-building task.** Funders should match their funding horizons to the problem being solved. Short grants may be appropriate for pilots or feasibility work, but market development requires sequenced, multi-year support. Funders should therefore define realistic timeframes for each stage of market development and avoid judging early-stage interventions by near-term private capital mobilisation alone.
- 9 Be realistic about the scale a given mechanism can achieve.** The scale achievable through any lever or catalytic mechanism is bounded by the governance, regulatory quality, and other structural conditions of the market it operates in. Where governance and regulatory conditions are the binding constraint, funders may generate greater long-term impact by supporting that underlying environment.



Case Studies



Blue Bond



Green Bond



Social Impact Incentives (SIINC)



Carbon Credits



Blended Finance



Concessional Equity



Enhanced Viability Gap Funding: The Guaymas-Empalme Desalination PPP



Guarantee Backed Loan



Accelerator & Post-Accelerator



Corporate Stewardship Through CSR



Development Impact Bond

 **Viability Gap Fund (PPP)**
● México

 **Carbon Credit Finance**
● Mali

 **Maji Fund**
● Ghana
● Uganda
● Kenya

 **NBK Guarantee**
● Kenya

 **Development Impact bond (DIB)**
● Cambodia

 **Concessional Equity (Danone/Naandi)**
● India

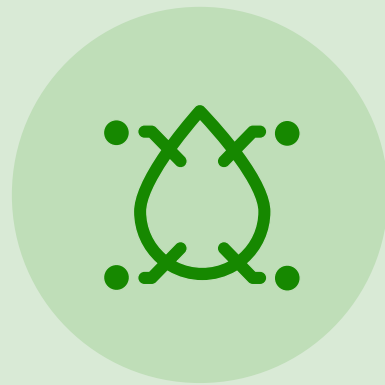
 **Social Impact Incentives (SIINC)**
● India

 **CSR Vehicle (Women + Water)**
● India

 **Azure Source Capital**
● Guatemala
● Honduras
● El Salvador

 **Blue Bond**
● Peru

 **Green Bond**
● Tanzania



Blue Bond

Blue Bonds for Water and Sanitation in Peru

Case Studies



Peru's Blue Bond demonstrates how capital markets can be used to mobilise private investment for water and sanitation at scale. By structuring the bond through a credible public issuer and established microfinance institutions, the model aligned investor requirements with household-level financing needs. The result was a market-based instrument that expanded access to capital while improving affordability for low-income households.

Key insights

- Blue Bonds can crowd in private capital to water and sanitation when three conditions are met: i. credible underlying assets (in this case, well-performing water and sanitation loan portfolios held by participating microfinance institutions), ii. a trusted aggregating issuer, and iii. a market able to absorb the instrument.
- Risk structuring helped attract investors: by working through Perú's national development bank, the bond turned small, risky loans into a safer investment backed by a public institution.
- Access to capital markets can improve both scale and affordability. Increased and lower-cost funding for microfinance institutions expanded lending and contributed to lower interest rates for low-income households.
- Replication depends on enabling conditions and may require adaptation: in weaker contexts (including less mature capital markets, less established microfinance sectors, or issuers without existing market credibility), additional credit enhancement or concessional support may be needed to achieve similar outcomes.

⁴ Professional investment entities, including pension funds, insurance companies, sovereign wealth funds, asset managers, and development finance institutions, that invest pooled capital on behalf of their clients or beneficiaries.

⁵ [Green-Bond-Principles-GBP-June-2025.pdf](#)

⁶ International Finance Corporation (IFC), Guidelines for Blue Finance Version 2.0. Note that the label 'blue' is currently used for financial instruments targeting marine and/ or freshwater benefits.

1 What is a thematic bond? And how was it applied here?

A thematic bond is a debt instrument issued in capital markets by governments, public utilities, or private companies (issuers) to raise capital from institutional investors⁴ for the exclusive financing of projects with environmental, social, or combined benefits. Unlike conventional bonds, the proceeds of thematic bonds are ring-fenced. They must be allocated to a predefined set of eligible project types and tracked, reported, and verified against an established framework. Green, social, blue and sustainability bonds are all types of thematic bonds.

Blue bonds are specifically designed to finance water-related projects with environmental and social benefits. As a relatively new instrument, blue bonds draw on the broader architecture of the International Capital Market Association (ICMA) Green Bond Principles⁵, and issuers may also refer to the International Finance Corporation (IFC) Guidelines for Blue Finance⁶ as a framework for defining eligible project categories. Under the Blue bond structure, the issuer commits to making periodic coupon

payments (fixed interest payments to investors) and repaying the principal at maturity. This approach can enable issuers to access larger pools of capital from a broader investor base and, in some cases, benefit from more favourable financing conditions than those available through traditional bank lending.

In Perú, this financing model has been applied to expand access to safe water and sanitation for low-income households in rural and peri-urban areas. A blue bond was structured and issued by COFIDE, Perú’s national development bank, which raised capital from institutional investors and channelled these funds to Municipal Savings and Credit Banks (CMACs). These microfinance institutions, supported by Water.org through over a decade of technical assistance and with established water and sanitation loan portfolios, were responsible for on-lending directly to households. The bond was registered with the relevant regulator, the Peruvian Superintendence of Securities Market (SMV), and later listed on the Lima Stock Exchange (BVL) and a regional exchange (Nuam).

By mid-2025, the program had completed two issuances with the following results:

- 

Scale: Two blue bond issuances have been launched, the first in September 2024 for USD 26.3 million (S/ 100 million), and a second in 2025 for approximately USD 35.26 million (S/ 120 million).
- 

Investors: Both issuances attracted capital exclusively from local Peruvian investors. The first blue bond was allocated across pension funds (42%), public sector entities (30%), private brokers (14%), mutual funds (8%), and insurance companies (6%). The second issuance followed a similar distribution, with pension funds again the dominant investor (41.8%), alongside public sector entities (30.0%), private brokers (13.6%), mutual funds (8.3%), and insurance companies (6.3%).
- 

Municipalities benefited: Six of Perú’s ten CMACs participated including Caja Huancayo, Caja Cusco, Caja Arequipa, Caja Ica, Caja Trujillo, and Caja Piura.
- 

Population reached: 91,000 people received improved services through the funds raised from the first blue bond issuance, primarily households living on incomes of under USD 6.85 per day in rural and peri-urban areas. Results from the second issuance were not yet available at the time of publication.

2 Why a blue bond?

A Blue Bond was used to mobilise capital at a scale that would have been more challenging to achieve through traditional financing channels. Unlike traditional loan structures, which rely on a limited number of lenders, a public bond issuance provides access to a broader pool of institutional investors and can enable the aggregation of large volumes of capital in a single transaction.

7 ESG mandates refer to investment guidelines that require institutional investors to incorporate environmental, social, and governance criteria into their portfolio allocation decisions.

The “blue” label also provides an instrument aligned with ESG mandates⁷, allowing capital to flow into a sector that has historically remained largely outside institutional portfolios. By intermediating risk through a credible issuer (in this case COFIDE), the bond made water and sanitation lending more compatible with investor requirements. This reflects a wider trend in sustainable finance, where blue and green labels are increasingly being applied to water and sanitation supply.

At the intermediary level, the bond strengthened the funding position of microfinance institutions by providing access to a large and stable source of capital. This contributed to reducing their cost of funding and enabled them to expand lending under more favourable terms.

At the household level, these efficiencies translated into more affordable credit. In Perú, this resulted in a measurable reduction in interest rates on water and sanitation loans, improving access for low-income households in rural and peri-urban areas.

More broadly, the bond provides evidence that water and sanitation investments can generate market-rate returns when appropriately structured, helping shift water and sanitation from a predominantly concessional domain toward an investable asset class. In this way, blue bonds complement public and concessional finance by using limited catalytic support to help unlock larger pools of private capital.

3 Financial Architecture and Risk Allocation

The Blue Bond was designed as a three-tier financing chain linking capital markets to household-level water access:

- At the top tier, **COFIDE** raised capital through issuances on the Lima Stock Exchange (Bolsa de Valores de Lima, BVL) and the Nuam Exchange, a regional platform integrating the exchanges of Perú, Chile, and Colombia. This positioning enhanced visibility in the regional market.
- At the intermediary tier, COFIDE channelled bond proceeds to six selected **CMACs** in the form of credit lines. These institutions acted as financial intermediaries.
- At the final tier, CMACs on-lent these funds directly to **households**, providing microloans averaging approximately USD 1,000 for water and sanitation improvements.
- The national federation of CMACs (**FEPCMAC**) supported this structure by coordinating the process, facilitating alignment between COFIDE and the CMAC network and helping define the technical parameters of the issuance.
- Water.org**, through its WaterCredit programme in partnership with FEPCMAC, provided technical assistance and capacity building. This support enabled CMACs to develop water and sanitation loan portfolios and ensured that capital raised in financial markets translated effectively into household-level impact.

Blue Bond: A capital markets solution to mobilize domestic investors for water & sanitation financing

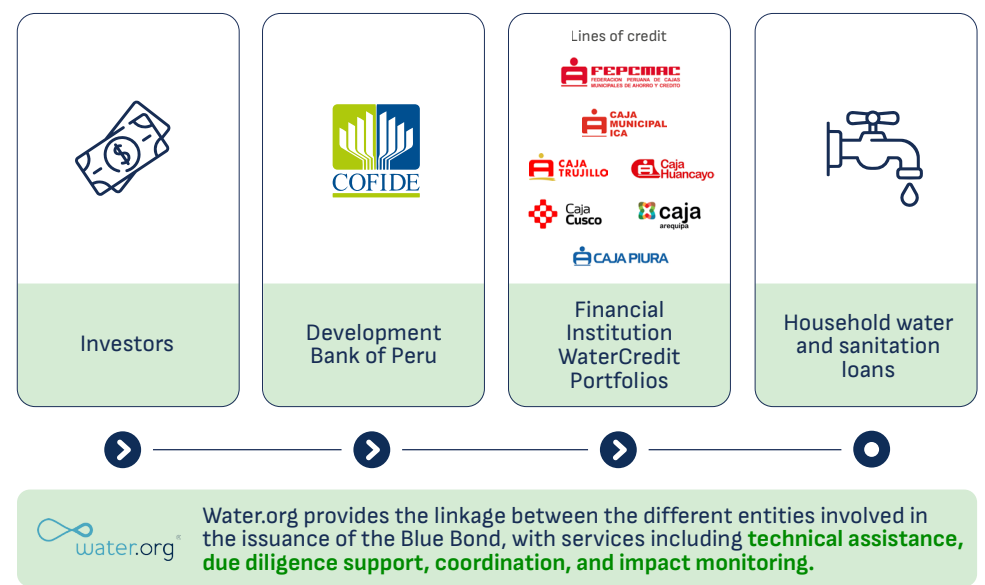


Figure 1: Blue Bond Flow of Funds Structure

Financial strength and market fit

The bond structure is closely aligned with both investor demand and the underlying asset profile. Its one-year tenor (the period from issuance until investors are repaid) matches the average repayment period of household loans, creating a strong alignment between asset and liability duration. This reduces liquidity risk and limits refinancing needs, as cash inflows are expected to coincide with bond maturity.

The structure also responded effectively to post-pandemic market conditions in Perú. Increased liquidity pressures and early pension withdrawals led investors to favour shorter-duration, high-quality instruments, positioning the bond well within prevailing demand.

Returns were fully market-based, with yields of 4.71% for the first issuance and 4.51% for the second, making the instrument competitive with other short-term investments without requiring concessional pricing. The bond's eligibility and reporting framework was further supported by a Second-Party Opinion⁸ from S&P Global Ratings, confirming alignment with international ICMA standards and SDG 6, and reinforcing its credibility among investors.

Transaction costs were exceptionally low, at just 0.25% for the first issuance and 0.20% for the second. This was made possible by COFIDE's prior experience issuing green, sustainable, and social bonds since 2019, which meant the regulatory pathways, investor relationships, and structuring processes were already well-established⁹. Water.org covered the costs of the investor roadshow and due diligence support, which, together with COFIDE's efficiency, kept the overall cost of the transaction to borrowers low. The lower the transaction cost, the greater the benefit transferred to households, resulting in a reduction in the annual interest rate on water and sanitation loans, making credit meaningfully more affordable for low-income families in rural and peri-urban Perú.

8 Independent assessment provided by a specialised external reviewer (typically a ratings agency or sustainability research firm) that evaluates whether a bond issuer's thematic framework is credible, well-defined, and aligned with recognised international standards, such as the ICMA Bond Principles. It validates that the stated use of proceeds, eligibility criteria, and reporting commitments are consistent with the relevant principles.

9 The blue bond was structured as a subcategory of the green category within COFIDE's existing Thematic Bond Framework, specifically under the classification for efficient and resilient water management as a mechanism for climate change adaptation.

Risk mitigation

At the investor level, risk was minimised by having COFIDE act as the sole issuer. This meant investors were taking on quasi-sovereign risk¹⁰ rather than direct exposure to the CMACs or individual household borrowers, making the instrument accessible to more conservative investors such as pension funds and insurance companies who face strict risk thresholds. COFIDE's strong short-term credit ratings¹¹, the highest available in Perú's local market, reinforced this confidence.

At the CMAC level, risk was managed through rigorous selection and geographic diversification. COFIDE independently evaluated all ten CMACs in the Federation and approved only six based on their risk profiles, portfolio quality, and operational capacity. Pooling six institutions across different regions reduced concentration risk (associated with over-reliance on a single asset, borrower or area) and provided the critical mass required for capital market transactions. The four CMACs that did not qualify are receiving continued support from Water.org to strengthen their portfolios for future issuances.

4 Enabling conditions for the blue bond in Peru

By 2024, Perú's economy had stabilized following the COVID-19 contraction and the recovery in 2021, settling into modest growth of around 2-3%. For institutional investors, it signalled that the environment was stable enough to commit capital to a one-year instrument without undue sovereign or currency risk.

This macro stability was reinforced by the strength of the financial system. Non-performing loans remained low and stable throughout 2018-2023, hovering between 3% and 4.5% even amid pandemic-related stress, while domestic credit remained elevated at around 46% of GDP. Together, these indicators point to a well-functioning and relatively deep financial system, capable of absorbing new financial instruments and allocating capital efficiently.

At the sector level, Perú had established a relatively strong institutional framework by 2018, extending formal regulatory authority, including tariff-setting and independent reporting, to rural water and sanitation services. Service coverage monitoring had been consistently implemented across both urban and rural areas since at least 2016, with regulatory oversight clearly separated from service provision.

The microfinance sector further reinforced this enabling environment. The Superintendency of Banks, Insurance and Private Pension Fund Administrators (SBS) has consistently improved its regulatory and supervisory framework for microfinance activities, which is now considered one of the most advanced in Latin America¹². For the Blue Bond, this regulatory maturity was a direct enabling condition. All microfinance institutions in Perú, including the CMACs, are overseen by the SBS, which supervises around 36 entities providing microcredit, SME loans, and other financial services to low-income populations.

At the capital market level, the existence of a functioning stock exchange with thematic bond listing capacity was also critical. The Lima Stock Exchange (BVL) intro-

10 Credit risk associated with a state-owned or government-backed institution, such as a national development bank, rather than the sovereign (central government) itself.

11 CP-1+(pe), assigned by Apoyo & Asociados Internacionales (Fitch Ratings affiliate operating in Perú) denotes the highest capacity for timely repayment of financial obligations in the local market, with the "+" indicating the strongest position within that category. ML A-1+.pe, assigned by Moody's Local Peru, is the equivalent top short-term rating on Moody's local scale. The suffix "(pe)" in both cases indicates these are national scale ratings, meaning they assess creditworthiness relative to other issuers within Peru rather than on a global basis.

12 Financial Inclusion and Consumer Protection in Peru

duced a Green Bond Guide in 2018 to facilitate thematic bond listings and has since supported issuances for infrastructure and sustainable development, with COFIDE among its recurring thematic issuers. By 2022, Perú had already accumulated ten thematic bond issuances totalling approximately USD 230 million¹³, establishing a track record that gave both issuers and investors familiarity with the process.

Building on these conditions, the bond was issued in Peruvian soles, reflecting the depth and liquidity of the domestic capital market, alongside macroeconomic stability that made local currency issuance both feasible and attractive.

4 Can blue bonds unlock private investment in rural water at scale?

Blue Bonds represent a mechanism designed to attract private capital to public markets, directing institutional investment toward sectors that have historically struggled to access such capital. Their core strength lies in scale: unlike bilateral loans, a public bond issuance can mobilise large volumes of capital in a single transaction, provided the instrument meets investors’ risk and return expectations.

Perú’s experience offers compelling early evidence of what this can achieve. The first issuance was oversubscribed 2.17 times relative to its final size of S/ 100 million, with total demand of S/ 217 million (over five times the initial S/ 40 million offering). Notably, many participating investors had no prior exposure to the water and sanitation sectors, suggesting that the structure enabled access to a previously inaccessible asset class.

This demand was driven by the financial characteristics of the instrument. The bonds were priced at fully market-rate returns, demonstrating that WASH-related investments in Perú can generate commercially viable returns. Investors were not exposed to household-level credit risk; instead, they purchased short-term, local-currency debt issued by COFIDE, effectively transforming microcredit exposure into quasi-sovereign risk aligned with institutional mandates.

The structure also demonstrated significant efficiency in mobilising capital. For the first issuance, approximately USD 130,000 in catalytic grant funding from Water.org supported regulatory processes, due diligence, and investor engagement, unlocking USD 26.3 million in institutional capital, a leverage ratio of roughly 1:200 for this transaction. While this builds on broader ecosystem support provided since 2014, it illustrates the scaling potential of public capital markets. Transaction costs were also low, at 0.25% for the first issuance and declining further to 0.20% in the second, suggesting increasing efficiency over time.

Perú demonstrates that Blue Bonds can crowd in private capital to water and sanitation WASH when three conditions are met: i. credible underlying assets, ii. a trusted issuer that can play an aggregating role, and iii. a market able to absorb the instrument.

As such, the model is not universally replicable. Its success depends on the presence of sufficiently large and well-performing loan portfolios, as well as an issuing institution with both credibility and market access. In weaker contexts, the quasi-sove-

13 [cbi_peru_sotm_2021_03d.pdf](#)

reign risk profile that underpinned investor confidence in Perú may not hold. In such cases, additional credit enhancement, such as guarantees from development finance institutions or first-loss capital from philanthropic actors, may be required. While Perú was able to avoid concessional support, such mechanisms may be necessary elsewhere to crowd in private capital.

5 Role of Philanthropic Foundation

Philanthropic foundations can play a potential catalytic role in Blue Bonds from three distinct angles, each corresponding to a different stage of market development:

Building the fundamentals

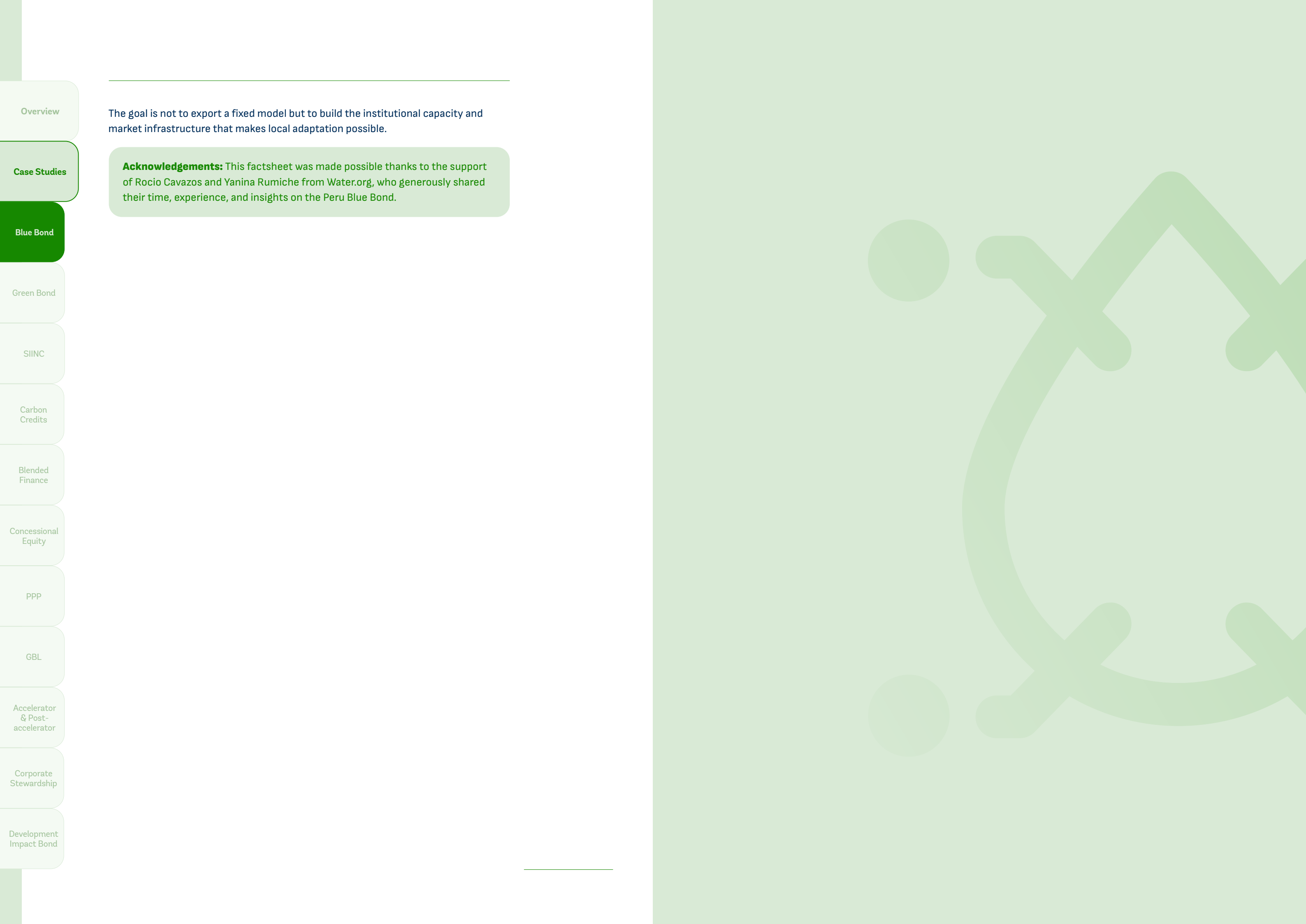
The first is the longest and most upstream role: supporting issuers and financial institutions to **build the fundamentals** that a capital market transaction requires. This means funding the years of technical assistance needed to help financial institutions develop water and sanitation lending programs, reach the operations volume that makes a bond viable, and put in place the data systems, impact monitoring, and reporting processes that give investors the transparency they need. In Perú, this is precisely the role Water.org played over a decade before the first bond was issued representing investment in capacity.

Covering transaction costs

The second angle is more targeted and immediate: covering the **transaction costs** that prevent issuers (particularly first-time issuers) from entering the public market even when they have the underlying portfolio to support it. These costs include the development of a thematic bond framework aligned with international standards, the Second-Party Opinion from a rating agency confirming that alignment, legal and listing fees, and the investor roadshow. For experienced issuers like COFIDE, these costs are already low. For a first-time issuer, they can be too high.

Systematisation and replication

The third potential role is **systematisation and replication**. A foundation can fund the standardisation of legal frameworks, technical standards, and investment structures so that the model does not have to be rebuilt from scratch in each new context. This includes training local teams and partner organisations on the full technical lifecycle of thematic bond issuances, conducting feasibility assessments in new geographies, and facilitating high-level exchanges between development banks and institutional investors. Water.org’s engagement with Brazil’s Banco Nacional de Desenvolvimento Econômico e Social (BNDES) and delegations from India and Africa following the Perú example illustrates how structured South–South knowledge cooperation, funded catalytically, can help build pipelines for replication. While these engagements do not yet uniformly translate into bond issuances, they play a critical role in transferring technical know-how, aligning stakeholders, and preparing the institutional conditions necessary for future transactions.



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Blue Bond

Green Bond

SIINC

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Blended Finance

Concessional Equity

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GBL

Accelerator & Post-accelerator

Corporate Stewardship

Development Impact Bond

The goal is not to export a fixed model but to build the institutional capacity and market infrastructure that makes local adaptation possible.

Acknowledgements: This factsheet was made possible thanks to the support of Rocio Cavazos and Yanina Rumiche from Water.org, who generously shared their time, experience, and insights on the Peru Blue Bond.



Green Bond

Green Bond Tanga Urban Water Supply and Sanitation Authority (UWASA)

Case Studies



Tanga UWASA issued a pioneering local-currency green bond (USD ~20.8 million) for water infrastructure in Tanzania, proving that creditworthy utilities can attract unsubsidised private capital without sovereign guarantees.

Key insights

- A USD 1 million catalytic grant from the United Nations Capital Development Fund (UNCDF) mobilised USD 20.8 million in institutional capital: a 1:20 leverage ratio and an efficient use of concessional finance.
- The bond closed 103% oversubscribed at a fully commercial rate of 13.5%, demonstrating that well-managed WASH infrastructure can compete for domestic institutional capital without subsidised pricing.
- For rural water, the four structural constraints: i. borrower standing; ii. portfolio scale; iii. revenue reliability; and iv. technical preparation, must be solved before Green Bonds become a viable mechanism.

¹⁴ Many institutional investors operate under formal investment policies that require a defined proportion of their portfolio to be allocated to assets that meet recognised ESG criteria. A bond carrying a credible green label, aligned with internationally recognised standards such as the ICMA Bond Principles and verified by an independent Second-Party Opinion, qualifies for these allocations. The ESG label expands the eligible investor universe by making the bond legible within frameworks that screen investments by sustainability criteria.

¹⁵ [Green-Bond-Principles-GBP-June-2025.pdf](#)

¹⁶ Other organisations such as The Climate Bonds initiative goes further with an actual certification scheme, including sector-specific Water Infrastructure Criteria covering treatment, distribution, and efficiency. However, the Climate Bonds Initiative framework was not used for the Tanga UWASA green bond issuance.

1 What is a green bond?

A Green Bond is a fixed-income debt instrument where the proceeds are exclusively used to finance or refinance projects with positive environmental outcomes. To qualify as “green,” issuers must establish a framework, typically verified by an independent party, that defines eligible project categories, ensures proper tracking of funds, and commits to ongoing impact reporting. Green Bonds can be issued by governments, municipalities, development banks, corporates, or other entities such as project issuers and commercial financial institutions.

Unlike a conventional bond, the green label unlocks access to a pool of investors mandated to align investments with environmental, social, and governance (ESG) criteria¹⁴. This group typically includes pension funds, dedicated sustainability funds, and development finance institutions, all of which are either required or encouraged to allocate capital toward certified sustainable assets. While the underlying legal framework of the bond remains unchanged, the green label may influence who buys it and, sometimes, at what price.

Credibility in the Green Bond market relies on a structured and transparent framework. The Green Bond Principles (GBP), developed by International Capital Market Association (ICMA)¹⁵, provide widely accepted guidelines covering the use of proceeds, fund management, and disclosure practices¹⁶. In addition, most issuances are supported by a Second-Party Opinion (SPO), where an independent provider, such as Institutional Shareholder Services (ISS) or Sustainalytics, assesses alignment with these standards. Together, these elements help ensure that environmental claims are substantiated and trusted by the market.

2 How was the Green Bond applied here?

This case study examines how Tanga UWASA, a publicly owned urban water utility serving Tanga City, Muheza, Pangani, and surrounding towns in Tanzania, applied this instrument. While this series of factsheets focuses primarily on rural water financing, this case is included because it represents Tanzania’s first subnational Green Bond and one of the first in Sub-Saharan Africa for water infrastructure, establishing the legal, regulatory, and market precedents that any future application in rural areas would need to build on.

Tanga UWASA tapped domestic and international capital markets (Dar es Salaam Stock Exchange and the Luxembourg Green Exchange) by issuing a 10-year fixed-rate revenue bond at 13.5% per annum, raising TZS 53.12 billion (approximately USD 20.8 million). Proceeds were ring-fenced across four ICMA Green Bond Framework categories¹⁷. The bond closed in April 2024 with 103% oversubscription, with investor participation split between 65% domestic and 35% international.

The bond is structured as a revenue bond, meaning it is repaid exclusively from Tanga UWASA's operating revenues, primarily water tariffs and sewerage service charges. No sovereign guarantee was required.

Investors included domestic pension funds, insurance companies, fund managers, and members of the diaspora. The African Local Currency Bond Fund (ALCB Fund), a pan-African investor in local-currency corporate bonds, was an early anchor investor, taking 35% of the issuance. This credibility signal persuaded first-time domestic investors to participate in an issuer with no prior track record in capital markets.

The UNCDF served as lead technical and financial advisor throughout the structuring process, as well as providing a grant of USD 1 million to cover operational costs related to the bond including policy support, governance structuring, risk mitigation, transaction design, investor engagement, listing compliance, and post-issuance support.

Prior to issuance, an independent Second-Party Opinion was obtained from ISS Corporate Solutions (May–September 2023), confirming alignment with the ICMA Green Bond Principles, the sustainability quality of project selection criteria, and consistency with Tanga UWASA's broader sustainability strategy. The cost of the assessment was funded by FSD Africa as part of its technical assistance, which also included support in developing the Green Bond framework itself.

Other stakeholders involved in preparations of the Tanga water Green Bond includes NBC Bank (lead transaction advisor), FIMCO and Global Sovereign Advisory (financial & investment advisory), ALN Tanzania (legal advisor), Innovex (reporting accountant), Vertex International Securities (stockbroker).

¹⁷ **Sustainable Water and Wastewater Management** covers sustainable infrastructure for clean and drinking water, wastewater treatment, sustainable urban drainage systems, and other forms of flood mitigation. This is the primary category for the Tanga bond, capturing investments in water production, treatment, distribution, household connections, NRW reduction, and sewerage. **Renewable Energy** encompasses the production, transmission, and application of energy from renewable sources, including solar PV, wind, and biogas systems. **Energy Efficiency** refers to measures in new or refurbished assets that reduce energy consumption, including storage, smart grids, and efficient appliances and processes. **Climate Change Adaptation** covers efforts to make infrastructure and ecosystems more resilient to the impacts of climate change.

3 Bond proceeds

Proceeds from the Green Bond are being used to double water production and treatment capacity (from 42,000 to 72,000 m³/day at the pumping station and from 45,000 to 60,000 m³/day at the treatment plant), to build a water storage tank, reduce non-revenue water from 30.7% to 25%, install smart meters, expand the distribution network, extend and rehabilitate the sewerage network, and protect the Zigi River catchment through reforestation and soil conservation (see box below for further information). To date, water production facilities and water distribution network are under construction, with full commissioning expected within approximately 18 months of issuance.

Box 1 Use of Proceeds

Project 1- Mabayani Pumping Station Rehabilitation and Expansion (TZS 10.8bn; 20.4%): This station draws raw water from the Zigi River and pumps it to the treatment plant, but ageing equipment was limiting it to 42,000 m³/day, already below demand. The bond is funding new high-capacity pumps, electrical upgrades, and a new 6.4 km pipeline to carry water to the treatment plant, raising abstraction capacity to 72,000 m³/day.

Project 2 – Mowe Water Treatment Plant Rehabilitation and Expansion (TZS 23.2bn; 43.7%): once raw water arrives from Mabayani, it needs to be treated before it reaches households. The existing plant could handle up to 45,000 m³/day on paper, but ageing filters, clarifiers, and storage meant actual output was lower, causing rationing across the city. The bond is funding new rapid sand filters, a new clarifier, a large clear water storage tank, and aeration and laboratory upgrades in order to raise treatment capacity to 60,000 m³/day.

Project 3 – Distribution Network Extension and NRW Reduction (TZS 16.1bn; 30.3%): Nearly a third of all water produced is lost to leaking pipes, then bond proceeds are funding 110 km of pipe rehabilitation, 60 km of entirely new network, 12,400 smart meters to improve billing and leak detection, and District Metered Areas to control pressure zone by zone. The goal is to cut losses from 30.7% to 25% and connect 6,000 households that currently have no piped supply.

Project 4 – Sewerage Network Extension and Rehabilitation in Tanga City (TZS 2.5bn; 4.6%): Only 4.2% of Tanga City has any connection to a formal sewer system, the majority of households rely on septic tanks and pit latrines. The bond is funding 1.5 km of new sewer pipelines, rehabilitation of 1.5 km of the existing crumbling network, and maintenance equipment to keep the system operational.

Project 5 – Environmental and Water Resources Protection and Conservation (TZS 524m; 1.0%): All four of the infrastructure projects above depend on the Zigi River having enough clean water to supply in the first place. That source is under threat from increasing sedimentation risk, which could reduce inflows to the Mabayani Dam. Project 5 therefore funds community-based conservation across upstream villages: planting 100,000 drought-resistant seedlings,

terracing and soil protection works, dam demarcation, and integrating 10 additional villages into the conservation programme.

3 Why a Green Bond?

UWASA faced a classic infrastructure bottleneck: a legally centralised capital funding model¹⁸, paired with public funding channels that were both oversubscribed (more utilities competing for allocations than available budget) and donor-dependent (subject to aid cycles and volume constraints), unable to deliver at the pace or scale required. As a result of lags in public funding, Tanga UWASA's infrastructure deficit continued to widen.

The bond structure enabled access to long-duration domestic institutional investor capital (notably pension and insurance funds) without reintroducing sovereign-balance-sheet intermediation (i.e. without requiring a government guarantee or central government borrowing on the utility's behalf). This was made possible by Tanzania's 2021 Alternative Project Financing (APF)¹⁹ strategy, which allows public entities to raise their own financing for development projects, bypassing central funding channels and issuing project-linked debt independently. Structuring the issuance as a project revenue bond, where repayment is tied to project-specific revenues rather than the utility's balance sheet, further mitigated legal ambiguity.

Beyond funding, the green structure generated compounding benefits:

-  **Broader investor base:** ESG-mandated investors, including international actors, who would not have participated in an unlabelled instrument.
-  **Local currency denomination:** Cross-listed rather than re-issued on the Luxembourg Stock Exchange, the bond was denominated entirely in TZS, eliminating foreign exchange risk and hedging costs.
-  **Institutional discipline:** Transparency and reporting requirements strengthened governance and financial management at Tanga UWASA.
-  **Market development:** The issuance established a benchmark on the Dar es Salaam Stock Exchange and aligned financing with SDG 6 and Tanzania's Nationally Determined Contributions (NDC) commitments.

4 Financial Architecture and Risk Allocation

The bond's financial architecture was designed to provide investors with enforceable protection at every stage of the cash flow cycle, from issuance through principal repayment by 2034.

Investors purchase the bonds through one of two exchanges: the Dar es Salaam Stock Exchange (DSE) for local investors and the Luxembourg Green Exchange (LGX)

18 Under Tanzania's Water Supply and Sanitation Act (2019), responsibility for capital infrastructure lies with the Ministry of Water, funded through mechanisms such as the Water Sector Development Programme (WSDP) and the National Water Fund.

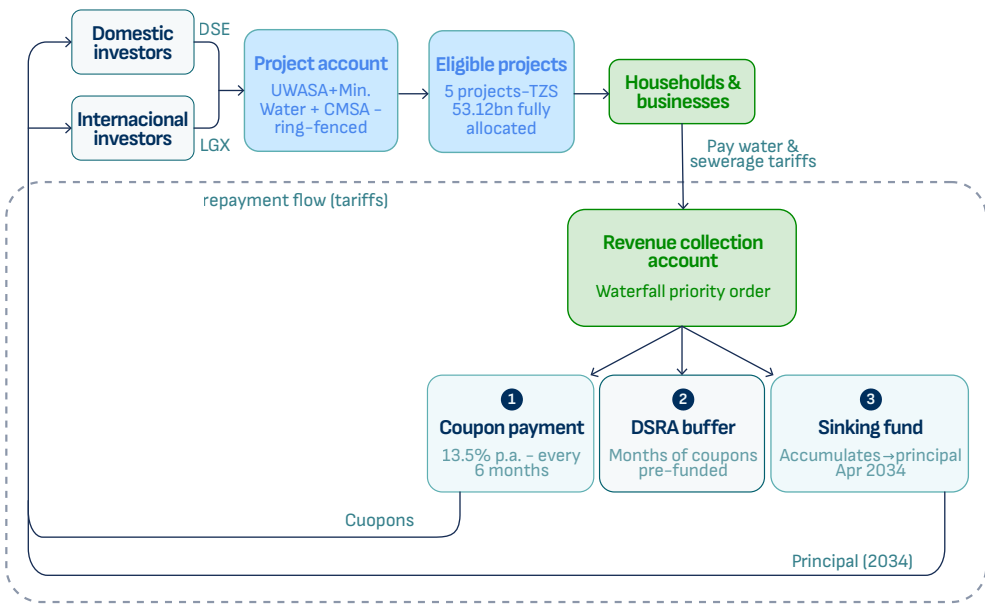
19 The strategy establishes capital markets instruments as legitimate mechanisms for financing national development priorities, explicitly recognising municipal bonds, public-private partnerships, and blended finance as alternatives to direct government expenditure. Its implementation is led by a National Facilitation Team (NFT) composed of representatives from the Ministry of Finance and Planning, the President's Office for Regional Administration and Local Government, the Capital Markets and Securities Authority, the Bank of Tanzania, and the Dar es Salaam Stock Exchange. The APF sits within Tanzania's broader Integrated National Financing Framework (INFF) and is aligned with the country's Third Five-Year Development Plan (FYDP III, 2021–2026).

for international ones. Once the bond is listed and fully subscribed, the resources raised are transferred into a dedicated account (Project Account) jointly controlled by Tanga UWASA, the Ministry of Water, and the Capital Markets and Securities Authority (CMSA). This tri-party oversight ring-fences the proceeds and ensures they can only be deployed against the five eligible projects (box 1). It also provides the use-of-proceeds accountability required under the green framework. From this account, Tanga UWASA disburses payments to contractors and suppliers for each of the five projects, following the allocations set out in the bond prospectus.

On the repayment side, once the infrastructure is operational and Tanga UWASA begins collecting water and sewerage tariffs from customers, all revenues flow into a separate Revenue Collection Account. From there, funds are distributed in a fixed order of creditor or user priority ("waterfall structure") as follows:

- Coupon payments to bondholders are made first, bondholders receive 13.5% per annum paid semi-annually.
- Operational expenses are covered next and any surplus is then set aside in a Debt Service Reserve Account (DSRA), which acts as a short-term safety buffer holding a few months' worth of coupon payments in case revenues temporarily fall short. This is a standard institutional investor requirement and was critical to achieving the subscription level the bond reached.
- The remaining surplus accumulates in a Sinking Fund, which builds up steadily over the 10-year life of the bond until it holds enough to repay the full TZS 53.12 billion principal to all investors in April 2034. Rather than repaying the full principal in a single lump sum at maturity, the sinking fund gives investors' confidence that repayment is being actively provided for throughout the life of the bond. It also protects Tanga UWASA from having to re-finance the full amount at maturity, potentially at higher interest rates (known as "rollover" risk).

Figure 1: Cash flow waterfall structure



Key risks: The success of the bond and investor protection against the downside risks of missed payments, default, or even bankruptcy ultimately depends on the profitability of the underlying investments and the wider operations of Tanga UWASA. The ring-fencing and DSRA mechanisms described above provide some assurance for investors that such downside risks are contained and managed. However, the green bond concentrates significant risk on the utility's operational performance and its capacity to generate sufficient cash flows and profits to make coupon payments and build up the repayment sinking fund.

5 Enabling conditions for the green bond in Tanzania

The Tanga UWASA bond was the product of a specific convergence of constraints and opportunities:

Legal and regulatory framework

The Water Supply and Sanitation Act 2019 established Water Supply and Sanitation Authorities like Tanga UWASA as legal entities, giving them the status to issue debt in their own name, maintain their own balance sheet, and enter into contracts with investors and regulators. The Energy and Water Utilities Regulatory Authority (EWURA), as the independent regulatory authority established under the Energy and Water Utilities Regulatory Authority Act, is mandated to set and enforce cost-reflective tariffs across all regulated utilities. For bond investors, this statutory tariff-setting function provided a degree of revenue predictability, as tariff levels are set through a regulatory process rather than by direct government discretion, reducing the risk of political influence typically associated with public utility revenue streams in frontier markets. Tanzania's APF strategy, adopted in 2021, further enabled public utilities to access capital markets directly, rather than relying solely on government funding. It also clarified their authority to take on long-term debt for infrastructure, removing prior legal uncertainty.

Macroeconomic environment

Tanzania's macroeconomic trajectory provided the foundation for a credible long-term instrument. The country maintained strong GDP growth of 6.8–7.0% in 2017–2019, absorbed a COVID-19 contraction to approximately 2.0% in 2020, and recovered swiftly to 4.9% in 2021 and 5.3% in 2023. By the time of the April 2024 issuance, the economy had returned to a robust growth path, providing the macroeconomic stability that a 10-year local-currency bond requires.

Domestic financial market readiness

The domestic financial market, while still nascent, was not starting from zero. Domestic institutional investors had already gained exposure to labelled instruments through Tanzanian bank CRDB's 'Kijani' Green Bond (2023, 10.25% coupon, five-year tenor) and NMB Bank's Sustainability Bonds (2023). The Tanga bond was therefore entering a market with some prior experience of thematic instruments, reducing the investor education burden and shortening the time needed to build confidence.

Utility-level creditworthiness and rating

At the utility level, Tanga UWASA's Category AA regulatory classification under EWURA (Energy and Water Utilities Regulatory Authority) was crucial for the issuance. This is the highest performance band in Tanzania's regulatory framework, confirming water service coverage above 85% and the ability to meet operating costs, depreciation, and return on investment from the utility's own revenues. This classification meant Tanga UWASA could demonstrate debt-service capacity to investors based on its own financial performance, without requiring a government guarantee.

Institutional coordination

Translating these conditions into an approved transaction required coordination across multiple government bodies simultaneously: the Ministry of Water, CMSA as bond regulator, and the Treasury. UNCDF's two-year pre-issuance engagement was critical here, working across all parties to build the shared understanding and documentation that allowed each body to approve the structure on its own terms.

6 Can green bonds unlock private investment in rural water at scale?

The Tanga UWASA bond demonstrated that private capital would flow into water infrastructure in a lower middle-income African country without a sovereign guarantee, in local currency, at commercial rates, and at a scale that improves service delivery. Its success relied on a combination of strong revenues, institutional capacity, and investor confidence; conditions that do not translate neatly to rural water. The leverage ratio in this case is compelling: a USD 1 million catalytic grant from UNCDF mobilised USD 20.8 million in private and institutional capital, a 1:20 ratio and an efficient use of concessional finance. The key learning however, is that investor demand exists if the structure is credible. The harder question is how to make structures credible where the underlying conditions are absent.

For rural water, this translates into four structural constraints that green bonds alone cannot solve:

- **The borrower problem:** Many rural schemes have no individual legal standing, and the vast majority do not have the creditworthiness to issue debt. They must be aggregated under an entity that can borrow formally and be held accountable for repayment (*for additional information, please refer to the Factsheet – Blue Bond*).
- **The scale problem:** Even with such an entity, the underlying asset portfolio must be large enough to justify the transaction costs of a capital markets instrument, supported by a green framework designed for rural infrastructure rather than urban utilities.

- **The revenue problem:** Weak and unreliable tariff collection cannot underpin commercial debt service. Alternative payment mechanisms need to be structured in their place to guarantee a reliable flow of income.
- **The technical assistance problem:** The preparation required to reach bankability cannot depend on one-off donor support; it must be institutionalised, with predictable technical support delivered at a cost that does not absorb the efficiency gains the instrument is supposed to create *(for additional information, please refer to the Factsheet – CRS/Azure)*.

7 Role of Philanthropic Foundation

Foundations can play a catalytic role in Green Bonds from three distinct angles, each corresponding to a different stage of market development.

The first is the longest and most upstream role: supporting water service providers to build the foundation that a capital market transaction requires. A foundation can **support individual providers to improve their financial performance**, reach the level of professionalisation, and develop the operational maturity that makes debt issuance viable. However, as mentioned, doing this alone is challenging for rural service providers, so foundations can in parallel support development of an architecture or platform that allows providers who could never issue a bond alone to participate collectively.

The second angle is more targeted and immediate: **covering the transaction costs that prevent issuers (particularly first-time issuers) from entering the public market** even when they have the underlying portfolio to support it. This was the role played by UNCDF in this structure. These costs include the development of a thematic bond framework aligned with international standards, a Second-Party Opinion from an independent reviewer confirming such alignment, legal and listing fees, and the investor roadshow.

The third role is **systematisation and replication**. A foundation could fund the standardisation of legal frameworks, technical standards, and investment structures at country level so that the model does not have to be rebuilt from scratch in each new context. This includes training local teams and partner organisations on the full technical lifecycle of thematic bond issuances, conducting feasibility assessments in new geographies, and facilitating high-level exchanges between development banks and institutional investors.

Acknowledgements: This factsheet was made possible thanks to the support of Geoffrey Gerald Hilly from Tanga UWASA, who generously shared his time, experience, and insights on the green bond.





Social Impact Incentives (SIINC)

The case of Khmer Water Supply Holding (KWSH)

Case Studies



SIINC is an Impact-Linked Finance instrument that provides time-limited, outcome-based payments to enterprises achieving predefined social outcomes. In June 2021, KWSH, a rural Cambodian water provider, joined the SIINC for WASH programme, co-designed and implemented by Roots of Impact and Aqua for All. KWSH faces constraints in financing network expansion in low-income and higher-cost service areas. The SIINC mechanism was designed to address this challenge by complementing a simultaneous private investment round, improving KWSH's revenue profile, and reducing risk for investors. Two outcome metrics triggered payments: increased household connection rates in target districts with higher proportions of low-income households, and expansion into high-need licence areas.

Key insights

- Cambodia's relatively stable regulatory environment, private concession model, and growing private sector experience provide a more supportive context than many other emerging markets.
- KWSH's decade-long commercial track record and existing investment pipeline made outcome targets credible and reduced delivery risk.
- The SIINC mechanism ran over a three-year period (June 2021 – May 2024) and was designed to increase access to piped water, including for low-income rural households.
- SIINC payments strengthened KWSH's financial profile, enabling it to attract equity investors and demonstrating a clear crowding-in effect.
- Over this period, KWSH grew significantly, reaching over 28,000 connections and delivering 3.4 billion litres of water in 2024, with 80% of customers accessing piped water for the first time.
- Despite its success, replication depends on a pipeline of commercially mature operators, standardised verification systems, and portfolio-based outcome funding, conditions that are not yet widely present in most rural water markets.

❶ What is a SIINC, and how was it implemented in practice?

Impact-linked finance connects financial performance to the scale and quality of social or environmental impact. The greater the positive impact a business creates, whether by reaching more low-income customers, improving health outcomes, or expanding access to clean water, the more favorable its financial terms become. This can take several forms, including an interest rate that decreases as impact targets are achieved (Impact-linked loan), outcome-based incentive payments, such as

SIINC, that provide additional funding once results are verified, or structures like the Simple Agreement for Future Impact (SAFI), where strong impact performance directly reduces the amount to be repaid.

SIINC is one of the Impact-Linked Finance Instruments developed by Roots of Impact in collaboration with the Swiss Agency for Development and Cooperation (SDC). It provides time-limited payments to enterprises for achieving predefined social outcomes (such as increasing access to water and sanitation for low-income households), funded by an outcome payer such as a donor or development agency. To participate, enterprises must run a parallel investment round (equity, debt, or mezza-nine²⁰). The payments are designed to supplement revenues, attract investment, and support scaling in contexts where private capital is difficult to mobilise. Their time-limited nature, capped at a fixed period, is intended to incentivise enterprises to achieve financial self-sufficiency for the additional social impact being supported, while avoiding long-term grant dependency. This approach is most appropriate where a clear and viable pathway to independence exists.

SIINC for WASH applies this specifically to water and sanitation businesses in Asia, Sub-Saharan Africa, the Middle East, and North Africa. The program is co-designed and implemented by Roots of Impact and Aqua for All. In 2020, SIINC for WASH received 140 applications from 33 countries, and 4 finalists were selected. One of these was Khmer Water Supply Holding (KWSH), the focus of this factsheet.

KWSH is a rural water service provider in Cambodia. Its model is built on acquiring and rehabilitating existing water stations, then extending the network to increase household-level coverage. Like other rural infrastructure businesses, KWSH faces a returns barrier: the upfront capital required to build and expand pipelines is very high, and it takes years for newly connected households to generate enough revenue to justify that investment. This makes it difficult to expand into lower-density or lower-income areas, or to reduce connection fees for households that cannot afford them, even when the social case is clear.

SIINC addresses this challenge by strengthening the enterprise’s financials: it provides a non-repayable, additional revenue stream directly linked to verified social outcomes, thereby enabling it to serve low-income clients and expand into commercially challenging areas.

In June 2021, KWSH entered the SIINC for WASH programme for a three-year period, running until May 2024. As required under the SIINC structure, KWSH simultaneously raised investment from InfraCo Asia, with SIINC payments designed to complement that investment by improving the company’s revenue profile and de-risking the opportunity for the investor.

Two outcome metrics were agreed to trigger SIINC payments: The first focused on increasing the overall household connection rate in the rural districts of Puok²¹ and Chhlong²², since harder-to-reach and lower-income households are typically connected last. The second incentivized expansion into new license areas with the greatest social need²³.

20 Mezzanine refers to a hybrid form of capital that sits between senior debt and equity in the repayment hierarchy. It carries a higher risk than a standard loan but a lower risk than equity, and typically offers a higher return.

21 Rural district in Siem Reap Province, north-western Cambodia, with a population of 128,214 according to the last census.

22 Rural district in Kratié Province, eastern Cambodia, with a population of 54,033 according to the last census.

23 Assessed against three criteria: share of ID Poor households, existing water coverage, and proportion of people without access to clean water.

By the end of the project, KWSH increased the average coverage rate from 60% to 72.1% across Puok and Chhlong stations. Also, one new station was acquired with a strong impact profile and qualified for incentives, and four additional stations were selected for future expansion. Approximately 2,500 new households, representing around 10,000 people, gained access to piped water, and about 60 kilometres of additional pipeline were constructed with support from the SIINC.

2 Why SIINC?

In every license area where KWSH operates, two barriers consistently limit how far commercial investment alone can reach.

First, at least 10% of households in any given license sit in areas where the population density or income levels are simply too low to justify the infrastructure cost from KWSH’s own funds. Second, even within areas already covered by pipeline, at least 10% of households cannot afford the upfront connection fee, meaning they have access to water on paper, but not in practice. Together, these gaps cap the impact and return that any license area can generate on commercial terms alone.

The SIINC provided a powerful proof of concept by showing that commercial funders can confidently back KWSH to build out up to 90% of a pipeline network and connect up to 90% of covered households, knowing that grant-based partners are willing to step in alongside them to close the last mile and improve affordability in existing areas. This partnership model not only serves more people but also deepens KWSH’s access to each license and strengthens the financial returns that make the entire model viable.

2 Pathway of the service provider: building a commercial water business

KWSH stands out among WASH enterprises in underserved markets for building its growth primarily on commercial capital and avoiding overreliance on grants; conventional non-results-based grants have accounted for just 4% of total fundraising. This strong reliance on market-based financing positions KWSH as a particularly well-suited candidate for a SIINC transaction.

From its inception in 2013, KWSH pursued an equity-based growth strategy rather than relying on grants. Instead of targeting greenfield sites, the company focused on acquiring and turning around underperforming rural water stations, using investment capital to demonstrate that the model could work and scale. Core funding from Insitor Seed Fund and project management support from OBOR enabled the founding shareholders, Insitor Partners and OBOR Capital, to acquire the company’s first two underperforming stations in 2014 and 2016 as proof of concept.

By 2018, KWSH had matured sufficiently to attract a wider range of investors. Insitor Partners provided USD 1.7 million as the initial equity shareholder, with follow-on investment in the form of convertible loans, while Stone Family Foundation extended two loan facilities totalling USD 1.1 million with seven-year tenors and 4.5-year grace periods. The Australian Department of Foreign Affairs and Trade also supported expansion through results-based payments of around USD 500,000. Each of these transactions built KWSH's track record and demonstrated its operations as a viable business case. Grants were only used to help expand into hard-to-reach areas and at times when the business did not yet have stable debt financing. This discipline is what kept the 4% figure so low.

By 2021, KWSH had reached the level of operational maturity and track record required for a SIINC transaction, while also securing a parallel investment round from InfraCo Asia, which provided USD 2.3 million in long-term debt²⁴ to support infrastructure expansion²⁵. The loan was structured over 7 years, subordinated to other debt, with repayment taking the form of a cash sweep after all agreed expenses and investment costs, meaning KWSH only repaid what the business could genuinely afford, with little or no debt servicing required in the early years. Through the SIINC, outcome payers Aqua for All committed up to €350,000 in additional income on top of customer revenues, directly strengthening KWSH's financial position.

This improved readiness ultimately attracted Marubeni Corporation, a Japanese trading company with extensive global experience in water utilities, as a new equity investor, bringing not just capital but technical capacity to support KWSH's long-term growth plans. While it is difficult to attribute Marubeni's investment directly to the SIINC, KWSH consistently highlighted during fundraising that grant partnerships were available to enhance penetration within license areas, and this was certainly a helpful signal to incoming investors.

Building on the success of its first SIINC, KWSH qualified for a second, larger transaction launched in January 2026. Funded by Aqua for All and the Swiss Agency for Development and Cooperation (SDC) as part of the Catalyzing Impact with Innovative Finance (CIIF) programme, this EUR 500,000 SIINC targets three outcomes: expanding coverage across two stations (Pouk and Sosor Sdom), extending into new license areas with the greatest social need, and strengthening climate resilience by subsidising raw water storage improvements, specifically the excavation of ponds at water stations.

3 Financial architecture and risk allocation

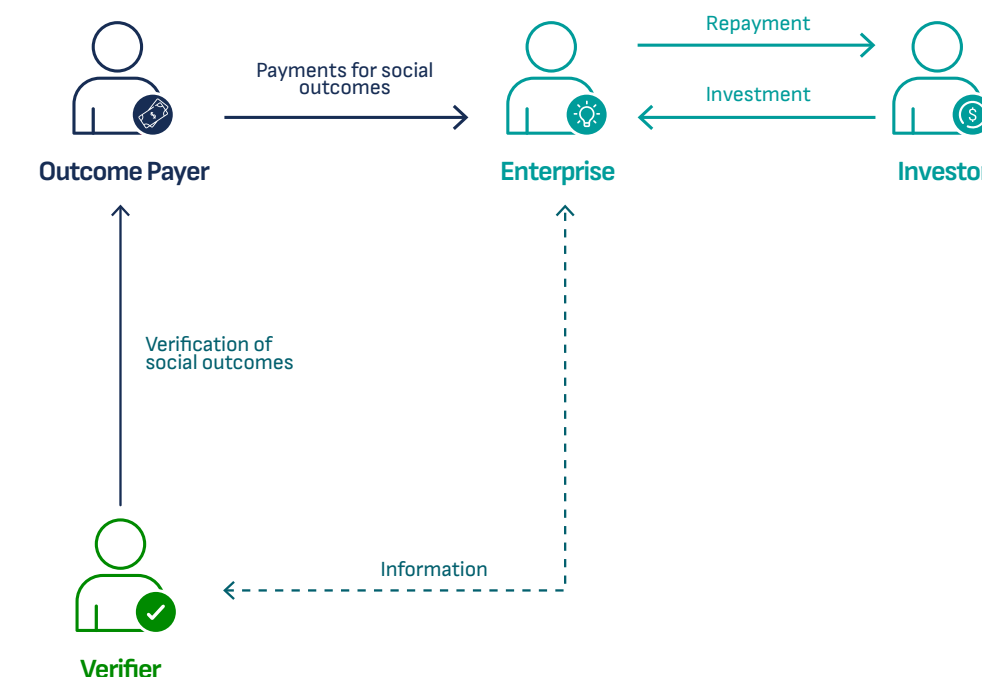
SIINC brings together three actors with aligned incentives. At the centre is the enterprise (in this case, KWSH), which receives outcome-based payments as an additional revenue stream alongside customer income, strengthening profitability, cash flow, and overall financial performance. For investors, SIINC improves the risk-return profile in a thin profit margin sector by rewarding verified impact, enabling

the enterprise to serve low-income households while still attracting commercial capital. Meanwhile, the outcome payer (in this case Aqua for All) only disburses funds for verified results within a defined timeframe. This ensures disciplined use of public or philanthropic resources while helping to catalyse a model that can continue to generate impact beyond the SIINC agreement. This progressive payment structure was designed to avoid perverse incentives: rather than rewarding KWSH for focusing only on easier-to-serve populations, it made the most underserved areas commercially attractive to reach.

Roots of Impact played a key enabling role in structuring the first SIINC transactions, providing technical design expertise, supporting enterprise selection and due diligence alongside Aqua for All, and coordinating impact verification. Aqua for All now structures SIINC transactions independently, with Roots of Impact serving as a technical advisor.

Accountability is ensured through annual third-party impact verification, conducted by external auditors who carry out outcome assessments and customer interviews. If an enterprise does not meet its agreed targets, the incentive payment is simply not made, however the structure is designed to be adaptive. In one case where an enterprise changed its business model mid-transaction, the SIINC was restructured to reflect metrics that remained meaningful and relevant, rather than abandoned altogether.

Figure 1. SIINC Structure, source: Roots of Impact



²⁴ InfraCo is part of the Private Infrastructure Development Group (PIDG), typically supports early-stage projects and exits once they become commercially viable, recycling capital into new developments.

²⁵ [InfraCo Asia's Cambodia Water Portfolio project achieves financial close – PIDG](#)

To keep costs directed towards impact rather than administration, Aqua for All favours contracting independent individual verifiers and prioritises enterprises with strong impact measurement and management systems, as robust internal data reduces the verification burden. Impact metrics are developed in co-creation with each enterprise and tailored to their context, sometimes drawing on government demographic data where it helps define additionality targets for reaching vulnerable populations. While every SIINC uses bespoke metrics, the growing number of transactions means proven indicators are increasingly adapted and reused across the portfolio.

Verification risk was managed through a dual-source approach combining Roots of Impact’s annual external audits with customer-level data from 60 Decibels, which independently surveyed 277 customers and confirmed an NPS²⁶ of 61 and a 97%+ payment compliance rate.

4 Enabling conditions for SIINC instruments in Cambodia

Cambodia’s enabling environment provides several conditions that make SIINC viable, but it also contains structural gaps that the model is designed to address.

Legal and regulatory framework

Cambodia’s regulatory environment offers a relatively stable foundation for private water investment, primarily through exclusive 20-year contract agreements granted by MISTI, which provide operators with long-term asset security and a clear mandate to operate. A formal tariff-setting approach exists, designed to reflect full costs (capital and operating) per cubic meter; however, in practice, tariffs are often set below cost-recovery levels. In addition, the mandated five-year tariff reviews are not consistently implemented, creating longer-term inflationary pressures that, to date, have been partially mitigated through efforts to reduce marginal costs via operational improvements.

Market structure

Cambodia’s rural water sector is served by approximately 450 private operators, each requiring a licence to serve a defined non-urban area typically covering at least one or two communes and between a few hundred and 15,000 households. This fragmented landscape limits operators’ ability to achieve economies of scale, cross-subsidise underserved areas, or absorb investment risk. It creates a consolidation opportunity for larger operators like KWSH but also signals that most operators lack the financial capacity to access commercial debt a core gap SIINC is designed to bridge by de-risking investment through outcome-linked payments.

Macroeconomic level

Cambodia sustained strong GDP growth averaging around 8% annually between 2014 and 2019, supported by rapid financial sector deepening. This stable growth environment reduced external volatility and supported the commercial viability of private water operators. That said, growth slowed significantly post-COVID and the macro-economic context has become more uncertain since 2019.

Cambodia currently combines a stable regulatory environment that supports long-term private sector participation with conditions that enable measurable service delivery and investment potential. This aligns with the broader requirements for models that depend on both financial sustainability and measurable impact, where multiple enabling factors must coexist, including a strong legal and regulatory

26 Net Promoter Score (NPS) measures customer loyalty by asking respondents how likely they are to recommend a product or service to others, on a scale from 0 to 10. Scores range from -100 to +100. The NPS of KWSH was 61 reflecting a high proportion of customers who would actively recommend KWSH’s water services.

27 A repayment multiple expresses the total amount repaid as a proportion of the original investment. A multiple of 1.32x means Purefresh would repay USD 264,000 and a multiple of 0.85x means repayments would total only USD 170,000, reflecting a partial reduction of USD 30,000 on the original amount.

framework, credible systems for outcome verification, and sufficient commercial viability to attract investment.

5 Can SIINC unlock private investment in rural water at scale?

The KWSH case highlights both the potential and limits of SIINC as a tool for mobilising private investment in rural water supply.

The model shows early promise as a revenue-enhancement tool in less profitable markets, where philanthropic outcome payments helped KWSH strengthen its financial position and attract a commercial equity investor, suggesting the model can be replicated for enterprises at a similar stage of maturity. Beyond individual transactions, Aqua for All favours enterprises where the model can scale, either through larger follow-on SIINC, or by attracting bigger funders once the impact approach has been proven. Initiatives like the Outcomes Finance Alliance are working to grow the market for outcomes-based funding, creating more pathways for proven models to reach greater scale.

However, SIINC is not designed for early-stage providers, as it requires enterprises to already be running a parallel investment round and to have demonstrated commercial viability. In most rural water markets, particularly in many parts of Africa, providers still struggle to cover basic operating costs, meaning SIINC would not be applicable for enterprises that are viable but constrained in their financial sustainability. Scaling this approach would therefore depend on the availability of a pipeline of financially mature operators.

Beyond SIINC, the broader Impact-Linked Finance toolkit offers complementary tools for enterprises at different stages.

The Impact-Linked Loan (ILL) applies the same logic, better impact, and better financial terms to debt. Rather than charging a fixed interest rate, an ILL offers 0% interest and the possibility of partial principal forgiveness, with the exact amount forgiven determined by how well the enterprise performs against agreed impact metrics. Bidhaa Sasa, a last-mile distribution company bringing water tanks and clean cooking products to rural families in Kenya and Uganda, illustrates this in practice. The company received a USD 200,000 ILL at 0% interest with up to 47.5% principal forgiveness, tied to metrics including growth in sales to vulnerable customers, improvements in water quality practices, and customer satisfaction. The loan addressed a clear financing bottleneck in Bidhaa Sasa’s business model. The company sells water tanks to rural households on 18 month instalment plans, while needing to pay suppliers upfront. This creates a working capital gap between cash outflows and inflows that conventional lenders have been reluctant to finance. Compared to products such as cookstoves or solar systems, which offer shorter repayment cycles and attract stronger investor interest, water tanks have received limited attention. The impact linked structure helped bridge this gap by

Overview
Case Studies
Blue Bond
Green Bond
SIINC
Carbon Credits
Blended Finance
Concessional Equity
PPP
GBL
Accelerator & Post-accelerator
Corporate Stewardship
Development Impact Bond

providing capital where standard debt was not available, aligning financing with the company’s longer payback period and social impact.

For enterprises at an even earlier stage, the SAFI offers a third pathway. Unlike traditional debt, SAFI repayments are tied to actual revenue generation, and the cost of capital depends on whether agreed impact goals are achieved. In addition, rather than fixing all impact targets up front, the SAFI creates space for learning, adaptation, and growth while linking financial terms to verified impact as it is created. If the enterprise performs strongly on impact, it repays less; if it falls short, it repays more, up to a pre-agreed ceiling. Purefresh, a Kenyan social enterprise providing safe drinking water through automated outlets in under-served areas, illustrates the model in practice. Purefresh raised USD 200,000 through a SAFI under the Impact-Linked Finance for WASH program, with repayments ranging from 0.85x to 1.32x²⁷ of the invested amount, depending on verified impact performance, including the placement of outlets in low-income areas and the reach of target communities. The SAFI also included a one-year grace period, giving Purefresh time to build operations before revenue sharing began.

SAFI (early stage, flexible targets, revenue-based repayment) → ILL (growth stage, defined metrics, structured loan with forgiveness) → SIINC (scaling stage, running a parallel investment round, bonus payments on top of commercial investment)

6 Role of philanthropic foundations

Across all three instruments, philanthropic and catalytic funding plays a central enabling role, but not in the traditional form of a grant or donation.

In the SIINC, a foundation or development agency provides bonus payments to the enterprise each time a verified social outcome is achieved, complementing rather than distorting commercial investment. In the Impact-Linked Loan, catalytic capital makes possible a 0% interest rate and the potential for principal forgiveness, terms that no commercial lender could reasonably offer on its own. In the SAFI, a patient, mission-aligned funder accepts variable, impact-linked repayment instead of fixed financial returns.

In each case, philanthropic capital is deployed strategically rather than charitably, acting as the mechanism that makes improved financial terms for stronger impact not only possible, but credible.

Acknowledgements: This factsheet was made possible thanks to the support of Arnurd Alt from Aqua for All, William Puyo from KWSH, Nick Boerma and Roswell Thomas from TapEffect and Rocio Perez Ochoa from Bidhaa Sasa, whose time and willingness to share their diverse perspectives and firsthand experience provided a comprehensive view of Impact-Linked Finance for WASH.





Carbon Credits

Carbon Credits in the Water Sector

Case Studies



Carbon credits offer rural water service providers a potential source of supplementary revenue by converting the climate benefit of safe water delivery, specifically, the avoided greenhouse gas emissions from households that no longer need to boil water, into tradeable financial instruments sold on the voluntary carbon market.

Key insights

- Carbon revenues take about two years to materialise and cannot cover initial costs.
- Returns are highly sensitive to price, scale, and performance.
- Certification and monitoring require specialised expertise, often needing external partners.
- Pooling multiple providers reduces costs and improves feasibility, especially for smaller operators.
- While carbon credits have historically been insufficient to attract significant private investment in high-risk contexts, an emerging ratings infrastructure, provided by BeZero, Sylvera, Renestor, and Calyx, is beginning to close that gap, with some credits now rated at investment-grade levels.

²⁸ "Certified" here means that an independent third-party body has verified that the emissions reduction or avoidance actually occurred and meets the requirements of a recognised standard, such as Gold Standard or Verra/VCS.

²⁹ CO₂ equivalent (CO₂e) is a unit that expresses the warming effect of any greenhouse gas in terms of the equivalent amount of carbon dioxide, allowing different gases to be measured on a single comparable scale. Global Warming Potential values are established by the Intergovernmental Panel on Climate Change (IPCC). For a full table, see: ourworldindata.org/grapher/global-warming-potential-of-greenhouse-gases-over-100-year-timescale-gwp

³⁰ Carbon credits are traded in two markets: compliance markets, where companies must meet regulatory emission limits, and voluntary markets, where organisations purchase credits as part of sustainability commitments without legal obligation. Rural water projects typically operate in the voluntary market.

1 What is a Carbon Credit, and how was it implemented in practice?

A carbon credit involves a certified²⁸ unit (typically one tonne of CO₂ equivalent²⁹) of greenhouse gas emissions that have been either avoided or removed from the atmosphere. Credits are generated and sold by certified organizations implementing emissions-reducing activities and purchased³⁰ by other organizations seeking to offset their own emissions.

To access the carbon market, and specifically the voluntary market where rural water projects typically operate, projects must first obtain certification from a recognized standards body. The best-known include the [Gold Standard](#) and [Verra](#), among others. This "label" is important because it shapes buyer perceptions and directly affects the price a project can command. Gold Standard, for instance, requires not only verification of greenhouse gas emission reductions but also evidence of co-benefits for local communities such as health improvements, livelihoods, and gender equity. This more demanding certification process often enables projects to command a price premium.

Beyond certification, price is also influenced by volume. Larger volumes of credits tend to attract more favourable buyer terms and reduce per-unit transaction costs, while smaller projects may struggle to secure buyers willing to negotiate individual agree-

ments for limited quantities³¹. This is a particular challenge for safe water projects, whose volumes are inherently modest, 50,000 tCO2e annually is considered large for this project type, leaving them at a structural disadvantage relative to forestry or agriculture projects that can generate millions of tonnes per year and command significantly greater market leverage.

It is important to note that accessing carbon credit financing requires that the project be ‘additional’. This means that the project only went forward because of the extra financial support provided by the sale of carbon credits.

How is additionality demonstrated?

Projects must demonstrate additionality by passing at least one of three tests, though passing more than one strengthens the case. The financial or investment barrier test asks whether the project is financially viable without carbon revenue; if it is not, the financial gap itself is evidence of additionality. The common practice test checks whether the activity is already widespread in the sector or region; if it is standard practice, it cannot be considered additional. The regulatory test verifies that the project goes beyond any legal requirements, since compliance with existing law does not generate additional reductions.

This factsheet focuses on Uduma, a rural water utility operating in Africa (through concessional contracts) that generates carbon credits through its own operations. It also introduces Virridy, which is developing a “bundling” approach that pools multiple smaller water providers together to access carbon credit markets collectively.

Uduma’s pilot in Mali seeks to demonstrate that providing safe, chlorinated water at the point of collection eliminates the need for households to boil water using firewood, thereby avoiding greenhouse gas emissions. These avoided emissions are quantified and converted into tradeable carbon credits, which Uduma sells on the voluntary market as an additional source of revenue.

The pilot involves ten in-line chlorinator installations across Uduma’s water systems in Mali, with five organisations playing distinct roles: i) Uduma acts as the project implementer, operating the chlorination systems and delivering safe water on the ground; ii) Carbon 4 Safe Water (C4SW), provides the specialised technical assistance needed to navigate the carbon credit certification process; iii) GiveWell provides the grant capital covering the chlorination infrastructure and the launching of chlorination services; iv) Aquaya plays an independent monitoring role, collecting data on water quality, chlorination levels, and the number of people served; and v) Mangrove Water provides technical advisory support on chlorination systems.

Uduma is targeting Gold Standard certification, which requires a documented methodology, baseline emissions calculations, a monitoring, reporting, and verification (MRV) framework, and annual third-party audits.

31 For more information, these are some interesting resources to read: 2308_Carbon-credits-for-WASH-enterprises-knowledge-brief_FINAL.pdf, Carbon Credits for Water, Sanitation, and Hygiene (WASH) Interventions | The Millennium Water Alliance, decarbonizing_water_report_march2024_final-web.pdf

32 The 10-year period is the crediting period: the window during which Uduma can generate and sell carbon credits under its registered project. After that, the project would need to go through a revalidation process to continue. There is also a revalidation occurring at 5-year intervals, so in practice Uduma would already face a revalidation midway, and then again at the end of the 10 years if they want to continue.

33 These projections are based on the information available as of August 2025 and will continue to evolve as the project develops.

The key parameters of Uduma’s pilot are summarised below:

- **Project scale:** ten in-line chlorinator installations reaching 188,500 people
- **Duration:** 10 years³²
- **Target certification:** Gold Standard
- **Carbon credit price assumption:** US\$ 7–18 per tonne CO2e

2 Why did Uduma pursue carbon credits?

There are three main considerations that made Uduma launch this Mali pilot.

1. Supplementary revenue to bridge operational funding gap

Government-capped tariffs in Mali constrain Uduma’s ability to recover the full cost of chlorination services, making carbon credits a source of supplementary revenue to bridge this funding gap. Carbon credit revenue is intended to cover the ongoing operational costs of chlorination, with the upfront capital investment, covering both the chlorination infrastructure and the carbon credit certification process (baseline surveys, registration fees, technical assistance, etc.) funded separately in this case through a grant.

Uduma developed a financial model that showed it could be financially viable. Over a 10-year horizon, carbon credit revenue is expected to cover the ongoing operational costs of chlorination, but only after grant funding has covered the upfront setup costs for both the chlorination infrastructure and the carbon credit certification process (baseline surveys, registration fees, technical assistance, etc.). Without that grant support, the model does not generate a positive return in any scenario.

It is also important to note that carbon revenue is unlikely to flow immediately, as the certification process typically takes about 2 years before the first credits can be issued and sold. The grant therefore also serves to bridge this initial period before carbon revenue comes on stream.

Projected carbon credit revenue varies depending on three key factors: the carbon credit price achieved, and the number of people served.

Over a 10-year period, and assuming grant funding covers the capital setup costs, three scenarios were modelled³³:

Scenario	Return	Price (per tonne)	People Served	Uptime Revenue
Best case	15.8%	US\$12	220,000	Yes
Base case*	5.3%	US\$10	220,000	No
Worst case	–2.3%	US\$8	120,000	No

*Base case aligns with Uduma’s minimum acceptable return threshold.

Without grant support, all three scenarios yield negative returns (ranging from –30.7% to –51.1%), underscoring that grant coverage of setup costs is what makes the model financially viable. Where that grant support is in place, however, the best and base cases yield positive returns sufficient for Uduma to sustain chlorination operations and, potentially, reinvest in expanding safe water services in line with their board commitment to 100% treated water by 2028, aligned with SDG 6.

2. Operational readiness

Uduma enters this transition from a position of operational readiness. Its ongoing remote monitoring systems, data management, and water consumption tracking are already underway as part of its broader operational strategy and are well-aligned with the data architecture requirements of carbon credit verification methodologies. This pre-existing momentum means the carbon credit process reinforces, rather than diverts from, Uduma’s internal development roadmap.

Although Uduma has not previously deployed chlorination at scale, this is not considered a blocking point. The core competency required for carbon credits is the ability to measure and verify water consumption at scale, something Uduma’s remote monitoring systems are designed to support and continue to strengthen. On the technical side, Uduma is supported by strong partnerships: Mangrove Water provides technical guidance on dosing, device selection, and maintenance, while Carbon4Safe Water supports navigation of the carbon certification process.

3. Aligning with long-term strategic and service delivery goals

Carbon credits aligned with a strategic commitment by Uduma to deliver 100% treated water by 2028, in line with SDG 6. Reaching that coverage target across its service areas requires a financing mechanism that can sustain chlorination costs beyond one-off grant funding. Carbon credits offer a pathway toward recurring revenue that could, if the market holds, support this commitment over the longer term.

3 Financial architecture and risk allocation

The financial architecture operates in two distinct phases:

- (1) a **pre-carbon-credit stage**, where upfront investment is required, and
- (2) a **revenue-generation stage**, once carbon credits begin to be issued and sold.

A key structural constraint underpins the model: carbon revenues can only be generated after chlorination systems are installed and operational, meaning they cannot finance upfront capital expenditure.

Pre-carbon-credit stage (years 1-2)

In the initial phase, before any carbon revenue is generated, the project requires upfront investment to cover both infrastructure and certification-related costs. The main cost components in this phase are:

- **Chlorination infrastructure (CapEx):** installation of ten in-line chlorinators (tablet erosion and mechanical injection systems) across Uduma’s water systems.
- **Certification and carbon process costs:** baseline work, Gold Standard fees, and third-party validation and verification audits.
- **Operational costs:** chlorination inputs and water quality testing.
- **Technical and advisory support:** carbon certification, monitoring, and chlorination expertise.

These costs are financed primarily through grant funding, with a combination of direct and indirect disbursement:

- GiveWell Foundation provided upfront capital directly to Uduma for infrastructure and project setup.
- GiveWell additionally funded partners directly on behalf of Uduma to cover: Aquaya for monitoring and evaluation and Mangrove Water for technical advisory on chlorination.

And direct payment by Uduma:

- Uduma pays Carbon4Safe Water (C4SW) through two mechanisms: regular instalments for early technical assistance, funded by grants when secured, and future carbon credit revenues, depending on the secured funding.

Revenue-generation stage (years 3-10)

Once chlorination is operational and households switch from boiling water to treated supply, the resulting emissions reductions are measured and verified. These are converted into carbon credits, typically issued in batches every 1–2 years, and their sale on the voluntary market marks the start of the revenue phase. Sales do not necessarily require finding a new buyer each year, as it is possible to enter into multi-year offtake contracts whereby a counterparty commits to purchasing pre-agreed quantities at a pre-agreed price or pricing formula over a defined period, with Carbon4Safe Water (C4SW) supporting the sales process.

The main cost components in this phase are:

- **Chlorination inputs:** ongoing costs for chlorine required to operate the systems, which tariff revenue cannot fully cover

- **Recurring carbon process costs:** periodic monitoring, re-verification, and carbon-related fees over the project lifetime
- **Internal staff time:** including dedicated capacity to manage the carbon credit process

These costs are financed through a combination of carbon revenue and continued grant support:

- Carbon credit income starts small but grows as the programme scales. It represents a minor share of total revenue in the early years, increases steadily by mid-project, and is projected to become the primary funding source by around Year 7. This growth is driven by a compounding vintage³⁴ effect; each year adds a new cohort of credits, so that by Year 7, the programme is simultaneously selling credits from seven separate vintages, materially increasing total annual volumes and revenues.
- A results-based grant from Aqua for All, linked to operational performance, along with other grant funding, was under discussion at the time this factsheet was developed.

Risk assessment

The proposed model carries **layered risks** across operational delivery, carbon credit generation, market dynamics, and structural finance. These risks are interdependent, meaning weaknesses in one area can cascade into others. GiveWell’s analysis estimates a 25–30% probability of outright failure, well above its standard 10% assumption, based on the following:

- **Operational Risks:** Uduma has limited experience with chlorination, increasing the risk of inconsistent delivery in challenging environments. The security situation in Mali can disrupt operations and data collection. Since credits depend on verified service delivery, any interruptions directly reduce revenue.
- **Carbon Credit Risks:** Credit generation is uncertain. Under-delivery is likely, with actual issuance potentially far below projections or even rejected entirely. Monitoring must pass strict verification, and poor data can delay or prevent issuance. Registration delays (two to five years) reduce the effective revenue window, while methodology changes could further limit eligible credits.
- **Market Risks:** Carbon credit revenues are not guaranteed. Prices are volatile (~\$5–10 variation/tonne historically though quality and integrity are meaningful differentiators) and may fall. Credits may go unsold, impacting cash flow. At the same time, declining trust and increasing scrutiny of carbon markets, along with more complex standards, create additional headwinds.
- **Financial Risks:** The model depends on ~44% grant funding and is not viable without it. Even in the base case, margins are thin (~5%), leaving little buffer for underperformance. A two-to-three-year delay before first revenue creates early-stage financial strain.

34 A vintage refers to the year in which the carbon emission reductions were actually generated. Each year a project operates, it produces a new vintage of credits, which can be sold in that year or in subsequent years. By Year 7, a project will have accumulated seven separate annual vintages available for sale concurrently, which is why total credit volumes, and the income derived from them, compound significantly over time.

35 Eligible households must be actively using the project’s safe water at least every two days, and the volume of credits is further adjusted to exclude those who already had access to safe water through means other than boiling, and those who continue to boil the project water despite having access.

- **Regulatory Risks:** Governments could restrict carbon markets or claim revenues, which would undermine the model entirely. Mali’s regulatory environment adds further uncertainty.

Despite substantial risks, Uduma pursued carbon credits because they were an identified way to fund chlorination under existing tariff constraints while meeting a commitment to deliver 100% treated water by 2028. A feasibility study, available financing, and existing monitoring systems made the model viable at that point in time, with grants covering upfront costs and limiting financial exposure.

Enabling conditions for Carbon Credits in Mali

The enabling environment for Uduma’s carbon credit model is moderate but sufficient, driven largely by organizational positioning rather than strong national infrastructure. Uduma holds delegated government service contracts for water services, giving it formal authority to operate infrastructure and establish ownership over emission reductions, an essential condition for carbon crediting. At the same time, government-capped tariffs create the financial constraint that makes carbon credits necessary, while also indicating an established regulatory relationship with the state.

The project’s use of the Gold Standard methodology is another key enabler, as it allows participation in the voluntary carbon market independently of Mali’s domestic carbon legislation. Importantly, Mali is not starting from zero: Gold Standard has already issued credits in-country for safe water projects at the household level, demonstrating precedent and reducing regulatory uncertainty. While Mali has made climate commitments through its updated 2021 Nationally Determined Contributions (NDC), it lacks a fully developed carbon market framework; however, this is less limiting given that voluntary carbon projects do not require Article 6 authorisation.

The financial viability of the model also depends on how the baseline emissions are calculated under the Gold Standard methodology. In contexts like Mali, very few households currently boil their water, most drink it untreated. Since carbon credits are generated by avoiding the CO2 (and equivalent) emissions that burning fuel to boil water produces, basing the calculation only on households that actually boil would yield very few credits. The Gold Standard methodology addresses this through the concept of suppressed demand: it allows project developers, in this case Uduma, with technical support from C4SW, to include households that currently drink untreated, unsafe water, on the grounds that they would likely resort to boiling if they had the resources to do so. This significantly expands the number of households that are eligible in the baseline and, therefore, the potential volume of credits generated³⁵. Without the Gold Standard permitting this approach, the revenue from carbon credits would be too low to make the model financially viable.

Counterbalancing these conditions, Mali’s security situation represents a significant contextual constraint, creating operational risk that no regulatory or institutional framework can fully mitigate. Overall, enabling conditions are present but rely more on Uduma’s existing capabilities and international standards than on a mature national carbon ecosystem and remain vulnerable to the country’s broader political and security instability.

4 Beyond Individual Projects: Aggregation and Market Building in WASH Carbon Finance

The Uduma case illustrates the constraints facing a single organisation seeking to access carbon markets: high upfront costs, the need for specialised technical expertise, and a lengthy certification timeline of 18–24 months before any revenue is generated. In Uduma’s case, grant funding was essential to bridge this gap, without it, the model would not have been feasible.

For most small water service providers, these barriers are simply too high to overcome alone. A number of organizations are developing approaches to address this, and this section focuses on two: Carbon 4 Safe Water (C4SW), which supported Uduma’s pilot and whose model is therefore directly relevant to this case study, and Virridy, which is developing an innovative aggregation and financing structure that illustrates where the sector may be heading³⁶.

Getting ready: building the capacity to participate (C4SW/CAP)

Carbon 4 Safe Water (C4SW) has developed the Carbon Aggregator Platform (CAP), a collaborative program that pools multiple safe drinking water operators under a single project for carbon registration. This may include safe drinking water operators within an entire country, region, or technology platform depending on the pool of operators.

Individual small-scale projects face registration and certification costs of ~\$140,000–\$200,000 in the first two years alone, plus ongoing audit and monitoring costs expenses that are difficult to justify when a single project generates a limited volume of credits. By pooling multiple project developers³⁷ under one umbrella, CAP distributes those fixed costs across a larger credit base, reducing per-implementing partner costs by an estimated 40–70%.

C4SW manages the certification process centrally, contracting auditors, submitting documentation, navigating Gold Standard requirements, while project developers focus on delivering water services and collecting the monitoring data needed for verification. Revenue from credit sales is distributed proportionally to each partner’s emission reduction contribution. CAP also includes a 9-week Accelerator Programme that equips partner organisations with the knowledge and systems needed to meet carbon market requirements before they enter the programme.

However, even with shared costs, depending on cohort size, project developers still face approximately \$40,000–\$100,000 in pre-revenue costs before credits begin flowing in Year 3. CAP’s financing structure addresses this through partnering with WASH funders to cover the majority of pre-revenue costs, allowing developers to contribute just \$15,000 before receiving credits.

Managing the market transaction: Virridy’s umbrella developer model

Virridy operates as a carbon project developer and a carbon credit intermediary working under an umbrella approach with Millenium Water Alliance (MWA) (mission-driven water and sanitation) member organisations. The structure is relatively lean:

- Virridy acts as the single Project Developer, registering and selling carbon credits on behalf of MWA implementing partners.
- Implementing partners (NGOs/service providers delivering water access projects in countries like Kenya, Rwanda, DRC, Madagascar, and Burundi) generate the underlying emission reductions.
- Virridy covers the major transaction costs: Gold Standard registration and auditor fees for validation and verification.
- Implementing partners cover staff time for Gold Standard-required activities and water quality testing.
- Revenue sharing is based on an agreed base credit price, with a split if credits are sold above that price.

The core point worth making is that individual water service providers typically cannot access carbon markets on their own because the fixed costs of registration, verification, and compliance are too high relative to the volume of credits a single small project generates. By aggregating multiple projects under one umbrella, Virridy spreads those fixed costs across a larger credit volume, making the economics viable for each individual partner. At the same time, pooling projects at different stages and across different geographies means the portfolio generates a more predictable revenue stream than any single project could, by reducing the risk that a delay or shortfall in one project threatens the whole structure.

Scaling up: the Water Carbon Credit Fund (in development)

The current Virridy model relies on its own balance sheet to bridge the gap between a partner’s project implementation and the eventual sale of verified credits. To move beyond this constraint, Virridy is developing the Water Carbon Credit Fund: targeting \$50M in total structured capital, to be raised in two tranches:

- **Tranche 1:** \$20M senior debt at 6%, targeted for 2026
- **Tranche 2:** \$30M senior debt at 6%, planned for 2029
- **Common equity:** \$5M contributed by Virridy to align incentives
- **Optional grants/catalytic buffer** layer also envisioned

Minimum investor ticket is \$250,000, with semi-annual interest payments and annual principal repayments. The primary repayment source is revenue from carbon credit sales.

The fund would use this capital to make advance purchases of carbon credits from implementing partners, providing upfront working capital rather than requiring partners to wait for verification and sale. Repayment to investors would come from the subsequent sale of verified credits to corporate buyers on the voluntary market.

³⁶ These two examples are not presented as the only or most representative initiatives in the field, but as concrete illustrations of complementary approaches one focused on building the capacity to enter the market, the other on managing the market transaction at scale.

³⁷ In carbon market terminology, the “project developer” is the organisation responsible for designing, implementing, and managing a carbon credit project, including preparing the documentation required for certification, overseeing monitoring and verification, and ultimately issuing and selling the credits.

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This represents a significant structural shift: from a bilateral developer–implementer relationship to a portfolio-based financing model that redistributes liquidity risk from implementing partners to a pool of investors. It remains at an early stage and has not yet been launched. Key uncertainties include whether sufficient institutional investors can be attracted at 6% returns, backed by voluntary carbon market revenues, and whether actual credit prices and volumes will meet projections. That said, if realised, it would address one of the most persistent barriers in WASH carbon finance: the multi-year gap between upfront investment and first revenue.

5 Can Carbon Credits unlock private finance in rural water at scale?

Carbon credits in rural water projects function primarily as recurring operational revenue (Opex) rather than funding upfront infrastructure (CapEx). In interventions like chlorination or borehole rehabilitation, they help cover ongoing costs, maintenance, monitoring, supplies, and community engagement, thereby sustaining services beyond initial grant funding. In high-risk contexts such as rural Mali, they rarely finance infrastructure alone but act as viability gap funding, extending the impact of grants, reducing reliance on subsidies, and generating performance data that can gradually attract additional investment.

A key strength is built-in accountability: standards like Gold Standard require rigorous third-party verification, including audits and water quality testing, with credit issuance directly tied to proven service delivery. This creates stronger operational discipline than many grant-based models.

While carbon credit prices can be volatile, projects can improve revenue predictability and value through high-quality certification, documented co-benefits (e.g., health and gender outcomes), long-term corporate offtake agreements, aggregation for scale, and independent ratings. These factors can significantly increase pricing compared to market averages.

However, in fragile settings, carbon finance alone does not yet unlock large-scale private infrastructure investment due to risk and scale constraints. Its main contribution is strengthening project viability over time, demonstrating reliable service delivery, improving data systems, and supporting blended finance models.

6 Role of the Foundation

Philanthropic foundations can potentially play a critical enabling role in carbon credit financing for rural water by addressing the main barriers that prevent projects from becoming viable. In Uduma’s case, this goes beyond technical assistance and certification costs to include the core capital investment in chlorination infrastructure, as well as early operational costs before any carbon revenue is generated. Together, these upfront costs account for a substantial share of total expenditure, rendering the model financially unworkable without grant support. By covering these initial risks, founda-

tions effectively enable the creation of a performance-linked revenue stream that can sustain services over time.

Beyond individual projects, philanthropy can also support market-building at scale by providing concessional capital to pooled investment vehicles (e.g. Virridy), helping to de-risk portfolios and create conditions under which commercial and impact investors may eventually participate.

Acknowledgements: This factsheet was made possible thanks to the support of Éléonore Motte from UDUMA, Evan Thomas, John Ecklu and Laura MacDonald from Virridy, Keith Wright from Millennium Water Alliance and Eric Wei from Global Water Center, whose time and willingness to share their diverse perspectives and firsthand experience provided a comprehensive view of carbon credits.



Blended Finance

Azure Source Capital (Azure) Blended Finance Facility

Case Studies



Azure is a lending facility that channels capital to rural and peri-urban water service providers in Central America by combining technical assistance with concessional and private investment. It has mobilised \$31 million including grants for capital expenditure and technical assistance, loans, and co-investments and has disbursed \$15 million in loans to date, reaching over 311,000 people with zero defaults.

Key insights

- Technical assistance is as important as the capital itself. The zero-default record depends on ongoing support to WSPs, not just careful loan selection.
- The model works because risk is layered. Catholic Relief Services (CRS) and Interamerican Development Bank Lab(IDB Lab) absorb the first losses if loans fail, giving private investors enough protection to participate.
- Majority of the lending is through local banks in each country, so the Fund maintains exposure to the bank's balance sheets and not to the underlying funded projects
- None of the water service providers have defaulted on their loans, which indicates the strong value households place on reliable water services.
- So far, the facility has been funded by impact investors rather than fully commercial ones.
- The goal is to demonstrate that rural water can be creditworthy, not to subsidise it indefinitely, but to build the track record needed to attract commercial finance.

1 What is a Blended Finance Facility, and how was it applied here?

A blended finance facility is a structured investment vehicle that combines concessional capital (typically provided by development finance institutions or philanthropic actors) with private capital to make investments viable that would not otherwise attract such commercial finance. The concessional layer absorbs much of the risk, thereby improving the risk-return profile for private investors who participate in the same structure. The facility's ability to mobilize private investment depends on its capital structure. Often, concessional or first-loss capital sits at the bottom of the stack, meaning it absorbs losses before any other investor is affected. Senior or mezzanine³⁸ private capital sits above it, benefiting from this protection. This tiering is what makes the instrument attractive to private investors who require a minimum risk-adjusted return. Returns for private investors are usually capped at modest levels, aligned with the adjusted risk, and reflecting the capacity of the borrower and their customers to generate the necessary cashflows to pay back the loan.

³⁸ Mezzanine refers to a hybrid form of capital that sits between senior debt and equity in the repayment hierarchy. It carries higher risk than a standard loan but lower risk than equity and typically offers a higher return than senior debt.

Azure applies this model to the rural and peri-urban water sector in El Salvador, Honduras and Guatemala. Established in 2018 by CRS, the IDB Lab, and Total Impact Capital, Azure raises capital and channels it to water service providers (WSPs) at competitive rates. CRS and IDB Lab anchor the structure by providing first-loss preferred equity³⁹ to the lending facility, absorbing downside risk⁴⁰ and thereby crowding in senior debt from a broader pool of private investors on more favourable terms. Equity was deliberately chosen over subordinated debt at inception, as it was found to offer a faster path to financial break-even for the facility. Total Impact Capital manages the facility, handling underwriting, loan disbursement, and investor relations. A parallel technical arm, funded separately through grants from CRS, IDB Lab, and other donors, provides engineering support and capacity building to WSPs to reduce operational risk and improve loan performance.

The fund channels capital to water service providers through local financial institutions, and to date, Azure has demonstrated proof of concept across three dimensions:

- Scale:** Azure has mobilized \$31 million (includes grants for capex and TA, loans, and local investment) and has disbursed \$15 million in loans: 39 loans in El Salvador (8 repeat-borrowers), five in Honduras, and one in Guatemala.
- Reach:** 23 WSPs, improving water services to 315,402 individuals.
- Return for funding partners:** 3.25% weighted average interest rate for senior debt holders; 5% cumulative dividend for preferred equity.

2 Why a Blended Finance Facility?

Rural and peri-urban WSPs in Central America lack the credit history, collateral, and financial reporting capacity that commercial lenders require, and their revenue streams are generally modest and irregular. At the same time, local financial institutions (rural banks and credit cooperatives) have a limited appetite for lending to the water sector. The sector is perceived as high-risk due to regulatory uncertainty, weak governance among service providers, and a lack of a track record of loan repayment. Institutional and private capital markets investors, meanwhile, find the sector unattractive on a standalone basis. Transaction sizes are small, operational risks are high, and returns are insufficient to compensate for the perceived risk without some form of credit enhancement or protection from first-loss capital.

A blended finance facility addresses this market gap by restructuring the risk profile of the investment. Concessional capital from development actors like the IDB Lab and CRS absorbs the first layer of potential losses, making the residual risk acceptable to private investors. Equally important, the facility creates a bridge to local financial intermediaries, providing them with subsidized capital, so they can begin lending to WSPs and start building the sector knowledge and credit data that could eventually sustain commercial lending without concessional support.

Azure was designed to intervene at this stage, not to replace commercial finance permanently, but to demonstrate that some WSPs in Central America, including in

³⁹ In this context, “preferred” refers to their priority position in the distribution waterfall, they receive dividends and capital repayment before common equity holders. However, as equity investors they rank below all debt holders, meaning they are the first to absorb losses if loans underperform. This first-loss position, combined with a below-market return, is what makes their contribution concessional in nature, and what makes the senior debt tranche sufficiently protected to attract private investors.

⁴⁰ CRS and IDB Lab absorb the first losses if WSP borrowers default or underperform, thereby protecting other investors from potential losses.

rural areas, can be creditworthy borrowers, and that local financial institutions can profitably serve them.

3 Financial Architecture and Risk Allocation

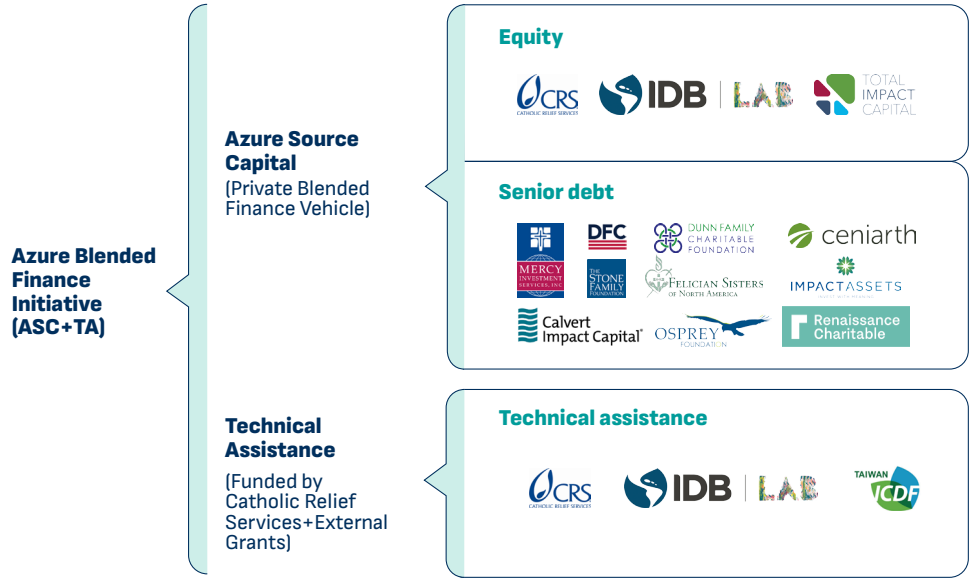
Capital structure

Azure is capitalized through two distinct layers:

The **equity layer** is held by the founding institutions, CRS, IDB Lab, and Total Impact Capital who capitalized the facility at inception. As equity investors they absorb the first-loss risk and provide the foundation of patient capital. Preferred equity holders receive a 5% cumulative preferred dividend over the fund’s lifetime, a deliberately below-market return that reflects their dual role as investors and mission-driven founders of the initiative.

The **senior debt layer** sits above equity and is where private and institutional capital enters the structure. This layer includes a broader group of impact investors, including Mercy Investment Services, DFC, and Calvert Impact Capital, The Stone Family Foundation, Felician Sisters, Impact Assets among others, who participate as senior debt providers, with a current weighted average interest rate of 3.25%. These are predominantly impact-oriented institutions and family foundations that accept below-market returns in exchange for social impact, keeping the cost of capital as low as possible and enabling the most affordable lending terms for end borrowers.

Figure 1: Capital structure



In parallel, Azure Technical Services (ATS), a partnership between Azure and CRS, provides technical assistance to strengthen WSP s’ capacity. To do this, ATS provides technical assessments and engineering designs, training and capacity building for WSPs in partnership with national water agencies, support for loan applications, and identification of co-funding opportunities from governments and development part-

ners. This assistance reduces real and perceived risks in the sector and builds confidence among investors and WSPs through information sharing.

Lending pathways

Azure deploys capital through two pathways:

Second-floor lending

Mechanism in which a wholesale funding vehicle provides capital to local financial institutions, which in turn on-lend to end borrowers, rather than lending to those borrowers directly. In Azure’s case, resources are channelled into FideAgua, a dedicated country-level trust established in each operating country that serves as a secure national lending platform. These trusts are managed by national development banks in each country. In El Salvador, FideAgua is managed by BANDESAL (Banco de Desarrollo de El Salvador); in Honduras, it is managed by BANHPROVI (Banco Hondureño para la Producción y la Vivienda); and in Guatemala, it is managed by Financiera Rural, a subsidiary of Banrural. From FideAgua, capital flows to WSPs through local financial institutions, which act as intermediaries: they conduct due diligence, structure the loans, and assume partial credit risk. FideAgua provides loans to these institutions to cover the capital they on-lend to service providers, in specific cases where a service provider lacks sufficient collateral, Azure provides them with guarantees. Plus, FIDEAGUA offers a guarantee fund in Honduras and Guatemala.

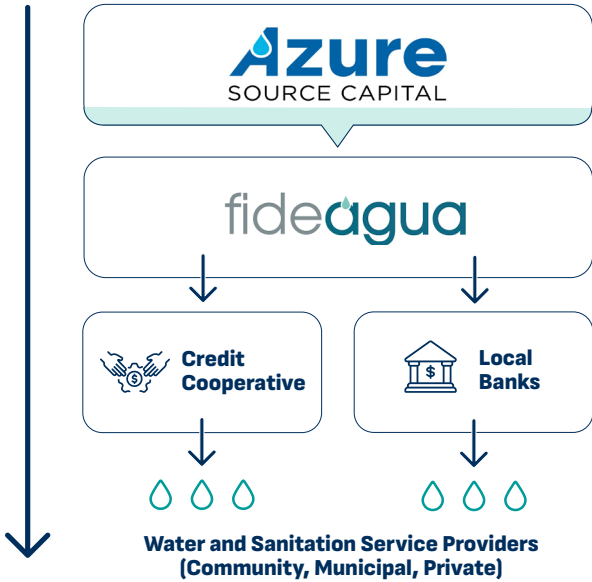
Direct lending

The second pathway involves Azure lending directly to WSPs, bypassing local financial institutions as intermediaries. While this reduces transaction costs and keeps interest rates as low as possible for borrowers, it also means Azure carries direct credit exposure to the WSP rather than to a regulated financial institution, which is why this pathway is reserved for more sophisticated, lower-risk borrowers. Beyond risk management, direct lending also serves a portfolio diversification purpose, allowing Azure to reach borrower profiles and contexts that the second-floor pathway cannot easily serve.

Through either of these two pathways, WSPs receive loans ranging from US\$5,000 to US\$1,000,000, with tenors of up to ten years (averaging eight) and grace periods of up to 36 months. The average interest rate charged to WSPs is 11%, with lending rates varying according to the type of borrower and pathway: direct loans to lower-risk private operators are, on average, targeted at 3–4% less than second-floor lending through financial institutions. Both rates reflect market-based pricing, intentionally set to demonstrate that the water sector can be commercially viable.

To date, the fund has disbursed \$15 million across its active portfolio, with zero recorded defaults (even during COVID period), a track record that demonstrates the viability of debt financing for rural water service delivery.

Figure 2: Lending pathways



Risk mitigation

The facility has built-in mechanisms specifically to mitigate downside exposure:

- At the portfolio level, technical assistance provided by Azure Technical Services, a parallel grant-funded vehicle supported by CRS, IDB Lab, and Taiwan ICDF, helps reduce the operational risks that most commonly lead to repayment failure. It delivers engineering support and business development capacity building to water service providers before and after loan disbursement. This support is critical to ensuring projects move forward and succeed, helping reduce the risk of loan defaults.
- At the structural level, Azure architecture is designed to make the portfolio investible for a range of capital providers by absorbing and distributing risk across distinct layers. Capital from CRS and IDB Lab sits at the equity level, acting as a first-loss buffer that protects senior investors from initial portfolio shocks. This subordinated position makes the overall fund accessible to private investors who could require a degree of protection but are willing to accept below-market returns in exchange for social outcomes. Through a second-floor lending structure, Azure provides capital via local financial institutions. This structure limits the Fund’s exposure to the banks’ balance sheets rather than the underlying funded projects.
- At the borrower level, Azure addresses borrowers’ lack of collateral where necessary. In Honduras and Guatemala, Azure provides guarantees that substitute for the collateral that many rural water service providers cannot offer, since most do not own registered property or assets, thereby making them eligible for loans they could not otherwise access while simultaneously protecting lenders against default risk. In El Salvador, by contrast, service providers are generally more able to offer their own collateral, making guarantees less necessary.

At the currency level, the risk is managed differently across the three markets. In El Salvador, whose economy is fully dollarized, loans are disbursed in USD through local financial institutions, eliminating currency risk entirely. In Honduras and Guatemala, where local currencies are used, Azure mitigates exposure by retaining the right to adjust interest rates annually in the event of significant currency depreciation, ensuring that returns to the fund are not eroded by exchange rate movements.

4 Can this mechanism unlock private finance in rural water at scale?

Azure’s track record to date suggests that the facility shows strong promise, while also pointing to the conditions that would need to be met to unlock private investment in rural water at scale. Empirically, the model validates three critical conditions for capital mobilization: i) repayment reliability (zero defaults across an \$8M portfolio), ii) cash flow viability (\$4.5M repaid), and iii) positive unit economics (Azure lends to local financial institutions at 6–8%, who then add their own margin before on-lending to WSPs). These metrics indicate that rural WSP lending is not inherently loss-making and can sustain structured, sustainable finance.

Despite this performance, the investor base has remained predominantly impact-oriented (including foundations and DFIs), with a willingness to accept below-market returns. While this has enabled steady fund growth, it has not yet reached the point where purely commercial investors seeking market-rate returns can participate. However, this is by design. Azure was built to leverage impact capital rather than attract commercial investors, and it has strong access to this type of funding. The below-market return is central to the model. It keeps borrowing costs affordable for WSPs and aligns with what impact investors are willing to accept in exchange for social returns.

That said, for a fund like Azure to attract commercial private finance at scale, key conditions would need to change. The current 3–4% return on senior debt is too low for institutional investors such as banks, pension funds, and insurers. Raising returns by increasing interest rates for WSPs would weaken their repayment capacity and increase default risk. The more viable option is to restructure the capital stack, which would likely require a significantly larger first-loss buffer to make the risk–return profile attractive to commercial investors.

Another condition, distinct from the financial structure but equally binding, is strong TA for WSPs. Azure’s zero-default track record is not just due to careful loan selection; it also depends on initial capacity strengthening and project development and financial support plus ongoing operational support from TA providers. At the current scale, this level of support is manageable. However, expanding to significantly more WSPs would require a substantial increase in TA capacity. This would require dedicated grant funding, capable organisations able to support a much larger and more geographically dispersed group of borrowers, and stronger government engagement, ideally through dedicated support programmes for rural water service providers. Some countries have already established this kind of support through municipal or national govern-

ment institutions, and scaling models like Azure would benefit from similar enabling frameworks elsewhere.

These conditions, whilst demanding, are not without precedent:

The WaterEquity Everspring Fund, launched in July 2025, represents a structural evolution in impact finance for water and sanitation. As the first open-ended, perpetual vehicle exclusively focused on debt financing to local financial institutions that on-lend to low-income households for water and sanitation improvements, it demonstrates that recurring, patient capital can be mobilised for the sector at scale. Operating on a rolling subscription model with scheduled liquidity windows, the fund allows capital to be continuously recycled rather than returned at fund close, a design feature that aligns investor flexibility with the long-term nature of water and sanitation lending. Its investor base, which includes corporate capital from Ecolab, Reckitt, and Colgate-Palmolive alongside high-net-worth mission-aligned investors and catalytic philanthropic support, reflects a broadening of the impact investor community beyond foundations and development finance institutions. Notably, WaterEquity’s earlier closed-end funds progressively raised their return targets from 1–2% to 10–11% as track record deepened, a trajectory that illustrates how demonstrated performance in WASH lending can, over time, attract increasingly commercial capital.

The Water & Climate Resilience Fund operates at a different point in the capital stack, providing equity and mezzanine financing of US\$2–15 million to growth-stage enterprises and infrastructure projects across the water value chain. Having raised over US\$100 million from investors including Microsoft, Starbucks, Xylem, and Gap Inc., the fund targets minority equity stakes over a 5–7 year horizon, backing companies such as SunCulture in Kenya, whose solar-powered water systems improve rural water security, and Organica Water, which deploys decentralised wastewater treatment technology across South and Southeast Asia. The fund’s ability to attract large corporate investors with explicit water stewardship commitments signals a growing recognition among private-sector actors that water infrastructure in emerging markets is both a credible investment opportunity and a material ESG priority.

5 Role of Philanthropic Foundation

Provision of grant funding for technical assistance is one of the main entry points for non-lending foundations, as every dollar spent preparing a WSP to become more creditworthy potentially unlocks multiples in repayable finance. Grant funding for TA therefore acts as catalytic capital preparing WSPs to become more entrepreneurial and utility-oriented before they ever access a loan.

Guarantee provision is a second role for philanthropic funders and would be particularly relevant for foundations operating in contexts where WSPs lack collateral. In Honduras and Guatemala, Azure has created dedicated guarantee funds that



backstop individual WSP loans. This is a targeted, project-by-project de-risking tool that foundations could provide without needing to function as lenders.

Grant funding for technical assistance and guarantee provision therefore represent two entry points for foundations that wish to support similar blended finance models without participating directly in the lending structure, although, as the capital structure demonstrates, some foundations already engage as senior debt investors, which represents a third role for such funders.

Acknowledgements: This factsheet was made possible thanks to the support of Maren Barbee from CRS, who generously shared her time, experience, and insights on the Azure initiative in Central America.



Concessional Equity

Danone Communities and Naandi Water in India

Case Studies



Concessional equity is capital provided at below-market returns to support social or environmental impact, offering patient, risk-tolerant funding suited to early-stage social enterprises. In this case, Danone Communities used concessional equity to help build and scale Naandi Water in India, enabling access to affordable drinking water in underserved rural areas.

Key insights

- Concessional equity is a mechanism for investors to accept lower returns and higher risk to enable social enterprises to grow in challenging markets.
- Danone Communities provided not just funding but governance, technical support, and introduced networks to strengthen Naandi Water's operations.
- A hybrid financial model combining grants, user fees, and urban cross-subsidisation was critical for sustainability.
- While effective for impact and scale, concessional equity does not automatically create pathways for commercial investment in low-profit sectors.

1 What is concessional equity? And how was it applied here?

Concessional equity is an investment approach in which the provider of capital accepts below-market financial returns in exchange for a social or environmental impact. The investor becomes a shareholder, bears the same risk as other owners, and could participate in governance through board representation. What makes it concessional is the investor's willingness to accept a longer time horizon, lower financial returns, and higher risk tolerance than a conventional equity investor would demand. Concessional equity is particularly suited to social enterprises in early stages, where unit revenues are low and customer willingness to pay is constrained.

This case study examines how concessional equity from Danone Communities (DC) enabled the creation, scaling, and long-term development of Naandi Community Water Services in India (Naandi Water).

DC is a venture capital fund that invests in social businesses focused on access to safe drinking water and nutritious food. The fund provides concessional equity as a minority shareholder, takes board seats to influence strategic decisions, and complements its financial investment with technical assistance, managerial support, and access to its network of investors. The fund invests at a specific stage, which is when the social business has a proven concept but needs funding to scale up and achieve financial sustainability. As of 2026, DC has supported 20 businesses in 25 countries, reaching over 15 million people.

Naandi Water is a social enterprise founded in 2010 by Danone Communities and Naandi Foundation (distinct from Naandi Water)⁴¹ to provide affordable, safe drinking

⁴¹ Naandi Foundation is an Indian non-governmental organisation founded in 1998 in Hyderabad, focused on supporting communities in their journey from vulnerability to resilience through girls' education, women's employment, and farmer livelihoods. Safe drinking water became a core programme from 2005, and in 2010 the water initiative was spun off as a separate social enterprise.

water to underserved rural communities in India, particularly in areas where ground-water is contaminated with fluoride, arsenic, and other chemicals. It does so by installing, operating, and maintaining decentralised Community Water Centres (kiosks)⁴². Naandi Water works with local governance structures (Gram Panchayat and Gram Sabha) to approve and establish water centres. Local residents are trained to operate them, while a Water Committee manages daily operations and finances. Households pay a small fee (5–10 Rupees per 20 litres) to cover running costs, while Naandi Water ensures technical supervision, water quality, and managerial oversight. Each kiosk is operated by Naandi Water for 7 years, after which ownership is transferred to the local Panchayat. To date, 273 kiosks have been handed over. In parallel, Naandi Water runs a School Water Model, supplying safe drinking water to around 35,000 children daily.

By end of 2025, Naandi Water has delivered the following results:

- **Scale:** Over 400 water kiosks still operating across 7 states in India (Punjab, Rajasthan, Haryana, Andhra Pradesh, Telangana, Karnataka, and Maharashtra), reaching nearly 700 communities. 273 kiosks have already been transferred to communities after seven years of operation.
- **Reach:** More than 400,000 beneficiaries served, with over 300 million litres of water sold at affordable prices in rural areas or distributed free in schools. The school water programme reaches approximately 35,000 children daily.
- **Affordability:** A 20-litre refill costs an average of 6 Indian Rupees (approximately US\$0.07), keeping the daily hydration cost per person (2 litres) low. This is significantly below the UN guideline that drinking water should not exceed 3% of daily income.
- **Gender:** A 40% increase in men taking responsibility for fetching water has been documented, reducing the burden on women.

1 Why concessional Equity?

Concessional equity provided the patient, risk-bearing capital and support that Naandi Water needed to grow in a challenging market. In rural India, low household incomes, dispersed populations, and high treatment costs result in thin margins and slow paths to profitability, making the model unattractive to commercial investors.

Before the entry of DC, the Naandi Foundation had demonstrated proof of concept through grant-funded pilots, including an US\$800,000 grant from the Global Partnership on Output-Based Aid (GPOBA) to install 25 water purification plants. This showed that rural communities were willing to pay for safe drinking water. However, these grants were not designed to support long-term operations, provide working capital, or finance the iterative development of a scalable business model.

Building on this pilot, Naandi Foundation co-created Naandi Water with DC in 2010 as a separate social enterprise to scale the model. However, while grants supported the initial proof of concept, they were not designed to finance long-term operations,

42 Villagers bring their own containers and pay a small fee to refill with purified water treated using reverse osmosis and UV technologies.

43 Short-term loans that converts into equity (ownership shares) at a later date, typically during a future investment round. It allows the investor to provide capital quickly without needing to agree on the company's valuation at the time of the investment.

provide working capital, or support the development of a scalable business model. This is where DC through concessional equity, provided long-duration, risk-bearing capital with no fixed repayment obligations, enabling Naandi Water to expand its kiosk network, absorb costs that revenues could not yet cover, and refine its model over time. And unlike debt, equity did not burden a still-unprofitable enterprise with repayment obligations that could have forced premature cost-cutting or compromised affordability. Beyond capital, DC brought technical assistance, managerial support, and access to a network of philanthropic funders.

2 Financial Architecture and Risk Allocation

DC draws on two sources of capital: direct contributions from Danone as a company, and investments from Danone employees through a dedicated fund. This capital is deployed as long-term equity stakes in social businesses, with individual investments typically ranging from €300,000 to €1 million per round (see box 1 for more details).

DC has invested in Naandi Water through a combination of equity and convertible notes⁴³. The initial investment at the creation of the business in 2010 was €800,000, followed by further rounds totalling €3.3 million between 2012 and 2020, giving DC a 38.5% ownership share in the company. The capital has been used to cover growth costs, fixed operating costs, and working capital while the business works towards financial sustainability.

As an equity investor, DC bears the full operational risk of the enterprise. If Naandi Water fails, DC's investment is lost, there is no debt seniority, collateral, or guarantee structure protecting the capital. This risk profile is deliberately accepted as part of the concessional nature of the investment.

To manage operational risk and reduce downside, Naandi Water has developed a hybrid revenue model designed to build a path toward financial sustainability from two complementary income streams. The first is the rural kiosk network, where capital expenditure for installing Community Water Centres is funded through grants from companies as part of their Corporate Social Responsibility (CSR), while revenues from bulk water sales cover operations and maintenance costs.

The second stream is cross-subsidisation through urban sales. In 2018, Naandi Water launched iQuench, a B2B product selling water jugs to companies in Hyderabad. Unlike the rural channel, where prices must remain very low to ensure affordability, the urban B2B channel operates at higher margins, with revenues growing at 38% annually since 2020 and gross profit exceeding 20% in 2025.

Beyond capital and risk-bearing, DC also provides strategic advice as part of their equity commitments. As a 38.5% shareholder, DC holds a seat on Naandi Water's board of directors, participating in governance and key strategic decisions, from business planning and fundraising strategy to market expansion priorities.

This governance role is complemented by substantial hands-on support across three areas. First, DC provides technical assistance through its own team, Danone emplo-

yees deployed on pro bono missions, and third-party experts funded by DC, covering topics such as water quality improvement, demand generation and community activation, digital marketing, B2B sales strategy, and IT systems. Second, DC delivers ongoing managerial support through regular business reviews, field visits, and guidance on business planning and fundraising. Third, DC has leveraged its philanthropic network to help Naandi Water secure grant funding for specific initiatives that improve both impact and financial sustainability, including a school water programme providing free water from kiosks to local schools, and operational cost reductions through the installation of solar panels.

Looking ahead, DC is planning a further convertible note in 2026 as bridge financing, and the longer-term funding mix sought by Naandi includes grants or results-based financing for the rural channel and equity for urban growth.

Box 1

How Danone Communities is structured as a fund

DC’s funds come from two sources: Danone, the global food company headquartered in France, and its employees, who can invest through an open mutual fund available to individual investors. Up to 10% of the mutual fund’s assets can be deployed in direct social-business equity, with the amount per investment ranging from €300,000 to €1 million per round. The entity that directly invests equity in social enterprises is the Danone Communities FPS (Fonds Professionnel Spécialisé), a professional investment fund capitalised primarily by Danone, which holds 68% ownership. The FPS also receives resources from a second source: the Danone Communities SICAV, an open mutual fund where as of 2025, Danone employees owned 48%. The SICAV is designed so that 90% of its assets are placed in low-risk bonds and money market instruments, while the remaining 10% is channelled into the FPS to finance equity stakes in social businesses like Naandi Water.

3 Enabling conditions in India

India’s policy and institutional landscape has created several conditions that support the viability of the Naandi Water model, although important structural challenges remain.

On the public sector side, the Jal Jeevan Mission (JJM), launched in 2019, reflects strong government commitment to rural water access. It has rapidly expanded household tap water coverage and mobilised significant public investment. While JJM represents a large-scale, centralised infrastructure solution, gaps in service quality, reliability, and long-term management and operations remain. This creates space for decentralised, community-based models like Naandi Water to complement public systems, particularly in last-mile delivery and maintenance.

A second critical enabler is India’s mandatory CSR framework under the Companies Act 2013, which requires large companies to allocate 2% of profits to social causes,

including safe drinking water. This provides a structural and predictable source of grant funding, which Naandi Water leverages to finance the capital expenditure of its rural kiosks, reducing reliance on commercial capital.

In parallel, India benefits from a growing impact investment ecosystem, with both domestic and international investors able to provide patient, risk-tolerant capital suited to social enterprises with long payback periods. Institutions like Danone Communities illustrate how concessional equity can operate effectively within this environment.

Despite these enabling factors, key constraints persist. The regulatory framework for decentralised water providers remains fragmented, as water governance is largely determined at the state level. Groundwater contamination continues to be widespread, while service delivery gaps remain even in areas covered by public infrastructure. These challenges both justify and complicate the role of social enterprises like Naandi Water, which operate in a space not yet fully structured or regulated.

4 Can concessional equity unlock private investment in rural water at scale?

Evidence from the Naandi Water case suggests that concessional equity alone may be insufficient to unlock private investment at scale, particularly in low-margin sectors such as rural water.

A more accurate framing is that patient concessional equity can sustain a socially critical enterprise in a commercially challenging market, even where pathways to commercial investment are not yet evident.

Danone Communities’ investment, approximately €4.1 million over more than a decade, has been instrumental in supporting Naandi Water’s growth, enabling the enterprise to expand operations, refine its model, and deliver significant social impact. This has been supported by a hybrid financing structure that combines CSR grants for capital expenditure, user fees for operations, and cross-subsidization from an urban B2B channel, illustrating how different types of capital can be layered to sustain service delivery where full cost recovery is not feasible.

However, the model’s underlying economics, low tariffs required for affordability, high treatment costs due to groundwater contamination, and structurally limited margins, make it difficult to attract commercial investment. In addition, the structure of the investment, as a long-term, flexible equity without fixed exit conditions or milestone-based progression, offers the stability and time needed to operate effectively in a challenging market, but does not, create clear incentives or pathways for transition to commercial capital by itself.

Precisely because this structure may reduce the pressure to achieve financial milestones or transition toward commercial capital, the concessional equity approach may also deter commercially oriented entrants unable to compete on similar terms, while long-term reliance on a single investor can delay the transition toward financial independence.

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That said, concessional equity plays a critical role in early-stage development and innovation, enabling enterprises to move from proof of concept to operational scale in contexts where commercial viability is not immediate.

5 Role of Philanthropic Foundation

Foundations can engage with the concessional equity model from two entry points, both of which address the key constraints that social enterprises like Naandi Water face on the path to financial sustainability.

The first is co-investing alongside funds like DC. Foundations with programme-related investment (PRI) mandates can contribute capital to impact equity vehicles that invest in WASH social enterprises. By increasing the pool of concessional capital available to these funds, philanthropic foundations help expand the pipeline of social enterprises that can receive the long-duration, risk-tolerant investment they need.

The second is funding the technical assistance that makes concessional equity catalytic. Philanthropic foundations are well positioned to finance this type of non-financial support, by funding dedicated TA programmes the success rate of portfolio enterprises may increase as they would have tools that prevent operational risk.

Acknowledgements: This factsheet was made possible thanks to the support of David Grolleau and Anna Perinic from Danone Communities, who generously shared their time, experience, and insights on the Naandi Water case.





Enhanced Viability Gap Funding: The Guaymas-Empalme Desalination PPP

PPP-linked Blended Models — Viability Gap Funding (VGF)

Case Studies



⁴⁴ Comprehensive information on PPP is presented here: [PPPReferenceGuideVersion31](#)

⁴⁵ Comprehensive information on PPP funds and facilities is presented here: [Public-Private Partnership Funds: Observations from International Experience](#)

⁴⁶ FONADIN/PROMAGUA does not officially use the term “viability gap fund,” but that its capital subsidy mechanism functions as one in practice, by closing the gap between project revenues and costs to make the PPP financially viable for private investors.

⁴⁷ FONADIN is a trust fund established in 2008 by presidential decree, housed within BANOBRAS (Banco Nacional de Obras y Servicios Públicos), Mexico’s national development bank for public works. FONADIN generates its revenues primarily from toll road concessions and uses these to provide concessional and non-traditional financing for infrastructure across sectors including highways, ports, environment, energy and water. Under PROMAGUA, FONADIN can provide two types of non-recoverable support: grants for pre-investment studies (covering up to 50% of study costs) and capital subsidies for investment projects (covering up to 49% of total project costs).

The Guaymas–Empalme Public Private Partnership (PPP) demonstrates how viability gap funding, combined with a credible payment security mechanism, can make water infrastructure projects investable in structurally constrained environments.

Key insights

- Two complementary tools worked in tandem: a standard viability gap funding grant was paid upfront to de-risk the capital investment, while a mixture of fixed and performance-based payments from a government-backed trust fund (fideicomiso) to guarantee that the private operator would continue to receive sufficient revenues over the life of the concession, even when tariffs fell short.
- Aqualia, a large international private water utility and the PPP concessionaire, bears construction and operational performance risk, while the public sector absorbs ongoing revenue shortfalls through regular top-up payments.
- The model depends on continuous public revenue subsidies not just a one-time capital grant.
- Replication depends on strong fiscal capacity and institutional structures that are often absent in smaller-scale or rural settings.

1 What is a Public-Private Partnership and specifically a Viability Gap Funding?

Public-private partnership (PPP)⁴⁴ funds and facilities are mechanisms through which governments provide structured financial support to enable and de-risk private sector participation in public infrastructure and service delivery. Common instruments⁴⁵ used internationally include viability gap funds (VGF), lending facilities, and guarantee funds. This factsheet focuses specifically on an enhanced version of VGF.

A VGF is a non-recoverable public subsidy that fills the gap between the full cost of a PPP project and what tariff revenues can sustainably cover. It is used when a project generates clear social or economic value, such as extending water services to low-income communities, but is not commercially viable on its own. By reducing the financial risk for the private partner, it aims to attract private investment and management capacity into projects that would otherwise remain exclusively in the public domain. This case study examines a VGF⁴⁶ in Mexico’s water sector, implemented through PROMAGUA (Programa para la Modernización de Organismos Operadores de Agua), a programme under the Fondo Nacional de Infraestructura (FONADIN)⁴⁷. It focuses on the Guaymas–Empalme desalination plant, a PPP involving FONADIN, the state government agency of Sonora (the Comisión Estatal del Agua de Sonora⁴⁸, CEA Sonora), and Aqualia, a Spanish subsidiary of Fomento de Construcciones y Contratas⁴⁹ (FCC Group), was selected through a competitive

tender and entered into a 20-year Build—Operate—Transfer (BOT) agreement, assuming responsibility for the project’s design, construction, and operation.

To make the project construction financially viable, FONADIN provided a non-recoverable capital subsidy representing 49% of total investment, through the PROMAGUA programme. The subsidy was channelled to the project via a Financial Support Agreement (Convenio de Apoyo Financiero) between FONADIN and CEA Sonora to support in covering upfront construction and commissioning costs. In this case, the public sector additionally committed to pay the private partner from a dedicated trust fund channelling intergovernmental transfers, rather than from tariff revenues.

Since commissioning in June 2022, the project has delivered the following results:

- **Capacity:** 200 l/s, equivalent to approximately 6.3 million m³ per year
- **Population served:** approximately 120,000 inhabitants across Guaymas and Empalme
- **Share of local supply:** approximately 20—30% of combined supply to both municipalities
- **Investment:** total investment of MXN 738 million, with FONADIN contributing 49% and Aqualia financing the remaining 51%
- **Commissioning:** July 2022

2 Why a Public-Private Partnership and specifically an enhanced Viability Gap Funding?

The PPP in Guaymas was a response to a dual constraint: a capital-intensive desalination solution was required in an aquifer-depleted coastal region facing acute water scarcity, while the local utility lacked the financial capacity to fund such investment.

However, a standard PPP faced a severe ‘bankability’ problem: no private investor could expect an adequate return without public support, rooted in Mexico’s regulatory gap, where tariffs are politically determined and structurally below cost-recovery levels. In this context, viability gap funding (via FONADIN) was essential to close the upfront capital shortfall by reducing private equity exposure to a fundable level, effectively substituting for underdeveloped domestic capital markets.

Although this factsheet focuses on viability gap funding at the capital stage, it is important to note that VGF alone was insufficient: because tariffs could not ensure predictable cash flows, a sovereign-backed payment mechanism was equally necessary to guarantee operational revenues independently of collection performance. The two instruments operate in tandem, VGF de-risks capital investment, while payment security de-risks long-term revenue, together overcoming structural deficiencies in both financing capacity and sector regulation.

48 CEA Sonora (Comisión Estatal del Agua de Sonora) is the state agency responsible for water and sanitation services in Sonora. In this project, it acted as the Promotor: the public entity that requested FONADIN support, led the competitive procurement process, and signed the PPP contract with the private partner. As the service provider for Guaymas and Empalme, CEA Sonora is also responsible for billing users and paying the private operator’s contractual fee.

49 FCC Group is a major Spanish multinational focused on public services, construction, environmental services, water management, and real estate. It was founded in 1900 and is headquartered in Barcelona, Spain.

It is worth noting, however, that this structure concentrates long-term fiscal risk on the public side: while Aqualia bears performance risk, payment is contingent on delivering the agreed water volume, the state of Sonora absorbs the persistent shortfall between tariff revenues and contractual payments through its federal transfers, making this an ongoing subsidy rather than a one-off transitional measure.

3 Financial Architecture and Risk Allocation

Capital structure

Both public and private contributions were committed through a Special Purpose Vehicle or SPV, Aqualia Desalación Guaymas S.A. de C.V., established by FCC Aqualia S.A. and Aqualia México S.A. de C.V. as the sole project company and counterparty to the PPP contract with CEA Sonora. The SPV was responsible for the full project lifecycle: construction, commissioning, operation, maintenance, and eventual transfer of the infrastructure to CEA Sonora at the end of the concession.

On the public side, FONADIN funded its contribution from its own capital base. FONADIN’s ability to provide non-recoverable subsidies rests on its design as a self-sustaining trust fund with its own capital base and revenue streams, rather than relying on annual Treasury allocations. Established in 2008 through the merger of Fideicomiso de Apoyo para el Rescate de Autopistas Concesionadas (FARAC) and Fondo de Inversión en Infraestructura (FINFRA), FONADIN was initially capitalised at approximately USD 3.3 billion from the assets of these predecessor funds. Its primary ongoing revenue source is the income generated by Mexico’s national toll road concessions, of which FONADIN is the largest concessionaire. These revenues support both recoverable instruments (debt, equity, guarantees) and non-recoverable grants. Returns from the former are recycled to finance the latter, enabling FONADIN to deliver viability gap funding without requiring project-specific public expenditure. In Guaymas—Empalme, FONADIN covered 49% of total project costs as a non-recoverable capital subsidy, financing construction and commissioning only.

On the private side, Aqualia contributed the remaining 51% of total project costs, funded directly from its own balance sheet as risk capital (capital de riesgo).

It is important to note that the capital structure described above covers only the investment phase. During the approximately four-year construction period, both FONADIN’s grant and Aqualia’s equity were committed and spent with no revenue generated. For Aqualia in particular, this represented capital deployed at risk, had the project failed during construction, its equity investment would not have been recovered. FONADIN’s grant, being non-recoverable by design, was not subject to the same financial risk but was similarly irrecoverable in the event of project failure.

Once the plant entered operation in July 2022, a separate and distinct mechanism came into effect to remunerate Aqualia for water delivery. This mechanism, the Fideicomiso Irrevocable de Administración y Fuente de Pago Alterno, is an irrevocable trust established by the state government of Sonora before the tender was launched, into which Sonora assigned its present and future federal revenue-sharing transfers

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(participaciones federales). It pays Aqualia independently of tariff collection performance, but payment levels depend partially on Aqualia’s performance.

Aqualia’s remuneration is structured in two components, both paid through the fideicomiso. The first is a fixed annual payment, payable independently of the volume of water produced. The second is a variable component tied to the volume of desalinated water actually delivered, measured in cubic metres, which links Aqualia’s revenue directly to its operational performance. FONADIN plays no role in this operational payment structure.

Risk allocation

From a VGF perspective, FONADIN’s main risk lies in the non-recoverable, upfront nature of its capital subsidy. However, this exposure is significantly mitigated by the participaciones federales fideicomiso, which fundamentally reshapes the project’s risk profile. In typical VGF structures, the private funder retains residual revenue risk if project revenues underperform in the longer-term. In the Guaymas—Empalme example, this risk is largely mitigated: payments to Aqualia are made automatically from Sonora’s federal transfers, independent of tariff collection. This ensures stable cash flow, protecting both operational continuity and the value of FONADIN’s investment.

On the private side, Aqualia bears construction risk: it was contractually responsible for delivering the plant on time, to specification, and within budget during the approximately four-year construction period, during which no revenue was generated, and capital was deployed at risk. Once operational, Aqualia bears some performance risk: it must maintain production at 200 l/s and meet Mexican drinking water quality standards throughout the 20-year concession in order to receive the full remuneration. The variable payment component ensures that, if output falls or quality standards are not met, Aqualia’s revenues decline accordingly.

4 Enabling conditions for the PPP

Legal framework for PPPs

Mexico enacted its Law on Public–Private Partnerships (Ley de Asociaciones Público Privadas) on January 16, 2012, providing the legal foundation for the Guaymas—Empalme concession and the broader PROMAGUA pipeline. The PPP Law provides legal certainty for private investors, contemplating an appropriate allocation of risk between public and private parties, access to financing, step-in rights of the government agency involved, and arbitration for dispute resolution.

Securing operational payments: the participaciones federales fideicomiso

In addition to FONADIN funding, the project relied on a state-level payment security mechanism to address the gap between CEA Sonora’s tariff revenues and the payments owed to Aqualia. Recognising before tendering that CEA Sonora’s tariff revenues would be insufficient to cover contractual payments to Aqualia, Sonora

established an irrevocable trust (fideicomiso) backed by its federal revenue transfers (participaciones federales), ensuring automatic payments to Aqualia. This structure eliminated reliance on local tariffs and reduced revenue risk, effectively obliging the State to backstop payments. This instrument exists because of specific features of Mexico’s constitutional fiscal framework. Countries without an equivalent mechanism would need to find an alternative source of credible, ring-fenced payment security before this model could be replicated.

Structural continuity: beyond political goodwill

The project endured a transition between successive state administrations in Sonora, a significant test for any long-term infrastructure concession. This continuity, however, is not primarily political. It is anchored in the legal structure of the fideicomiso (trust), whose irrevocable nature prevents a new administration from unilaterally withdrawing from its payment obligations.

5 Can PPP unlock private investment in rural water at scale?

Guaymas—Empalme case suggests that a well-structured VGF, combined with a credible payment security mechanism, can attract a sophisticated international private operator to a water infrastructure project in a context where purely commercial investment would not have been possible. The project is operational, delivering water to 120,000 people, and has functioned without payment default since July 2022.

However, it is urban, not rural. Guaymas and Empalme are mid-sized coastal municipalities, not rural communities. The project serves around 120,000 inhabitants through an existing utility with billing infrastructure, a state government capable of establishing a fideicomiso, and federal revenue transfers large enough to backstop contractual payments. None of these conditions are easily replicated in rural settings where populations are smaller, utilities are weaker or non-existent, and the fiscal capacity of local governments is far more limited. It also required not just a subsidy at the capital investment/ construction stage, but also a ring-fenced repayment mechanism backed by the national government.

This is an example of a large, technically complex infrastructure project. A 200 l/s desalination plant is not a typical rural water investment. The project size and the technology involved meant it could attract an international operator like Aqualia with the balance sheet and technical capacity to absorb construction risk. Smaller rural water projects may not be large enough to attract the same calibre of private investor, and transaction costs as a proportion of total investment would be much higher.

The fideicomiso may not be replicable at rural scale. The payment security mechanism that made Guaymas—Empalme bankable depends on a state government with sufficient federal revenue transfers to backstop contractual payments permanently. Rural water projects are typically managed at municipal level, where fiscal capacity is much weaker and the ability to pledge federal transfers may be legally or practically constrained.

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6 Role of Philanthropic Foundation

Philanthropic Foundations could potentially play a role in VGF in several ways in contexts which are conducive to such PPP arrangements:

Technical assistance and project preparation

The PPP-VGF structure requires significant preparatory work, including feasibility studies, socioeconomic assessments, and procurement advisory before a project can access VGF. In contexts where public capacity or funding for project preparation is weak, philanthropic capital could fund this pre-investment phase, reducing the time and cost of getting projects to a bankable stage.

First-loss capital to reduce VGF requirements

In contexts where a FONADIN-equivalent has limited resources, a philanthropic foundation could provide a first-loss tranche that sits below the VGF grant in the capital structure, absorbing the highest-risk portion of the investment and thereby reducing the grant required from the public fund.

Upstream system strengthening

Beyond project-level financing, philanthropic capital is well suited to addressing the structural conditions that make VGF necessary in the first place. In contexts like Mexico, the core issue is not a lack of private capital but weak governance and regulatory frameworks, politicised tariff-setting, limited utility capacity, and complex procurement processes. By funding regulatory reform, strengthening utility financial and technical capacity, improving project preparation, and building an evidence base for policy change, foundations can gradually reduce reliance on subsidies.

Acknowledgements: This factsheet was made possible thanks to the support of Carlos Puente from FONADIN, who generously shared his time, experience, and insights on the Guaymas—Empalme Desalination PPP in Mexico.





Guarantee Backed Loan

Guarantee-backed water and sanitation lending: National Bank of Kenya and the African Guarantee Fund partnership.

Case Studies



The Maji Konnect facility shows that combining a partial credit guarantee with targeted technical assistance can unlock commercial lending to water and sanitation enterprises, with the guarantee playing a catalytic role in building bank confidence rather than directly providing large-scale loan uptake.

Key insights

- Guarantees address bank risk, not borrower readiness. The guarantee was used by few borrowers, suggesting that other barriers such as weak financial reporting capacity and the cumulative high cost of credit may have played an equally significant role in constraining uptake.
- Technical assistance is essential. Training, product development, and relationship-building were as critical as the guarantee in enabling lending.
- Changes in collateral rules in Kenya have stalled expansion, underscoring the fragility of such models to policy shifts.
- Reaching rural borrowers remains difficult. Structural constraints in rural areas limit uptake in ways that guarantees alone cannot resolve.
- Philanthropic capital is most effective as a catalyst. A relatively small grant unlocked significant lending, but doing so requires sustained, patient funding beyond typical grant cycles.

1 What is a guarantee backed loan, and how was it applied here?

A guarantee-backed loan is a loan in which a third-party guarantor commits to covering a lender's losses if the borrower defaults. This reduces the lender's credit risk exposure and can enable borrowers who would otherwise be considered non-creditworthy to access financing. The guarantee is typically triggered upon default, though some agreements permit the lender to call on the guarantee earlier for example, following a specified number of missed payments or after a defined period has elapsed.

This case study examines the Maji Konnect Water and Sanitation Loan Facility, a partnership between the National Bank of Kenya (NBK), Aqua for All, and the African Guarantee Fund (AGF). AGF provides a guarantee covering up to 50% of NBK's WASH loan SME portfolio, and up to 75% for Green or Women Financing, capped at USD 10 million with a maximum liability per ticket capped at USD 1 million. Aqua for All supports the programme by offering technical assistance on the WASH portfolio and covering the onboarding costs for the Bank associated with the guarantee. The loans are provided to water service providers (WSPs), small and medium enterprises (SMEs), and individuals operating across the water and sanitation value chain in Kenya.

The facility had achieved the following results:

- **Disbursement:** EUR 8.1 million equivalent to 101% of the EUR 8 million target.
- **Loans provided:** 73 loans to 56 clients, comprising 4 WSPs, 2 CWSPs, 35 SMEs, and 15 individuals.
- **Loan sizes:** Ranging from a minimum of KES 150,000 to a maximum of KES 32.6 million.
- **Outreach:** An estimated 622,250 direct and indirect beneficiaries (extrapolated from a sample of 19 borrowers).
- **Borrower profile:** 62% are based in urban areas, 29% in rural areas, and 9% in peri-urban settings, though many operate across both urban and rural geographies.

2 Why a guarantee backed loan?

Water service providers and small businesses in the water and sanitation sector often face significant barriers to accessing commercial bank finance, as they are perceived as high-risk borrowers for several reasons. Many lack adequate collateral. Commercial banks typically require borrowers to pledge fixed assets, such as land or property, as security. However, many operators do not hold formally registered assets of sufficient value to meet these requirements.

In addition, there is limited sector understanding within banks. Credit officers often have insufficient knowledge of water and/or sanitation business models, revenue streams, and operating risks, making it difficult to assess creditworthiness and increasing perceived lending risk.

To address these constraints, the AGF provided a partial credit guarantee covering 50% of the loan portfolio issued by the National Bank of Kenya. Under this structure, the bank can recover a significant portion of losses on non-performing loans, subject to the guarantee cap. This risk-sharing mechanism reduces the bank's exposure and incentivises lending to water and sanitation service providers and SMEs that would otherwise be excluded from access to finance.

Complementing the guarantee, Aqua for All's technical assistance programme addressed the knowledge gap through training for bank staff in the water and sanitation sector, product development support, and technical knowledge transfer about the sector. This combination of financial de-risking and capacity building was designed to embed WASH lending as a strategic offering within NBK's commercial operations.

50 Note that the coverage rate (50% or 75%) applies to the net loss after the 80% recovery claim they are sequential steps, not alternatives.

51 The Central Bank Rate (CBR) rose from 7.0% in September 2021 to 13.0% by February 2024, and commercial bank average lending rates peaked at 17.2% in late 2024. During the first period, the total annual cost to borrowers was approximately 15.9% and in the second one it reached approximately 21.4%.

3 Financial architecture and risk allocation

The financial architecture of the MajiKonnnect facility operates through three layers: i. the guarantee structure between AGF and NBK; ii. the lending operations from NBK to water and sanitation borrowers; and iii. the technical assistance and liquidity support from development partners.

Layer 1

In November 2022, AGF and NBK signed a Loan Portfolio Guarantee Facility covering the bank's water and sanitation lending portfolio. The guarantee operates as follows:

- **Guarantee ceiling:** KES 1.13 billion (approximately USD 10 million).
- **Coverage of losses:** When a loan defaults and losses are realised, AGF reimburses the bank for a percentage of those net losses: 50% for standard SMEs, or 75% for women-led/green enterprises. The higher coverage for these groups is designed to incentivise the NBK to prioritise lending to borrowers who are typically considered higher risk or who have a more limited financial track record, and who might otherwise be passed over entirely.
- **Recovery rate:** For each individual non-performing loan, the bank can claim up to 80% of the defaulted amount, subject to the overall portfolio ceiling⁵⁰.
- **Duration:** Seven years from the date of the Guarantee Agreement.
- **Currency:** The guarantee was issued in Kenyan Shillings (KES) and/or any other foreign currency, with foreign currency facilities restricted to SMEs meeting the bank's risk asset acceptance criteria.
- **Facility fee:** A one-time upfront payment of KES 6.78 million (approximately USD 60,000, equivalent to 0.6% of the guarantee value), paid by Aqua for All to AGF to cover the costs of due diligence, appraisal, and structuring of the guarantee.
- **Utilisation fee:** An annual charge paid by borrowers to AGF (via NBK) for the credit protection provided by the guarantee, 2.4% of the guaranteed amount for standard WASH transactions or 2.1% for women-led or green business transaction.

Layer 2

NBK on-lends funds to borrowers across the water and sanitation value chain in Kenya under the following terms:

- **Loan tenors:** Up to 60 months, tailored to the cash flow profiles of borrowers across the sector.
- **Pricing structure:** Loan pricing has evolved in response to macroeconomic conditions and Central Bank policy rates⁵¹.

During 2021–2022, loans were typically priced at 13% interest, plus a 2.5% one-time processing fee, in addition to a utilisation fee.

As monetary tightening intensified through 2023–2024, pricing increased, with the highest facilities reaching 19% interest, with no processing fee, plus the utilisation fee.

- **Target borrowers:** WSPs, SMEs, and individuals operating across the water and sanitation value chain, including those traditionally underserved by commercial lenders.
- **Portfolio performance:** Default rates have remained below 5%, comparing favourably with NBK’s overall non-performing loan (NPL) ratio, indicating relatively strong credit performance within the WASH portfolio despite its perceived risk profile.

While the guarantee opened credit lines to water and sanitation enterprises that would otherwise have been excluded, it did add to the cost of borrowing. Borrowers paid the standard loan interest rate plus an annual utilisation fee to AGF, and in some cases a one-time processing fee. Combined, the total annual cost of borrowing ranged from 15.9% to 21.4% of the loan amount.

Layer 3

The third layer brought in two forms of external support that made the facility viable.

- **Technical assistance and de-risking:** Aqua for All contributed around EUR 559,700 in grant funding, covering the AGF facility fee (approximately USD 60,000) and a technical assistance programme for NBK staff and borrowers.

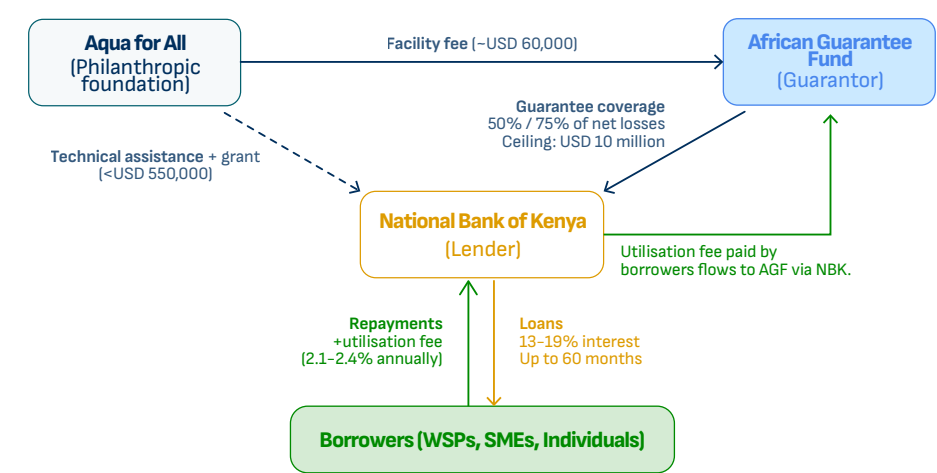


Figure 1: Financial architecture of the guarantee-backed loan facility

Current status and limitations

The MajiKonnnect facility remains technically active, but it is no longer expanding in its original form due to a regulatory shift by the Central Bank of Kenya. The regulator has tightened its rules on what qualifies as acceptable collateral. Under the current framework, AGF provides *paper guarantees* (that is, contractual promises to cover a portion of a loan if the borrower defaults, rather than cash deposits or tangible assets). Previously, banks could treat these guarantees as effective risk protection. However, these guarantees are no longer recognised in the same way for regulatory

purposes. As a result, banks must now treat the underlying loans as unsecured when calculating risk.

Banking regulations require lenders to set aside part of their own capital as a reserve against potential loan losses, a process known as *provisioning*. The level of provisioning depends on how secure the loan is considered to be. With AGF guarantees no longer counted as eligible risk mitigation, the NBK is required to provision up to 100% of these loans.

This new requirement ties up significant capital on the bank’s balance sheet and removes the financial advantage of using the guarantee structure, making further expansion of the facility unattractive. However, Aqua for All is adapting its approach and instead of relying on paper guarantees from third-party guarantors such as AGF, it has begun piloting a cash collateral model with Kenyan banks.

Under this model, Aqua for All deposits First or Second Loss Capital (cash equivalent up to 15%) of an agreed target lending portfolio. By prior agreement, this deposit is treated as securing up to 50% of that portfolio (up to 80% of losses per ticket) subject to a global limit of 15%. In effect, the bank accepts that the 15% cash reserve provides sufficient coverage for expected losses across half of the portfolio, based on anticipated default rates. The First Loss Capital functions as a pooled risk buffer across the entire portfolio, calibrated to realistic loss expectations and agreed risk thresholds. To ensure efficient use of funds, Aqua for All requires partner banks to lend at least five times the value of the cash deposit. This ensures that grant capital is actively leveraged rather than sitting idle on the balance sheet. This model has been piloted with Family Bank in Kenya, with early results indicating increased lending to community water service providers.

4 Enabling conditions for the guarantee-backed loan model in Kenya

Kenya’s broader economic and financial context shaped both the need for this facility and the conditions under which it has been able to operate.

At the macroeconomic level, Kenya’s economy grew strongly after the pandemic, 7.5% in 2021, but growth moderated to around 4.7–5.2% in subsequent years. More significantly for borrowers, the Central Bank of Kenya raised its benchmark interest rate from 7.0% in 2021 to 13.0% by early 2024 in response to inflation. This made credit progressively more expensive across the economy, and directly pushed up the cost of loans.

At the banking sector level, the NPL ratio rose from 5.4% in 2014 to 12.3% in 2023, driven by rate hikes, post-COVID stress, and public sector debt arrears to contractors. This persistent credit deterioration reinforced banks’ reluctance to lend to unfamiliar or underexplored sectors, as their priority shifted toward managing existing portfolio risk rather than expanding into new markets. In this context, the guarantee became increasingly necessary to enable credit access for the water and sanitation sector.

At the sector level, cost recovery rates in water and sanitation services in Kenya through tariffs had been deteriorating significantly by 2021. Revenue from rural water supply cover less than 50% of operation and maintenance costs, a decline from the 50–80% range reported in 2018. When a provider cannot cover its own running costs through revenues, its ability to repay a loan is fundamentally constrained. This is part of the reason why, even with the guarantee in place, loan uptake among larger water service providers remained limited. The guarantee addressed the bank’s risk, but it could not, on its own, resolve the revenue weakness on the borrower side.

Despite these challenges, Kenya’s financial system offered some genuine enabling conditions. The country has a relatively developed banking sector, an established regulatory framework, and, crucially, NBK already had a prior working relationship with the African Guarantee Fund in other sectors such as trade finance. This familiarity reduced the time and effort needed to bring AGF on board for a water and sanitation –specific facility and gave both parties a foundation of trust to build on. However, the regulatory environment also proved to be a limiting factor: a subsequent change in Central Bank of Kenya rules on what counts as acceptable collateral has constrained the facility’s ability to expand, as described in the financial mechanism section.

4 Can guarantee-backed loan unlock private investment in rural water at scale?

The evidence from this facility suggests that the guarantee alone was not the primary driver of lending and that its most important contribution was indirect. The guarantee was fundamental to enhance Bank’s lending into the WASH sector however the guarantee was used by very few borrowers. Other barriers as weak financial reporting by borrowers and the cumulative high cost of credit, appear to have played an equally significant role in constraining uptake.

The facility was not specifically designed for rural areas, and only 29% of borrowers were in rural areas, where actors face the most severe constraints (e.g. weaker revenue streams, limited access to formal financial documentation, and greater distance from bank branches). A guaranteed structure addresses the bank’s risk but does not resolve the borrower–side constraints. Ultimately, unlocking private investment in rural WASH requires more than financial de–risking.

The facility’s most significant contribution may therefore have been to catalyse a different attitude and understanding within the bank, rather than to structurally change the risk–return calculation on the majority of loans. It demonstrated to a commercial bank that lending to the water and sanitation sector is viable, built internal sector expertise among bank staff, and created a performing loan portfolio that justified continued lending even where the guarantee itself was not the deciding factor.

5 Role of philanthropic foundations

In guarantee–backed loan facilities, philanthropic foundations rarely act as lenders or guarantors. Their role is smaller in financial terms by volume but catalytic in impact. In other words, they can fund the work that enables commercial finance to happen in the first place, work that no market actor has an incentive to pay for.

This contribution typically falls into three areas:

- 1 Diagnosing and designing viable solutions.** Philanthropic funding supports the analysis needed to understand why lending is not occurring, identify viable borrowers, and design products that work for both banks and clients. Without this groundwork, facilities risk being poorly targeted and ineffective.
- 2 Covering early–stage transaction costs.** Structuring facilities, negotiating agreements, and conducting due diligence require upfront investment that commercial actors are unlikely to bear without proven returns. Foundations can absorb these costs, including facility fees on behalf of the lender and utilisation fees on behalf of borrowers, making the resulting loans more affordable and the overall structure commercially viable for all parties.
- 3 Building market capacity.** On the demand side, this means helping water and sanitation enterprises become “investment–ready”. On the supply side, it involves equipping financial institutions to understand the sector and develop appropriate products. Without such capacity in place, even well–structured guarantees often fail to translate into actual lending.

The broader point is that philanthropic capital is most valuable when it is not trying to substitute for commercial finance, but to prepare the ground for it. This preparatory role, however, requires patient, sustained funding over multiple years, which does not always align with typical grant cycles.

Acknowledgements: This factsheet was made possible thanks to the support of Leonard Obuna and Prateesh Prasad from Aqua for All, who generously shared their time, experience, and insights on the Maji Konnect facility in Kenya.



Accelerator & Post-Accelerator

Accelerator and Post-Accelerator: The Cewas and MajiFund Model

Case Studies



The Cewas—Maji Fund model creates a sequenced pathway from enterprise development to investment readiness in the WASH sector. Accelerators build viable business models and operational capacity, while the Post-Accelerator fills the critical early financing gap with patient capital and tailored support. Together, they function as a market-building mechanism, gradually preparing enterprises to absorb and attract larger-scale investment.

Key insights

- Addresses the “missing middle” financing gap (USD 50k–300k scale) that emerges after accelerator completion.
- Combines targeted technical assistance with concessional finance and catalytic grants to strengthen enterprise performance and reduce risk.
- Benefits from a pre-selected pipeline of enterprises, enabling faster deployment and more tailored support.
- Designed to develop impactful, scalable WASH enterprises over the long term, rather than to deliver short-term financial returns.

1 What is an Accelerator and a post-Accelerator, and how was it applied here?

An Accelerator is a structured, time-bound programme that provides support to early-stage enterprises, including business model development, technical assistance, mentoring, small, targeted grants enabling enterprises to test and refine critical business changes, and valuable connections to peers, sector stakeholders, investors, and markets. Typically, after completing these programs, enterprises enter a fundraising stage in which they use the credibility, connections, capacities and refined pitch gained during the accelerator to raise early capital rounds.

A Post-Accelerator funding facility⁵² is a support mechanism designed for enterprises that have completed accelerator programs but are not yet ready for traditional investment, this is the case for most WASH enterprises. It provides patient, flexible capital alongside continued technical support and catalytic grants, tailored to the needs of these enterprises.

This case study examines how the Cewas Accelerator program and the MajiFund, a Post-Accelerator financing facility, supporting water, sanitation, and hygiene (WASH) enterprises operating in Kenya, Ghana, and Uganda. It also draws on the experience of Irrisol, a rural water service provider in Uganda, to illustrate how the two mechanisms work in practice.

Cewas is a water and sanitation entrepreneurship support organisation founded in 2010. Its accelerator programme covers all stages of enterprise development, inclu-

⁵² The post-accelerator facility is not a standardised financial instrument. It has no universally agreed definition or structure. The term is used in this factsheet to describe a category of support mechanism that has emerged in practice to fill a specific gap in the financing landscape for early-stage enterprises in underserved sectors.

ding business model design, product and market development, financial planning, governance, and investment readiness (see Box 1 for more details).

After years of running its Accelerator, the MajiFund⁵³ was created as a Post-Accelerator facility. It offers soft loans, catalytic grants, and technical assistance exclusively to alumni of Cewas accelerator programmes, and is co-implemented with VOx Impuls, a Netherlands based family foundation, which manages the loan component. Currently in a pilot phase (2024–2027), the facility has a total size of USD 5 million, supported by the Conrad N. Hilton Foundation, the Stone Family Foundation, Viva con Agua, Siemens Stiftung and other supporting partners. Loan repayments are recycled back into the facility to support further enterprises, rather than being returned to funding partners.

Headline results of Cewas accelerator program and the MajiFund comprise:

- **Cewas:** 400+ enterprises supported since 2011 across 25+ countries, covering drinking water, sanitation, female hygiene, and related WASH solutions.
- **MajiFund:** 25 enterprises supported since 2024 across 3 countries; USD 5 million fund size; 30 TA processes, 16 grants, and 12 loans approved.

Box 1 Cewas support

To do that, Cewas works alongside the enterprises on:

- 1 **Financial model clarity:** analysing the key variables that drive the business model: tariff collection efficiency, physical water losses, and other operational parameters. They build detailed financial models at the enterprise and individual system level (revenue per connection type, monthly maintenance reserves, staffing ratios).
- 2 **Identifying entry points for repayable finance:** rather than pushing enterprises to take large loans, they start by identifying specific elements within the business where loans make commercial sense and allow them to gradually build a track record in repaying loans; i.e. household connection programmes, efficiency investments like solarisation, or energy-efficient pumps.
- 3 **Unit economics and clustering:** getting enterprises to think beyond single systems to understand that they might need six or eight systems before they can cover the salary of an engineer and how operations can break even. Aligned to that, Cewas focuses on locally-led private operators and enterprises rather than internationally backed organisations, because international cost structures are fundamentally incompatible with the thin profit margins of rural WASH services.
- 4 **Growth structuring:** helping enterprises build the organisational structures needed for growth. This includes staffing plans aligned with system growth, governance, and internal controls.

53 The Maji Fund’s thematic focus spans four areas: water supply (piped water, water kiosks, water point maintenance, water filters), sanitation (pit emptying, decentralised wastewater treatment), female hygiene (consumable and reusable products, hygiene waste management), and other supporting WASH solutions that increase efficiency, affordability,

54 Graduation refers to the completion of an accelerator programme, at which point enterprises exit the structured support environment and are expected to operate and raise capital independently.

- 5 **Investment readiness:** preparing enterprises to raise follow-on investment from impact-first and eventually more commercial investors (financial model refinement, investor engagement structuring).

2 Why an Accelerator and a Post Accelerator fund?

The Accelerator and the MajiFund are designed as a sequential pathway.

The Accelerator lays the foundation by helping enterprises pivot or scale viable business models, strengthen operations, and align with investor expectations. In doing so, it addresses the capacity gap, equipping early-stage ventures with improved systems, financial management, and overall organisational capability.

However, graduation⁵⁴ from an Accelerator does not necessarily make an enterprise investor-ready. In Sub-Saharan Africa’s WASH sector, most enterprises exit acceleration requiring investment of USD 50,000–300,000, which is too large for grant-based support or MFI finance, yet too small for most impact investors, who typically seek larger deal sizes. As a result, a critical funding gap emerges between accelerator completion and investment readiness, one that is rarely served by existing financing instruments.

The MajiFund was created to fill this gap. As a Post-Accelerator facility, it provides patient, flexible capital, combining concessional loans, catalytic grants, and technical assistance, tailored to enterprises that show promise but are not yet ready for traditional investment.

Its close link to the Cewas Accelerator is central to its effectiveness. Having already worked with these enterprises over more than a year, MajiFund can move faster, reduce due diligence costs, and design more tailored support. Feedback from the MajiFund also feeds into optimising the design and curriculum of the accelerator programs.

3 Financial Architecture and Risk Allocation

Cewas Accelerator program

On a regular basis, Cewas launches its Accelerator program, which lasts approximately 15–18 months, follows a funnel structure (with roughly 10 SMEs starting, and 5–8 completing), and has clear filters: (i) founders who are highly dependent on grants are not accepted, and (ii) enterprises must demonstrate entrepreneurial profiles with viable, market-based business models.

MajiFund Post-Accelerator

The funding for the MajiFund comes from Vox Impuls, Conrad N. Hilton Foundation, Stone Family Foundation, Viva con Agua, Siemens Stiftung, among others. The fund is split: 30% for technical assistance and catalytic grants, 70% for repayable finance, with the repayable portion recycled in a revolving facility. Three types of instruments are deployed⁵⁵:

Concessional loans	Catalytic grants	Technical assistance
Patient capital with rates and terms tailored to each enterprise's cash flows	Milestone-based grants playing a catalytic role in growth and risk reduction	Hands-on support across operations, finance, and investment readiness
Interest: 3–5% (USD) or 7–9% (local currency), enterprise's choice	Cannot be used as working capital	Financial management
	Must play a catalytic role:	Operating procedures
Tenor: 2–6 years (tailored)	De-risk the loan component	Marketing
Grace period: 6 months interest, 12 months principal	Unlock further financing	Investment readiness
Bullet repayment structured to enterprise projections	Overcome barriers to growth	

The fund's track record on loan recovery is still being established. Given the concessional nature of the loan structure, no investee has yet completed a full repayment cycle. This makes it difficult to assess with confidence whether the model's financial sustainability, specifically its ability to recycle loan repayments into new investments, will hold in practice.

The MajiFund accepts risks that commercial lenders would not. It's capital comes from philanthropic funders who provide grant capital to the MajiFund and understand its high-risk investment approach. This allows it to lend to enterprises with limited but generally no credit history and no collateral. To reduce the likelihood of default, four things work in combination: i) loan terms are structured around each enterprise's actual cash flows rather than standard conditions; ii) the MajiFund, together with the enterprise, defines and monitors performance milestones throughout the post-accelerator phase; iii) technical assistance runs alongside the loan; and iv) because enterprises come directly from the Accelerator, the fund already knows their financial model, their team, and their track record before making any investment decision.

The return that the fund and its underwriting funders are seeking is not financial. It is a market-level outcome: more WASH enterprises with the track record, financial discipline, and credibility to attract larger, commercial investment, reducing the sector's dependence on grants over time.

⁵⁵ An internal firewall is in place between the accelerator support and the MajiFund investment decisions (made by an independent investment committee managed by Vox Impuls), to ensure that financing decisions are based on commercial and impact merit rather than on the relationship built during the accelerator, protecting both the integrity of the fund and the enterprises themselves.

③ Cewas and MajiFund in practice: The Irrisol case

To illustrate how the Accelerator and Post-Accelerator model works in practice, this section outlines the experience of Irrisol, one of the MajiFund's investees in Uganda. This example shows what a structured, phased pathway from grant dependency or organic growth to private investment can look like in practice.

Irrisol is an impact-driven Ugandan enterprise registered in 2017 that designs, builds, and operates piped water supply systems and stand-alone water solutions for underserved rural communities in western Uganda (Kasese district). It operates through two revenue models: i.) a pay-as-you-go model for individual stand-alone systems, and ii) a water-as-a-service approach through community-level water mini-grids, where payments are collected at public standpipes with a fixed fee per jerry can and on a monthly basis for household connections.

Before entering the Accelerator, Irrisol had never received external funding. The enterprise worked as a contractor, saved its profits, and reinvested them into its first community water systems. Resourceful, but slow, growth and with no path to the scale of financing needed to grow.

Step 1: Accelerator program

During the 18-month Cewas accelerator, Irrisol received two small catalytic grants, not to run operations, but to test specific ideas that would make the business stronger:

- USD 10,000 to test end-user financing and improve customer conversion for stand-alone systems
- USD 20,000 to optimize operations and boost consumption through pre-paid solutions, sensor-based monitoring, piloting initiatives for productive use of water to boost consumption and revenue and diversified revenue streams.

Alongside this, Cewas provided intensive support in business model refinement, financial planning, strategy development, investment readiness, and network access.

Step 2: Post-Accelerator mechanism

After graduating from the accelerator, Irrisol entered the MajiFund, which provided three tailored instruments:

- USD 200,000 concessional loan (six-year tenor, 3% interest in USD, six-month grace period, bullet repayment) to construct 7 additional piped water systems.
- USD 22,000 catalytic grant, disbursed on a milestone basis, for testing marketing approaches and process optimisation.

- USD 30,000 in technical assistance for organisational development, internal controls strengthening, standard operating procedures, and investment readiness support including financial model refinement, data room development, and investor engagement structuring.

The loan terms were structured around the flow realities of a rural water enterprise, and the grant and technical assistance, running alongside the loan, ensured that Irrisol was building the organizational capacity to manage debt responsibly and to demonstrate results to future investors.

Step 3: From borrower to investee

Having demonstrated operational discipline, and built a professional financial track record, Irrisol is now raising a USD 2 million investment round. The round comprises USD 200,000 in grants (secured from SNV and Viva con Agua) to support enterprise growth structures, USD 1.3 million in loans to finance CapEx for 36 additional systems, and USD 500,000 in equity to bridge the viability gap during construction.

To date, Irrisol has served over 307,000 people, build and operates 14 mini-grids, deployed over 330 household (stand alone) systems, and supplied 123 million litres of clean water. Water collection times have been reduced on average from 5 hours to 30 minutes, and walking distances have decreased from 2 km to 30 metres.

Irrisol’s trajectory illustrates the cumulative value of a structured, phased support pathway. Each stage built on the previous one: the Accelerator established the business model clarity and operational discipline that made Irrisol creditworthy; the Maji Fund loan provided the capital to grow faster and build a significant track record and impact, which became attractive to follow-on investors; and the technical assistance built the professional infrastructure that institutional investors require.

4 Can this mechanism unlock private investment in rural water at scale?

The Cewas—MajiFund model is best understood as a market-building intervention rather than a crowding-in mechanism. The model’s strength lies in tailor making and matching the type and scale of capital to the enterprise’s stage of development: small catalytic grants during early acceleration, concessional loans during post-acceleration, and blended investment once investment readiness has been demonstrated. Rushing to attract commercial capital before enterprises are ready to absorb it would undermine the logic that makes the approach work.

The progression that individual enterprises can demonstrate through the pipeline is significant, but uneven. Irrisol’s journey, from self-funded contractor to accelerator graduate to Maji Fund investee to raising a USD 2 million blended investment round in only 3 years, represents the upper end of what the model can achieve, and if completed, would provide tangible evidence that locally-led WASH enterprises in rural Sub-Saharan Africa can become investable. However, other enterprises in the pipeline are progressing along less straightforward pathways toward investment

readiness, reflecting differences in context, capacity, ambition and the reality that the journey from acceleration to scale and commercial investment is complex and not guaranteed.

5 Role of Philanthropic Foundation

Philanthropic foundations can support the accelerator—post-accelerator model by providing non-repayable capital across both components: funding accelerator operations and technical assistance, as well as capitalizing the post-accelerator fund through concessional lending facilities and catalytic grants. Every dollar invested in preparing a WASH enterprise to become creditworthy, operationally sound and serving more customers, can potentially unlock multiples in repayable finance at later stages.

The MajiFund also offers capital recycling as an additional value proposition: approximately 70% of deployed capital is expected to be returned as loans are repaid and redeployed, extending the reach of each philanthropic contribution beyond a single use.

Acknowledgements: This factsheet was made possible thanks to the support of Janek Hermann-Friede from Cewas and Marlies Batterink from MajiFund, who generously shared their time, experience, and insights on the accelerator and post-accelerator programmes in Kenya, Ghana, and Uganda.



Corporate Stewardship Through CSR

Women + Water Collaborative:
Corporate Collective Action
for WASH in India

Case Studies



The Women + Water (W+W) Collaborative is a multi-corporate collective action initiative that pools corporate sustainability funding to deliver community-level WASH services in water-stressed river basins in India. Launched in October 2023, the programme operates across three pillars: improving water availability through rainwater harvesting, delivering climate-resilient WASH infrastructure, and building women's leadership in local water governance.

Key insights

- Corporate stewardship through Corporate Social Responsibility (CSR) allows companies to address supply chain water risk while generating measurable, reportable impact through standardized methodologies like Water Benefit Accounting (VWBA).
- Centralising contributions through a single fund manager (WaterAid) reduces coordination costs and lowers the barrier to entry for new partners.
- The programme links WASH outcomes directly to measurable, auditable indicators that corporate partners can report against their sustainability frameworks.
- By investing in women's leadership and decision-making capacity, the programme shifts community water management from consultative participation toward women-led governance.
- India's Companies Act (Section 135) mandates CSR spending for qualifying firms, creating a predictable funding base.
- Philanthropic foundations can play a catalytic role by funding independent evaluations and de-risking expansion into new basins where corporate interest has not yet materialized.

1 What is Corporate Stewardship through CSR, and how is it applied here?

CSR refers to companies' commitment to contributing to social and environmental objectives beyond their core commercial operations. CSR typically refers to directing a portion of a company's profits toward social initiatives, often through grants or charitable donations. Corporate stewardship goes further, describing a more advanced approach where businesses actively and consistently take responsibility for managing, safeguarding, and enhancing the resources and communities that underpin their operations.

Because water underpins the supply chains and operations that many companies depend on, the water sector offers a natural entry point for this kind of stewardship.

Companies engage not only financially but also through governance participation, technical knowledge, and long-term partnership with implementing organisations.

This is the case of the W+W Collaborative, an initiative founded by Gap Inc., Cargill, and GSK, in partnership with WaterAid and the Water Resilience Coalition (WRC), and pools corporate contributions into a single programme managed by WaterAid as the Project Management Unit (PMU). Other companies have since joined: the Coca-Cola Foundation, BESTSELLER Foundation, Cummins, and Google as strategic partners, and Levi Strauss & Co., Veralto, and ClearBridge Investments as associate partners.

The programme operates across three interconnected pillars. First, it aims to improve the availability and quality of water through rainwater harvesting (RWH) structures, including new construction and renovation of ponds, earthen dams, and check dams, to capture runoff, enhance groundwater recharge, and support irrigation. Second, it claims to deliver WASH services to communities, providing climate-resilient drinking water and sanitation infrastructure. Third, it aims to build women’s leadership capacity through structured training programmes that prepare women to lead Village Water and Sanitation Committees (VWSC) and participate in local governance processes.

The first phase was launched in fall 2023 with an initial two-year aim to positively impact 150,000 people across the Godavari and Krishna River Basins. Building on early successes, the Collaborative expanded to the Ganga River Basin in fall 2024. WaterAid and its partners have also proposed a second phase to deepen and expand efforts toward water resilience, gender equity, and community empowerment across the three priority river basins. This next phase will move beyond service delivery expansion to support long-term systems change, enabling communities to lead water governance processes, manage water resources sustainably, and strengthen resilience to increasing climate risks.

The most recent report suggests W+W Collaborative has reached the following milestones:

- **Reach:** 150,000 people with sustainable, equitable, and climate-resilient access to water and sanitation in the first two-year phase.
- **Women’s leadership:** 3,000 women empowered and engaged as leaders in water, sanitation, and hygiene delivery.
- **Coalition growth:** Expanded from 3 founding corporate partners to more than 10 partners across different sectors.
- **Geographic scope:** Operating across five Indian states in the Godavari, Krishna, and Ganga River Basins.
- **Rainwater recovery infrastructure:** 3 rainwater harvesting structures constructed in Aurangabad (591 cubic metres of estimated recharge, 393 direct beneficiaries); 1 earthen dam desilted in Nashik (8,500 cubic metres of silt removed) plus 2 check dams restored; 27 rainwater harvesting structures implemented in Yadgir (450 households benefiting).

2 Why CSR and Corporate Stewardship?

Companies joining the W+W Collaborative are responding to a dual risk. For communities, water scarcity directly undermines health, livelihoods, food security, and the ability of women and girls to participate in education and economic activity. For corporations operating in or sourcing from these regions, the same water stress threatens agricultural yields, disrupts manufacturing operations, reduces workforce productivity, and exposes supply chains to increasing instability. The W+W Collaborative addresses both sides of this equation by replenishing water resources in some of India’s most climate-vulnerable river basins, the same regions where participating companies’ supply chains operate.

The value proposition for corporates lies in their ability to measure the impact of their contributions. This can be achieved through Volumetric Water Benefit Accounting (VWBA), which provides a methodology for calculating how many cubic metres of water have been replenished through activities such as rainwater harvesting, watershed restoration, or irrigation efficiency improvements.

Box 1

Volumetric Water Benefit Accounting (VWBA)

This gives companies two concrete benefits. First, it provides a standardised, quantifiable metric (cubic metres replenished) that can be included in sustainability reports and ESG disclosures, giving investors, regulators, and consumers verifiable evidence of what water stewardship investments have actually achieved. Second, it enables companies to demonstrate progress toward specific corporate commitments.

To ensure the credibility of VWBA and corporate water claims, independent third-party verification is needed. SCS Global Services is currently the most prominent verifier operating under the VWBA 2.0 framework, conducting external assurance audits that assess whether an organisation has the correct strategy, documentation, and volumetric evidence to support its replenishment claims. Aqua Positive is another actor that help organisations design and structure water stewardship projects for VWBA compliance before implementation. However, the verification ecosystem for water stewardship is still maturing unlike carbon markets where third-party verification is well established, water benefit verification remains relatively new, and many companies still rely on self-reported estimates rather than independently verified figures.

2 Financial Architecture and Risk Allocation

The W+W Collaborative is funded entirely through corporate contributions structured around a tiered partnership model. Founding partner anchor the initiative at the strategic tier and sit on the Steering Committee. Additional strategic partners contribute at a higher annual level and are also eligible for the Steering Committee, where the programme’s strategic direction is decided. Associate partners contribute at a lower

financial threshold and benefit from the programme’s shared impact reporting and ESG-aligned metrics, but do not participate in strategic governance. This structure allows the coalition to grow by offering different levels of engagement to match different corporate capacities and ambitions.



Figure 1: W+W Collaborative governance and partnership structure

All funds flow to WaterAid, which acts as the centralised Project Management Unit. WaterAid is responsible for project planning and management, procurement and contracting, monitoring and evaluation, community outreach, communications, financial management and reporting, and donor compliance. This centralisation of fund management addresses a common barrier in multi-stakeholder initiatives, as it reduces coordination costs and ensures consistency across the programme’s geographic areas.

Returns to corporate partners are entirely non-financial, taking the form of measurable ESG-aligned KPIs that partners can report against their own sustainability commitments. These include: number of people accessing improved water and sanitation services, number of women-represented local institutions formed, number of women trained in WASH service delivery, and volume of water replenished⁵⁶ to communities. These metrics are complemented by co-benefit indicators covering livelihoods, climate resilience, and human health. The nature of the risk is therefore operational: if the programme underperforms or fails to deliver results, corporate partners lose the resources they committed without being able to demonstrate the ESG outcomes they need.

3 Enabling conditions for Corporate Stewardship

At the global level, the CEO Water Mandate (box 2) provides the institutional backbone for corporate water stewardship. Established under the United Nations Global Compact in partnership with the Pacific Institute, it offers legitimacy, shared principles, and a structured platform for corporate action. Within this ecosystem, the Water Resilience Coalition plays a critical role by mobilising private sector participation,

⁵⁶ Volume of water returned to local watersheds through the programme’s interventions, primarily rainwater harvesting structures such as ponds, earthen dams, and check dams that capture runoff and enhance groundwater recharge.

setting governance standards, and promoting replication across high-risk river basins. This global architecture transforms local initiatives into scalable models of collective corporate action rather than isolated projects.

At the national level, India’s regulatory framework provides a powerful financial and compliance-driven incentive. The Companies Act 2013 Section 135 India mandates that qualifying firms allocate at least 2% of their average net profits to CSR activities. Crucially, WASH interventions are explicitly recognised under Schedule VII, ensuring that corporate investments can be directed toward water stewardship initiatives. This creates a predictable and institutionalised funding stream that underpins long-term engagement rather than ad hoc philanthropy.

These institutional drivers are reinforced by India’s environmental and socio-economic context. As one of the world’s most climate-vulnerable countries, India faces intensifying water stress, with around one-third of its population living in water-scarce areas. In many regions, households spend significant time securing water, directly reducing income-generating opportunities. This creates a clear development imperative that aligns social impact with corporate sustainability goals.

Geographically, this alignment is particularly evident in major river basins such as the Ganga River Basin, Godavari River Basin, and Krishna River Basin. These basins face compounding challenges, rainfall variability, floods, droughts, groundwater depletion, and contamination, while simultaneously hosting dense industrial and agricultural supply chains. For companies operating in or sourcing from these regions, water risk directly threatens operational continuity and long-term profitability. This creates a shared incentive: improving water resilience benefits both vulnerable communities and corporate value chains.

Box 2

The CEO Water Mandate and Water Resilience Coalition

The CEO Water Mandate is an initiative established in 2007 by the UN Secretary-General and the UN Global Compact, in partnership with the Pacific Institute. It is a commitment platform through which companies pledge to advance corporate water stewardship and report annual progress across six areas, including direct operations, supply chain management, collective action, and transparency.

The Water Resilience Coalition (WRC) is a CEO-led initiative housed within the Mandate. Launched in 2020, it aims to build water resilience across 100 priority water-stressed basins worldwide by 2030. It currently convenes 35 global companies with a combined market capitalisation of US\$4.8 trillion, alongside implementing partners such as WaterAid, Water.org, and UNICEF.

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4 Can corporate stewardship unlock private finance in rural water at scale?

The W+W Collaborative demonstrates that corporate collective action can introduce an additional revenue stream for rural water. In less than two years, more than ten companies across diverse sectors have joined the platform.

But it is important to note that this revenue stream functions as a supplementary top-up rather than a standalone financing solution for rural water. Corporate contributions come from sustainability or CSR budgets, and the programme’s continuity depends on sustained corporate willingness to allocate resources. Changes to CSR’s regulation, shifts in corporate strategy, or a broader retreat from ESG commitments could reduce the funding base. The model is most effective when it complements, rather than replaces, other sources of WASH financing.

5 Role of Philanthropic Foundation

It is important to note that corporate stewardship models are not structurally dependent on philanthropic funding. They are primarily driven by corporate capital, aligned with business incentives such as risk management, regulatory compliance, supply chain stability, and long-term sustainability.

However, foundations often play a complementary and enabling role. They can provide catalytic funding in early stages, support innovation, and strengthen implementation through partnerships with NGOs. Their involvement may help expand reach, accelerate impact, or de-risk new approaches, particularly in complex or underserved contexts.

Acknowledgements: This factsheet was made possible thanks to the support of Elise Moylan, Sarah Dobsevage and Gillian Winkler from WaterAid, who generously shared their time, experience, and insights on the W+W Collaborative in India.





Development Impact Bond

Cambodia Sanitation Development Impact Bond (DIB)

Case Studies



A DIB is a form of results-based finance in which investors (typically a private sector actor) fund a development or social program in advance. If the program achieves the agreed-upon outcomes, an “outcome payer,” typically a public sector agency, repays the investors plus a return. If the targets are not met, investors bear the financial loss.

Key insights

- Performance risk was transferred from USAID (outcome funder) to the Stone Family Foundation (SFF) (investor), which bore the financial loss if targets were not achieved.
- The implementing organisation iDE had more than a decade of operational experience in Cambodia, including delivery data that enabled more accurate pricing of outcomes and reduced implementation uncertainty.
- Tranche recycling enabled \$2.5 million in private capital to finance a programme valued at \$9.9 million, increasing the effective use of investment capital.
- A 60/40 return split between iDE and the SFF aligned financial incentives with delivery performance.
- Open Defecation Free (ODF) status served as a clear and measurable outcome metric.
- The programme exceeded its targets and generated a modest return for investors.
- Despite operational success, structural barriers have constrained replication and large-scale private investment.

1 What is a DIB, and how was it applied here?

DIB shifts the risk away from the outcome payer and toward private capital, while incentivizing service providers to deliver measurable results. Investors are willing to accept this risk because, if outcomes are achieved, they receive their capital back plus a financial return, making the instrument attractive to impact-oriented investors seeking both social impact and financial compensation for the risk they bear. And the public sector only pays for successful results that achieve the targeted impact⁵⁷.

Launched in November 2019, the Cambodia Rural Sanitation DIB applied this model to the third phase of iDE’s Sanitation Marketing Scale-Up (SMSU) programme⁵⁸. The SFF provided the upfront capital, taking on the financial risk. iDE used that capital to implement the programme and deliver agreed sanitation outcomes. USAID acted as

⁵⁷ [Impact Bonds Primer | The Global Partnership for Results-Based Approaches \(GPRBA\)](#).

⁵⁸ [iDE Global | Sanitation Market Scale-Up \(SMSU\) Factsheet](#).

the outcomes funder, repaying the Foundation only if those outcomes were independently verified.

The programme operated across six rural provinces, Svay Rieng, Kandal, Prey Veng, Kampong Thom, Siem Reap, and Oddar Meanchey, and by its conclusion in October 2023 had exceeded its original targets:

- **Scale:** Reached 1,780 villages (surpassing the original 1,600 target).
- **Reach:** Supported nearly 350,000 households to achieve ODF status.
- **Payout:** Following verified results, USAID repaid \$9.99 million in outcomes funding to the SFF, which included their commitment plus their expected financial return.

2 Why a DIB?

The Cambodia sanitation DIB was introduced at a time when the SMSU programme had already proven to be a mature, market-based approach to expanding rural sanitation, increasing coverage in programme provinces from 29% to 73% by 2019. The remaining challenge was no longer early adoption, but reaching beyond 80% coverage and serving the poorest, last-mile households, an essential step for achieving ODF status. This transition from incremental gains to universal access required larger, more flexible funding capable of supporting adaptive delivery and sustained engagement.

The DIB provided this by aligning flexibility, risk-sharing, and accountability in ways traditional grants could not. It enabled iDE to adjust implementation strategies to reach harder-to-serve populations, allowed the SFF to temporarily absorb performance risk while crowding in a larger outcomes funder, and ensured USAID payments were strictly tied to dual verification processes by the government and the implementor.

3 Financial Architecture and Risk Allocation

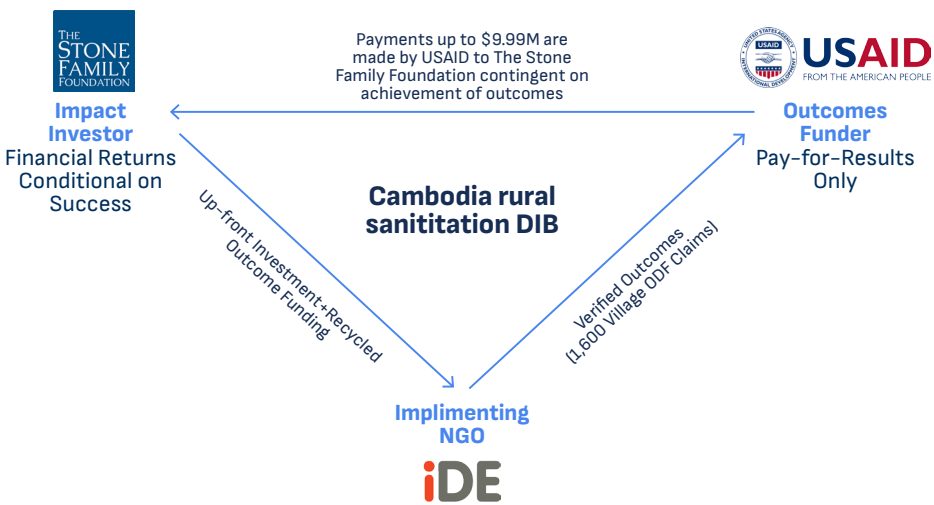
Under the DIB structure (see figure below), the SFF provided upfront capital entirely at its own risk, with repayment and any return contingent exclusively on the achievement of predefined outcomes. This capital was channelled to iDE, which deployed it across core delivery activities, including training local entrepreneurs, strengthening supply chain partnerships, and implementing community-level demand generation.

Instead of distributing free toilets, iDE invested in creating a sustainable local sanitation market. It trained local entrepreneurs to produce and install a low-cost toilet called the “Easy Latrine,” while also training sales agents to promote toilet adoption door-to-door using behaviour-change marketing.

To reach the hardest-to-serve households, iDE delivered target subsidies and low-burden financing mechanisms such as interest-free instalment plans, making latrines affordable without distorting the broader sanitation market.

iDE was fully accountable for delivering on its core objective: scaling rural sanitation access across six provinces by enabling households to adopt improved sanitation and achieve ODF status. Cross validation by the government and iDE was essential to this structure because USAID’s disbursement was contingent on confirmed results. As villages achieved ODF status, formal self-assessment claims were submitted to local government authorities. iDE then consolidated these official government records with its own monitoring data and submitted the evidence for outcome payment verification. USAID’s role was strictly outcomes-based: it disbursed payments from its \$9.99 million commitment only after results were confirmed, ensuring that public funds were released solely in response to confirmed impact.

Figure 1: DIB Financial flows, source: USAID, 2019



While the DIB concentrated significant financial risk on SFF and reputational and operational risk on iDE, the structure incorporated deliberate mechanisms to mitigate downside exposure while preserving upside potential. These strategic levers operated across three dimensions: **capital deployment** strategies that reduced financial exposure, **verification processes** that ensured cost-effective accountability, and **performance incentives** that aligned delivery efficiency with financial returns.

To reduce downside risk, rather than providing a single upfront grant, the SFF committed approximately 2.5 million in tranche-based capital. An initial tranche pre-financed early implementation, after which outcome payments from USAID were recycled into subsequent tranches. This mechanism allowed a relatively modest capital base to pre-finance a nearly \$10 million programme, with capital deployed incrementally and linked to verified delivery performance.

Further downside protection came from the use of a single, clear outcome metric, verified ODF village status, rather than multiple-layered indicators. Outcomes were triangulated across iDE’s management information system records and government ODF verification processes, prior to submission to USAID. SFF also checked data quality by selecting a sample for each claim and verifying data coherence. This multi-source verification approach eliminated the need for an external verification contractor, reducing both complexity and cost while maintaining rigour. Transaction costs were also deliberately kept lean: set-up costs were set at approximately 3% of total outcomes funding, below the benchmark for comparable instruments. This ensured that only a small share of capital was absorbed by structuring expenses, preserving the majority of funding for programme delivery.

Underpinning all of this was the maturity of the underlying programme. Years of delivery data enabled accurate cost-per-outcome pricing, minimising financial unpredictability, and the intervention itself was a proven model with a strong track record, reducing operational risk from the outset.

The structure also embedded clear upside drivers. Tranche-based pre-financing allowed iDE to adjust its delivery model, responding to village-level barriers and cost dynamics rather than fixed input budgets. At the same time, strict outcome-based payments ensured flexibility was matched with accountability, as funding depended on achieving verified ODF status. The financial model reinforced this through explicit performance incentives. Surplus generated when iDE delivered ODF villages was shared between parties (approximately 60% to iDE and 40% to the Foundation after costs), producing a modest 2%–3%⁵⁹ return for the investor. This sharing mechanism enabled incentive alignment between the implementor and SFF.

4 Enabling conditions for the DIB model in Cambodia

The Cambodia Rural Sanitation DIB succeeded and ultimately exceeded its targets in large part because it was introduced into a system that was already operationally, institutionally, financially, and economically prepared to implement and benefit from results-based financing. At the operational level, iDE brought a decade of experience in rural sanitation markets, having implemented the SMSU programme since 2009. By the time the DIB launched, iDE had developed reliable costing data, established supply chains, trained local entrepreneurs, and built relationships with rural communities and government counterparts. This meant the DIB could scale an existing, functioning model rather than test an unproven one, significantly reducing delivery risk. This track experience also strengthened confidence for both the outcome funder and investor regarding delivery costs and operational feasibility.

Institutionally, the Government of Cambodia provided policy alignment and operational cooperation that supported the DIB’s implementation. The DIB’s objectives closely aligned with Cambodia’s National Action Plan for Rural Water Supply, Sanitation and Hygiene II, which prioritised achieving universal rural sanitation and ODF status. Provincial and local government authorities participated in verification processes, reinforcing the legitimacy of outcomes and facilitating coordination at the local level. This supportive policy environment reduced institutional friction and ensured that implementation could proceed efficiently, with government stakeholders acting as collaborative partners rather than regulatory obstacles. This commitment was sustained by the government even after the DIB ended. By the end of 2024, another six provinces were declared ODF, and in October 2025 Cambodia achieved nationwide open defecation-free status.

Financially, USAID’s long-standing engagement in Cambodia’s WASH sector, combined with access to a flexible innovation budget, made it possible to structure outcome-based payments in ways that conventional donor procurement mechanisms would not have allowed. Because the Cambodia Rural Sanitation DIB was the first DIB imple-

59 The 60/40 surplus-sharing split between iDE and SFF was written into the contract from the outset. The return materialised because iDE’s operations proved more cost-effective than originally planned: by underspending on delivery, iDE generated a surplus above costs, part of which was used to exceed targets and the remainder redistributed as a return to SFF after deducting set-up costs of approximately \$300,000. This produced a modest 2–3% return for the investor, while ensuring that efficiency gains benefited both parties.

mented in the WASH sector, it qualified as an innovation pilot, enabling USAID to draw on dedicated funding designed to test new approaches.

At the macroeconomic level, Cambodia sustained annual GDP growth averaging around 8% between 2014 and 2019, supported by rapid financial sector deepening as domestic credit to the private sector expanded from around 60% to over 110% of GDP. This stable, expanding economy reduced external volatility and supported iDE’s market-based delivery model.

5 Can DIBs unlock private finance in rural water at scale?

DIBs represent a targeted mechanism for mobilising private risk-bearing capital in rural water and sanitation, linking financial returns to verified results and thereby aligning incentives around performance. By shifting upfront risk away from outcome funders, they offer a structurally distinct alternative to traditional input-based financing.

The Cambodia Sanitation DIB illustrates both the promise and the limitations of this approach. The programme exceeded its targets, generated a modest financial return for the risk-bearing capital provider, and provided validated evidence that service providers could deliver outcomes efficiently at scale. The Cambodia DIB benefited from SFF’s central role in structuring the model, coordinating partners, and demonstrating that a successful DIB could deliver results while minimising cost and complexity. Following the programme’s conclusion, several impact investors expressed interest in supporting a follow-on DIB, suggesting that the risk-bearing capital side of the equation was not the binding constraint.

Yet the model had not been continued, scaled, or replicated elsewhere either for rural sanitation or water supply. In this sense, despite the apparent success of the model in achieving its objectives, it has not demonstrated the ability to attract outcome funders. The reasons for this lack of subsequent progress can be explained by the following factors:

Follow-on outcome funding is hard to secure

While stakeholders recognised the effectiveness of the approach, the deeper obstacle is institutional. DFIs, MDBs, and governments, the actors best positioned to act as outcome funders at scale, are not structurally set up to support instruments like DIBs. Their internal processes, systems, and contract templates are built around input-based disbursement, making it difficult to adopt results-based structures outside narrow innovation or pilot funding windows. Designing effective RBF mechanisms is one challenge; persuading governments and multilateral institutions to operationalise them for sanitation is another. This requires sustained advocacy, technical assistance, and institutional influencing and remains the critical missing piece for scaling the model.

Designed on a project-by-project basis

A second constraint is inherent to the current structure of many outcomes-based financing arrangements. These mechanisms are typically designed on a project-by-project basis, requiring tailored contract negotiation, partner alignment, and independent verification for each new initiative. While this flexibility allows adaptation to context, it also limits opportunities to build reusable infrastructure and can result in recurring transaction costs.

A specific set of enabling factors must be in place

The Cambodia experience suggests that DIBs can mobilise private investment in rural water and sanitation, but only under specific conditions. The instrument worked because a specific set of enabling factors aligned: a proven implementer with a decade of operational data, a mission-aligned investor willing to bear full upfront risk, and a donor agency prepared to commit contingent outcome funding. Evidence of success alone has not been sufficient to drive replication, suggesting the barriers are structural rather than informational. DIBs are therefore best understood as a targeted instrument rather than a scalable financing solution: valuable for demonstrating what is possible and defining the conditions under which performance-based investment can work, but not yet capable of unlocking private capital at the scale that rural water and sanitation require.

It is important to note that the Cambodia case should not be read as evidence that DIBs have low transaction costs or that identifying impact investors is straightforward. Both are likely to be significant binding constraints in different contexts.

Beyond the DIB structure itself, however, the Cambodia experience validated the potential of results-based financing as a design principle. The RBF component, linking disbursements to verified outcomes, and pairing that accountability with operational flexibility, provided iDE with the right mix of incentives to adapt, perform, and exceed targets. The DIB may not always be the most appropriate vehicle, but the underlying logic of RBF is transferable to other structures and contexts.

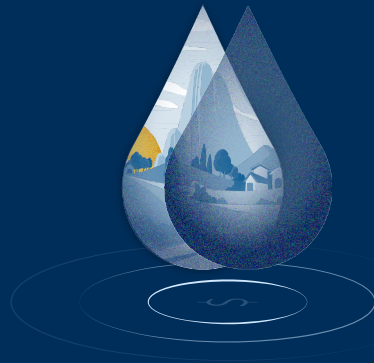
6 Role of Philanthropic Foundation

Foundations play a distinctive role in the early development of DIBs. Unlike commercial investors, they are willing to absorb both the financial risk of non-performance and the upfront transaction costs of structuring the instrument before any outcomes are achieved or paid for.

This dual role is what makes foundation involvement valuable at the pilot stage, and also what makes the model uniquely exposed when foundation priorities shift. When a foundation steps back, it is not only capital that is withdrawn but the institutional capacity that held the structure together.

This suggests that the critical question for foundation engagement in DIBs is not simply how to fund the pilot, but how to ensure that the functions foundations perform (risk absorption, transaction cost financing, and institutional convening) can be progressively transferred to actors with a longer-term stake in the model's continuation. That transition is not a passive handover. It requires sustained investment in advocacy, technical assistance, and institutional influencing to bring governments and multilateral actors to the point where they can assume the outcome funder role. This work is resource-intensive and demands a level of sectoral influence that not all foundations possess. Larger foundations with long-term mandates and established relationships with governments and DFIs may therefore be better placed than smaller, project-focused funders to drive this transition and engaging them early, rather than after a pilot concludes, may be critical to ensuring continuity.

Acknowledgements: This factsheet was made possible thanks to the support of Souraya Chenguelly, who generously shared her time, experience, and insights on the DIB in Cambodia.



THE ROLE OF PHILANTHROPIC CAPITAL IN SUPPORTING PRIVATE FINANCE MARKETS FOR RURAL WATER



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