



S Y S T E M I Q

# Mobilising Capital for Water: Blended Finance Solutions to Scale Investment in Emerging Markets

# ABOUT THIS DISCUSSION PAPER

This discussion paper has been developed by WaterAid and the Blended Finance Taskforce (managed by impact investor & advisory firm, SYSTEMIQ). Its purpose is to explore how blended finance solutions can unlock capital for high-impact water and sanitation assets and services that serve developing economies.

WaterAid, founded in 1981, is an international not-for-profit organisation working to get clean water, decent toilets, and good hygiene to everyone, everywhere. The Blended Finance Taskforce is a global coalition set up to help mobilise public, private and philanthropic capital to accelerate the transition to a net-zero, nature-positive and equitable economy. It structures blended finance vehicles, including 'SDG Indonesia One', the USD 3billion platform investing in sustainable infrastructure in South East Asia and the USD 625million Global Fund for Coral Reefs.

The paper aims to serve as a conversation starter for members of the development finance community, private sector investors, developing country governments and water practitioners, developers and experts on how to best fund a critically underserved sector – including through new/optimised investment vehicles and products.

Insights and recommendations are based on desktop research, expert interviews and case study analyses. We screened existing blended finance initiatives both for water and sanitation, and adjacent sectors, and derived key challenges and lessons learnt to inform the recommendations for unlocking private finance for water. Synthesised insights from these case studies are portrayed throughout the paper, while the detailed case studies can be found in Annex A.

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# EXECUTIVE SUMMARY

Well-managed water and sanitation systems are central to human and planetary health. Yet they are chronically under-invested, especially in low- and middle-income countries. While we know that the social returns from water investments reach far beyond their economic impact, perception of financial returns tends to be much lower. This paper puts that perception to the test. **It argues that, when blended with catalytic sources of public funding, private capital can find investable opportunities, at scale, in the water sector – while generating outsized benefits for countries and communities.**

**Today, over a quarter of the global population don't have access to safely-managed drinking water. Almost half the world lacks proper sanitation.** Population growth, rapid urbanisation, agricultural demand, and climate change – especially climate-related natural disasters like drought, extreme heat and flooding – amplify these challenges. 99% of people impacted by natural disasters experience water-related distress. Meanwhile, climate finance only covers a fraction of the adaptation costs needed in climate-exposed regions. This funding gap for water and sanitation generates major economic, social, and environmental costs. Children die due to diarrheal diseases, floods devastate communities, crops fail. These losses are preventable. Better and more investment in efficient, inclusive and nature-positive water systems is key.

To achieve universal targets for access to clean drinking water, sanitation and hygiene, investment in low- and middle-income countries needs to triple by 2030, **with at least \$200 billion a year needing to be invested into water-related infrastructure and services.**

This funding need conceals an even greater opportunity. Scaling and optimising water-related investments can deliver at least USD 500 billion a year in economic value. Investment opportunities can be found across the spectrum of water assets and services, including (1) 'big water' infrastructure (USD 157 billion investment opportunity); (2) decentralised, small-scale sanitation and water solutions (USD 29 billion investment opportunity); (3) nature-based solutions including restoration and protection of watersheds (USD 21 billion investment opportunity). Additional concessional capital will be needed to help improve water governance in countries to strengthen the enabling investment environment.

Challenges specific to water and sanitation – especially cost, monetisation, currency risk and governance – have historically hampered investment in the sector. **However, financial innovation that optimises the use of public and philanthropic funding to de-risk and crowd in private capital (blended finance) offers an opportunity to overcome these challenges.** Blending capital with different risk/return requirements can increase the overall pool of capital available to invest in high impact sectors like water. Tailoring the right blended finance structures (like first loss equity, guarantees, insurance, currency hedging, and targeted technical assistance) aligns development and financial goals.

**Unfortunately, the USD 200 billion annual financing gap for water and sanitation is growing. The good news is that this sector is attracting increasing attention from public, private and philanthropic investors.** That makes it more urgent than ever to design the right structures to capture this increasing interest. To date, investment in this area is limited to a small number of successful projects, and water projects struggle to compete with other sectors to attract private funding.

For example, only 9% of investment in water assets/services in developing countries comes from the private sector; versus 87% in telecoms and 45% in power. To rapidly unlock the investment opportunity in the water sector and reduce the costs of an inefficient, unequal and environmentally destructive system, players across the financial system will need to work differently together. Key recommendations to accelerate, scale, and optimise investment in this sector include:

- **Donor governments** should deploy concessional capital more catalytically to de-risk and crowd in private investment
- **Philanthropies** should play a pathfinder role, utilising flexible capital to innovate and scale new business models and trial new solutions to the barriers which currently prevent investment in the water sector
- **Multilateral Development Banks (MDBs) and Development Finance Institutions (DFIs)** should set mobilisation targets for their capital, embed a more strategic focus on water and sanitation in climate finance, and use guarantees and other blended finance instruments for 'big water' infrastructure
- **National Governments** should send clear signals to investors about favourable investment environment through clear, climate-integrated water strategy and enabling policy and regulation
- **Project developers, Entrepreneurs, Incubators, NGOs and Civil Society** should strengthen partnerships to ensure bankable solutions that attract private capital and create co-benefits for communities where possible
- **Private sector investors** should support early-stage development of water and sanitation assets, and ensure their portfolios are aligned with planetary boundaries and SDG goals for water
  - **Corporations** should explore water conservation and restoration activities to reduce costs and improve ESG outcomes of their supply chain
  - **Private equity firms & asset managers** should explore innovative ways to ringfence assets to reduce risks, and bundle transaction to achieve scale
  - **Banks, insurers & pension funds** should scale sovereign financing for water infrastructure de-risked by guarantees
- **Academia and NGOs** should standardise what 'water positive' assets and impact looks like

There is a cross-cutting need for enhanced strategic coordination between different capital providers and other actors to ensure coherent and joined-up interventions.

Unlocking private investment for equitable and sustainable water outcomes requires significant, sustained, and collective effort on the part of both public and private players. But we know what to do. This paper provides targeted recommendations for players across the financial system to optimise and unlock capital for this critical sector. **Not only because water is central to delivering climate action and the SDGs, but because there are real opportunities for investors as well as countries and communities, to mitigate risk, generate returns, and mobilise large-scale finance if we get this right.**

By laying out clear opportunities and tangible case studies, we hope this paper helps accelerate investment in water solutions which are good for both people and planet. It should also prevent us reinventing the wheel by highlighting where we can scale and replicate what is already working.

# INTRODUCTION: THE CASE FOR CHANGE

The cost of poorly managed water and sanitation services, to society and the economy, are both well documented and unacceptably large. But less is understood, particularly in low- and middle-income countries (also referred to in this paper as emerging markets), about the opportunities: where they are, where the private sector can play a role, and how blending models can align objectives and make best use of concessional and non-concessional capital.

**There is a critical need for investment to address water and sanitation service gaps globally. This investment requirement will only increase as a result of the climate crisis.**

Today, 26% of the global population are lacking safely managed drinking water and 46% do not have access to safely managed sanitation.<sup>i</sup> Over 97 million people were affected by water disasters in 2020, which carried a death toll of at least 8,400 lives and led to USD 152 billion in damages.<sup>ii</sup> Inadequate drinking water services cause much as 10% of the global disease burden.<sup>iii</sup> In a business-as-usual scenario, global water requirements would grow to 40% above current accessible and reliable supply by 2030. Any investments into water and sanitation, therefore, must be targeted to increase the available quantity of freshwater, improve its quality, improve access, or mitigate risks such as floods and droughts.

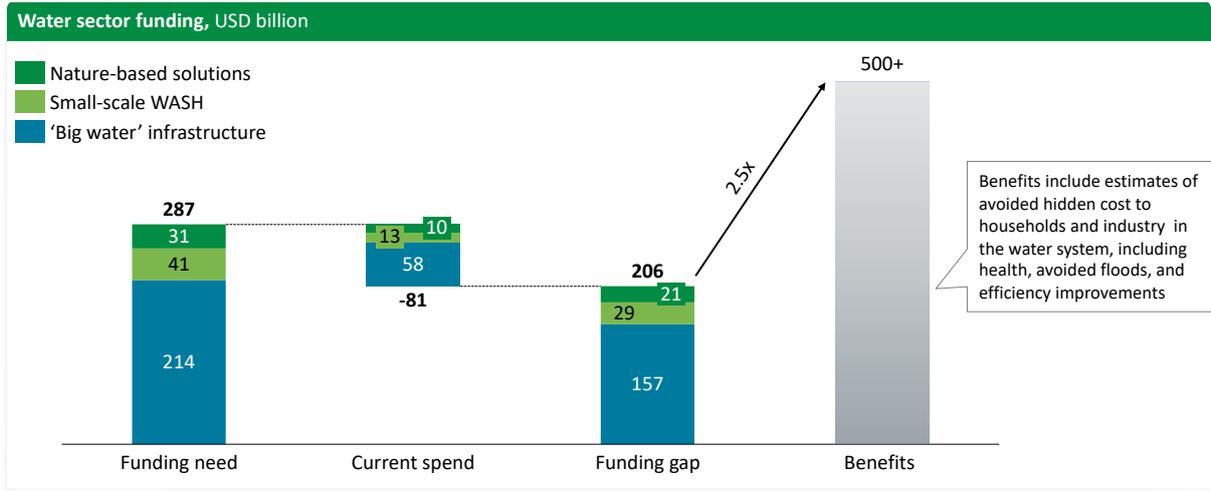
Climate change will affect, and indeed already is already affecting, the availability and quality of water resources. A warmer climate is projected to increase the frequency of droughts, worsen water quality (due to e.g., heavy rainfalls which increase sediment, nutrient, and pollutant loadings), and reduce renewable surface water and groundwater resources significantly in drier lower-latitude regions. In addition, rising sea levels will accelerate saltwater encroachment at the coast, as coastal regions become more prone to flooding and groundwater aquifers are contaminated with saltwater.<sup>iv</sup>

**The capital investments needed until 2030 to achieve safely managed water supply, sanitation and hygiene are estimated at USD 200-400 billion per year in low- and middle-income countries.<sup>v</sup> Current service gaps create hidden costs to both health and wealth of at least USD 500 billion per year.**

The current funding gap for water and sanitation amounts to roughly three times the current spending. When considering the global investment need for all water infrastructure – including irrigation and flood protection – this figure is even higher at USD 900-1500 billion a year.<sup>vi</sup>

The lack of access to safely managed sanitation for almost 4 billion people has devastating effects on global health and is a leading cause of diarrheal diseases, which kill over 290,000 children under five every year.<sup>vii</sup> Water is critical from an economic perspective, with annual losses related to inadequate water supply and sanitation estimated at USD 260 billion per year. In some countries, more than 6% of their annual GDP are lost due to poor sanitation and hygiene. Urban property flood damages amount to USD 120 billion p.a., and the effect of water insecurity to existing irrigators is estimated to be economic losses of USD 94 billion p.a.<sup>viii</sup>

USD 200 billion in water-related investments in LMICs could bridge the current funding gap and achieve global benefits of at least USD 500 billion



Based on Hutton and Varughese (2016), Rozenberg and Fay (2019) State of Finance for Nature – UNEP (2021), and GWP & OECD (2015)  
 Figures are based on global estimates that focus on Low and Middle Income Countries (LMICs). Where specific estimates for LMICs could not be found, global figures were instead scaled by the proportion of GDP covered by these countries. All figures represent the capital cost of needed investments. Costs will be higher when considering operation and maintenance of assets, and benefits are likely under-estimated based on the true value of water security. Numbers have been rounded for clarity - Rounded totals may not equal sum of rounded constituents.



**Despite these escalating threats, current levels of climate funding and other SDG financing cover only a fraction of adaptation costs.**

Most low- and middle-income identify water as a key sector in their climate change plans. However, domestic climate finance flows to the water, sanitation, and hygiene (WASH) sectors are difficult to track due to a lack of data. International Monetary Fund data suggests that general domestic spending on water rarely exceeded 0.3% of GDP, in countries for which data are available.<sup>ix</sup>

Only 1.6% of international, public climate finance goes to basic WASH<sup>x</sup> – the types of service that poor people in rural and peri-urban areas in low- and middle-income generally rely on. While the commitment to COP26 to double adaptation finance should be welcomed, whether this funding will actually flow from donor governments remains to be seen. Much more transparency around donor and development funding – especially for adaptation and resilience – will be critical to unlock further funds for water and sanitation in emerging markets.

**To achieve USD 500 billion+ of benefits, investments need to target three different kinds of water & sanitation-related assets and services: 'big water' infrastructure, small-scale decentralised WASH solutions, and nature-based solutions.** There is no universally adopted framework that defines the different types of water-related investments. For the purpose of this paper, we will consider investment opportunities in water assets and services under three categories, with a fourth overarching component of water governance.<sup>xi</sup>



## 1. 'Big water' infrastructure

- **Water supply infrastructure linked to agriculture and other industry sectors**, such as dams and reservoirs for hydropower and agricultural water management, irrigation canals, water treatment and distribution networks for food industry companies, and other industry sectors including desalination plants
- **Large-scale, networked water supply, treatment & sanitation infrastructure for municipal uses** including reservoirs, pipelines, channels, and other forms of water distribution infrastructure as well as primary water treatment and collection, and treatment of sewage and wastewater; some of these might include waste-to-energy
- **Flood protection and urban drainage (grey) infrastructure**, including dikes, sewer systems, retention facilities, and open channels that improve resilience against flooding and storm water



## 2. Small-scale WASH solutions

- **Non-sewered sanitation solutions**, including a range of technologies and service delivery models for the safe disposal of human urine and faeces in settings where centralised, large-scale infrastructure is absent or not cost-effective
- **Decentralised, off-grid water supply and treatment**, including energy-efficient and/or solar-powered point-of-use systems and point-of-entry systems (designed for individual households), and small-scale systems (designed for communities) providing abstraction, purification and/or distribution of water where centralised supply systems are not feasible (e.g. in rural communities or informal settlements), and small-scale desalination solutions



## 3. Nature-based solutions for protection and restoration

Such as upstream ecosystem restoration or farm management practices that improve water quality from soil filtration, increase reliability of water availability and resilience to water related disasters

- **Watershed restoration, protection, and management**, including, e.g., reforestation and rewetting of wetlands
- **Regenerative agriculture**, including the reduction of the use of chemical fertilizer use and other potential pollutants to avoid water pollution from agriculture



## 4. Water policy & governance

This forms a critical component of the enabling environment for investments, including integrated watershed planning and collaboration, monitoring of water quality and quantity, and law enforcement capacity to ensure equity and prevent water contamination or over-extraction. Governance requirements and enabling services associated with the categories above needs to be provided by public sector, although some, like specific water monitoring and data services, can involve private participation.

Each of the water sub-sectors presents a different mix of revenue sources and level of public involvement. As such, the blended finance mechanisms to unlock private capital going into these sub-sectors likewise vary in their structure and application. Across the water 'value-chain', investors of all sizes – from large infrastructure funds to individual angels – have deployed capital towards addressing water challenges. The goal of this paper is to describe the possible financing mechanisms, highlight success stories to date, and derive actor-specific recommendations so these examples can be replicated and scaled.

## From funding gaps to investment opportunities

Sector (Funding gap)	Sub-sectors	Example funding models	Revenue streams	Examples
<b>'Big water' infrastructure</b> (\$157 bn) 	Water supply infrastructure for agriculture and other industries	O&M / Infrastructure concession PPPs	Land or volume-based tariffs, service fees	Olmos Irrigation & West Delta projects
	Municipal supply, treatment, and sanitation	Infrastructure funds, Green bonds	Subsidised (tiered) tariff, Local taxes	Kenya Water Financing Facility
	Flood protection and urban drainage (grey infrastructure)	Land value capture mechanisms	Sale of development rights, Special levies	Ahmenabad riverfront restoration
<b>Small-scale WASH</b> (\$29 bn) 	Non-sewered sanitation solutions	Impact investment funds, Accelerators	Taxes, donor transfers, household payments	Sanivation, LooWatt
	Off-grid water supply and treatment	Impact funds, microfinance	Pay-as-you-go or prepay tariffs	City Taps, AquaForAll, Water Equity
	Small-scale desalination / irrigation	Microfinance	Tariff structure	Solar Water Solutions
<b>Nature-based solutions</b> (\$21 bn) 	Watershed restoration, protection, and management	Water funds, supply chain finance	Downstream users or PES models	Upper-Tana, Quito water funds
	Regenerative agriculture	Land restoration funds	Pay for performance or PES models	Sustainable Water Impact Fund



# FINANCING CHALLENGES SPECIFIC TO WATER & SANITATION

There are unique barriers to financing water and sanitation in low- and middle-income countries which can hinder private capital providers and, in some cases, make it infeasible to replace public funds. These can be split into three broad categories of challenges: monetisation, cost, and governance. While some of these are challenges specific to water and sanitation investments, others (particularly for governance), relate to investing in emerging markets more generally.

**Monetisation is challenging due to affordability constraints, inefficient subsidies, latent demand for sanitation, and harder-to-monetise public benefits.**

**Water is currently often under-priced and affordability constraints limit pricing options:** Unlike for most other scarce resources, there is often no clear link between the price of water and its value, a root cause of its mismanagement. Where water is priced, this is often driven by attempts for cost recovery and affordability concerns, not value delivered. From an investment perspective, the typically low prices of water and sanitation services result in unattractive returns for the associated risks. Particularly in emerging markets, affordability concerns often lead political decision-makers to keep tariffs low, although this might not always reflect the willingness and ability of poor households to pay for water and sanitation services. Indeed, alternatives to networked water supply often end up costing poorer households *more* than their wealthy neighbours. Water subsidies meanwhile can lack targeting and efficiency, further disguising the true value of water, and typically benefit households that are already connected to the network. For those lacking a connection, affordability of up-front connection fees can be key constraint.<sup>xii</sup>

**Sanitation services require creation of demand and market building:** Off-grid sanitation businesses often face low awareness and low demand for services and products. This can require social marketing of the convenience, dignity, and health benefits to create demand.

**Public benefits of water can be hard to monetise:** The water sector offers a mix of public and private benefits; where public good benefits are predominant, as in the case of flood protection, or public health benefits associated with sanitation, they cannot be easily monetised, undermining potential revenue flows.

**Long-term investments face liquidity risks:** Water infrastructure investments usually require long-term investment commitments and can be difficult to exit when desired.

**Cost-related investment challenges result from long amortisation periods for 'big water', high transaction costs for small, decentralised solutions, and externalisation of costs from upstream actors.**

**Big water infrastructure requires long-term investments:** Infrastructure to store and transport large amounts of water is capital-intensive and calls for a high initial investment. When compared to energy infrastructure, long-term pay-back periods can be lengthened by low rates of cost recovery resulting from the monetisation challenges laid out above. To palliate the risk of lending to utilities, commercial investors often offer shorter financing (5 to 7 years) than large water infrastructure needs (at least 15 to 30 years), together with high interest rates and collateral requirements, such as sovereign guarantees.

**The generally small scale of water & sanitation projects increases transaction costs:** apart from large water utilities and industrial projects, many projects in the water and sanitation sector are small, context-specific, and require investment at smaller scale. This is especially the case for off-grid solutions, but also for small-scale municipal water infrastructure. Transaction costs for investors can be prohibitively high, as every project typically requires separate commercial and legal due diligence. Commercial investors are therefore more interested in large-scale investments with deal sizes greater than USD 50 million.

**Costs resulting from negative effects of upstream activities are externalised:** The availability and quality of water is highly affected by local, context-specific upstream activities, particularly from agriculture or industry, which impose additional costs. The negative downstream effects are usually not properly accounted for.

**Service providers may have credit or counterparty risk:** Many water and sanitation service providers in low and middle-income countries, even larger utilities and municipalities, have weak or no credit history on which to base financing decisions.

**Governance challenges include perceived corruption risks, the need for close collaboration between state and non-state actors, and the need for consistent measurement standards.**

**Country-specific policy goals and regulations can create a poor enabling environment for investment:** Water-specific policies, for example on tariffs or subsidies, can constrain revenue flows. Some countries also have policies that prevent mobilising finance, e.g., explicit prohibitions for private investors to be involved in the sector. Lack of an established domestic financial sector and capital markets further contributes to a poor enabling environment.

**High degree of interconnectedness requires collaboration across jurisdictions:** Catchment and watershed areas sometimes span different companies, states, or countries, which makes the coordination of water management more challenging. At the project level, investors usually have a preference to invest in discreet units, such as water extraction and treatment plants that have clearer revenue streams than, for example, water distribution networks.

**Corruption risks (real or perceived) hinders investment in emerging markets:** Large-scale water infrastructure projects can carry significant corruption risks linked to the procurement of civil works and associated design, supply, and consultancy services. Private investors or multinational project partners tend to be concerned about reputational risks and the uncertainty of the economic environment and bureaucratic quality, especially if they have not worked in the country before. This is especially true for large scale projects.

**Economic data on water is insufficient and measuring water impacts lacks standardisation:** A lack of transparency on the economics of water resources makes it difficult to assess future demand, supply, and water productivity. This constrains the development of knowledge-based water policies as well as economic and financial decisions.<sup>xiii</sup> Climate change increases the challenge, as historical hydrological patterns are no longer a reliable basis for the future projections. The lack of appropriate analytical tools and data to assess the track record of complex water-related investments can deter financiers. In addition, there are currently no agreed methods for measuring corporate impacts on complex water systems, increasing the difficulty of target setting and performance monitoring.

# BLENDED FINANCE SOLUTIONS TO UNLOCK NEW INVESTMENT FOR THE WATER SECTOR

Using the right instruments to optimise public and philanthropic funding can mitigate risks, overcome key barriers, and strengthen the development of high-quality pipeline to create a more efficient and investable water sector. Targeted use of blended finance can thereby overcome the disincentives private sector investment has faced in countries and sectors where the contribution to sustainable development would be highest.



*Blended finance is the strategic use of public or philanthropic development capital to de-risk investments related to the SDGs in order to attract commercial capital from private investors who would otherwise not have participated. In other words, it 'blends' capital which has a development mandate with capital which does not, in a way which makes the SDGs more 'investable.'<sup>xiv</sup>*

## **By de-risking investments, development capital becomes catalytic in increasing private sector investment.**

To date, blended finance vehicles have mobilised at least USD 258 billion (2012-2019)<sup>xv</sup> in capital towards sustainable development in emerging markets, largely driven by clean energy investments. Blended finance in infrastructure is often particularly interesting for private institutional investors due to the benefits of strong long-term returns, portfolio diversification, and significant downside protection provided through blended finance structures.

Financial additionality and development additionality are key to the positive impact of blended finance, in other words the public investment must result in private investment that would not have materialised without it, and the commercial investment secures development impacts that would otherwise not have materialised.<sup>xvi</sup> Measurement of both has been challenging, but as methods evolve their robustness is expected to improve. Usually, blended finance aims to enable a capital market building process by shifting from purely concessional development finance to blending concessional development finance with non-concessional development finance to crowding in commercial finance.<sup>xvii</sup> In the longer term, growing institutional capacity and increased experience and understanding on investor side may create a virtuous cycle as risks are diminished, and private investments will can be attracted without need for development capital.

Blended finance instruments address risks that have traditionally hampered private investments in emerging markets and developing economies

Instrument	Description	Risks addressed
 <b>Guarantees</b>	Provides protection to one party if the other party fails to perform. The guarantor (a third party) promises to complete performance in the event of default. Examples are first loss, partial risk or credit guarantees and trade finance guarantees	<ul style="list-style-type: none"> <li>• Credit risk</li> <li>• Technical risks</li> <li>• Demand &amp; off-take risk</li> </ul>
 <b>Insurance</b>	Provides protection by promising to compensate for a specified loss or damage in return for payment of a specified premium. One of the most common types is political risk insurance to protect against adverse government actions, conflict or terrorism	<ul style="list-style-type: none"> <li>• Political risk</li> <li>• Technical risk</li> </ul>
 <b>Hedging</b>	Reduces the risk of adverse current price movements in an asset and its associated earning stream, e.g., through currency hedging	<ul style="list-style-type: none"> <li>• Currency risk</li> </ul>
 <b>Junior sub-ordinated capital (direct investment and loans)</b>	Subordinated debt or junior equity protects senior investors by taking first economic loss. These tranches will be paid out last if assets lose value or are foreclosed on.	<ul style="list-style-type: none"> <li>• Multiple risks including:</li> <li>• Off-take risk</li> <li>• Construction risk</li> </ul>
 <b>Securitisation</b>	Transforms a pool of illiquid assets into tradable financial instruments (securities).	<ul style="list-style-type: none"> <li>• Liquidity risk</li> <li>• Credit risk</li> <li>• Off-take risk</li> </ul>
 <b>Results-based incentives</b>	Provides incentives to achieve desired outcomes or results by tying at least a portion of payments to achievement, thereby rewarding the successful implementation of projects, e.g. through pay-for-performance schemes. Examples include social impact bonds and performance-based contracts.	<ul style="list-style-type: none"> <li>• Operational &amp; performance risks</li> </ul>
 <b>Contractual mechanisms</b>	Agreements between producers and buyers of a resource to purchase or sell portions of future production that support the development of bankable infrastructure projects. Examples are public and private off-taker agreements, and subsidies such as feed-in-tariffs, and tax credits.	<ul style="list-style-type: none"> <li>• Demand risk</li> </ul>
 <b>Grants for early stage support/technical assistance</b>	Concessional capital paid out over a fixed period of time to support technical assistance or project preparation to bring a project to bankability. Grants can be critically important for pipeline development, especially in less mature sector and riskier geographies.	<ul style="list-style-type: none"> <li>• Operational risks</li> <li>• Lack of pipeline</li> <li>• Lack of local institutional ecosystem</li> </ul>

Source: based on the Blended Finance Taskforce (2018): Better Finance, Better World



# KEY LEARNINGS FOR WATER & SANITATION FROM SUCCESSFUL BLENDED FINANCE SOLUTIONS

There is no standardized 'playbook' to design and develop blended finance structures for water and sanitation projects, but successful examples do exist, which reveal insights on the roles of different actors to catalyse investment. The following examples and lessons learnt are based on a selection of existing blended finance case studies as well as on expert interviews.

A number of strategies have been successful in overcoming water-specific financing challenges related to monetization, costs and governance

Strategies to overcome challenges with case examples, non-exhaustive			
Monetisation challenges	Long-term purchase or offtake agreements with utilities  <i>Energy IPP</i>	 Pre-payment models to overcome perceived affordability constraints	Creating a market for rural sanitation solutions  <i>fwc</i>
			 <i>Pennon</i> Monetizing the benefits from improved upstream watershed management
Cost-related challenges	Credit enhancement instruments such as guarantees  <i>Aqua for All</i>	 <i>PID</i> Private Infrastructure Development Group Upfront donor capital for project and pipeline development	Aggregation and standardization to lower transaction costs, via funds or companies  <i>Meridiam</i> for people and the planet <i>Scaling Solar</i>
		Political risk insurance Collaboration with trusted local institutions and credit worthy intermediaries	Common understanding and standardization of water impact measurement  <i>Valuing Water Initiative</i> 



## Overcoming monetisation challenges

**User pays: Bottom-up approaches can create viable markets for water and sanitation services in emerging markets; mobile technology can be leveraged to improve access to services through innovative pre-pay or pay-as-you-go models.**

Despite a perception that end-users will be unwilling or unable to pay, several examples have shown a viable market can be created for water and sanitation services. Where affordability is a key constraint, targeted financial support in partnership with domestic/local financial institutions can be crucial to achieve desired outcomes.

To help develop the market for sanitation in rural areas in Indonesia, for example, **FeelWell Ceramics** uses an approach where they work with the local government to establish free public toilet facilities, thereby generating interest and increase awareness of the benefits of sanitation. Building on the demand generated, they then sell their affordable products to households in the area through local intermediaries.

**The Water Credit Initiative's** microfinance approach helps create a market for water and sanitation solutions by cooperating with domestic financial institutions on offering small, affordable loans to households to improve water and sanitation access. Not only are poor households willing to take up these loans, but there is also a very low risk for the financial institutions, with repayment rates at 99%.

Leveraging existing technologies like mobile payments can help ease technical challenges in providing water services to the urban poor by making payment systems more convenient, transparent, and accessible. Despite a common conception that access to financing is a key barrier for poor communities, greater convenience and transparency can go a long way. For instance, **CityTaps**, a pre-payment service for water access through mobile payments, reports that 25% of their users in Niger are on less than USD 25 per month yet using their service has lowered water bills for most.

**Linking the benefits of water investments to more revenue-generating sectors (such as power, food & agriculture) to monetise otherwise 'unpriced' natural capital assets (like clean water and other ecosystem services).**

Several water funds have been established globally to coordinate conservation and restoration activities at the watershed level through funding by corporate (or public) downstream users. These downstream users are incentivised to invest reliable water availability, quality, or other ecosystem services created through water-related nature-based solutions that generate cost savings. The crux for unlocking commercial contributions from private sector players is to identify a clear link and business case between the integrity of upstream supply and the benefits for downstream users.

In the case of the **Upper Tana Water Fund**, for example, the global beverage corporation Coca Cola, a local electricity generation company, and the city's water and sewerage company have supported upstream interventions for water resource protection, which resulted in significant cost reductions for the companies. Another example in development is the **Cloud Forest Blue Energy Mechanism** which engages hydropower operators in Latin America to pay for upstream forest conservation and restoration. Cloud forests provide measurable ecosystem benefits (and cost savings) to the hydropower industry in the form of reduced sedimentation, increased water flow and improved water regulation.

Where funding is unavailable for municipal water supply and treatment, projects can be linked to local industrial users with existing water assets in the area. In this model, local water treatment facilities associated with industries for their own operations, e.g., livestock farming or mining, can be extended using tacked-on public funding to serve surrounding communities by adding the necessary distribution infrastructure.

**Accessing voluntary carbon credit markets helps monetise the co-benefits of nature-based water conservation and restoration activities while mitigating currency risks.**

Carbon credits markets provide another avenue to monetise ecosystem services provided by water-related nature-based solutions. Projects that generate Certified Emission Reductions (CERs) can be verified and sold to the voluntary market. For instance, the **Pennon Group**, a UK-based water utility company, funds NBS activities by farmers and landowners to improve water quality who then benefit from the sale of carbon credits. As these voluntary market are global, these credits can mitigate local currency volatility.

**Building a business ecosystem along the value chain, for example through waste-to-energy models, can help make 'unpriced' elements financially sustainable.**

For 'harder-to-monetise' sectors like sanitation, bankable projects can be developed by integrating different elements of the waste value chain. For instance, waste to energy technologies have been used to make sanitation services a financially sustainable business opportunity. While sanitation services themselves are often difficult to price, they can be monetised by converting sludge into usable inputs for commercially valuable products such as power generation or fertilizer. Prerequisites for this business models are a reliable supply of sludge and secure off-take agreements. In Kenya, for example, **Sanivation** is helping to develop new value chains for faecal sludge from the ground up that transform treated sludge into briquettes that can be used for heating and energy.

**Long-term purchase or off-take agreements and affordability assessments can ensure profitability.**

Linking investment with purchase agreements from public entities to ensure revenue flows can reduce monetization challenges. For instance, the private sector operator of the **Kigali Bulk Water Supply project** in Rwanda has a long-term agreement with Rwanda's public water utility WASAC for selling drinking-quality water. An affordability assessment made sure that costs did not exceed a certain level which would have made corresponding tariffs unaffordable for the population.

Likewise in India, hybrid annuity models (HAM) have been utilised to build and improve waste management transportation and treatment facilities under the **Namami Ganga Programme**. Using HAM, municipal governments provide an upfront construction and ongoing annuity payments to private waste management service providers selected through competitive bidding process. Ongoing payments can be linked to meeting certain key performance indicators, giving service providers greater certainty of payment over longer periods.

## Overcoming cost-related challenges

**Credit enhancement instruments, such as guarantees, have been successful in addressing credit risks and long payback periods for infrastructure investments.**

Credit enhancement, such as the use of guarantees or revolving funds, address the payment uncertainty that water infrastructure often faces due to uncertain revenue streams and long pay-back periods. Several examples of water and sanitation infrastructure financing, for example the **Jamaican National Water Commission**, have used guarantees. These can come from both from domestic and international institutions, along with other blended finance instruments to back loans for the infrastructure development.

**Early-stage capital helps bear high upfront costs for pipeline development. Some initiatives have built in re-investment models where a portion of the benefits from current projects are captured and re-invested in further projects.**

Up-front funding is needed to identify the opportunities, fund project development, and structure investments. This upfront capital is usually provided by donors or philanthropic funds, e.g., in the case of **Climate Investor One and Two** for which donor funds cover the pipeline and project development costs. Another prominent example is the **Private Infrastructure Development Group (PIDG)** which provides upfront funding, knowledge delivery, capacity building and targeted technical assistance to make projects more commercially viable and creditworthy.

To create leverage from donor capital, it is vital to develop a self-funding model where benefits from a program can be re-invested into its expansion. For instance, the Emerging Africa Infrastructure Fund provides upfront capital in the form of equity and loans for large water infrastructure projects, and once the fund closes a deal, a certain amount is captured to invest in further projects.

**Aggregation of small investments can increase the attractiveness by lowering transaction costs; having an overarching framework facilitates raising funds for multiple smaller projects.**

To achieve an attractive deal size for investors, small-scale projects need to be aggregated. Bundling projects together is also key to diversify the risk for one particular deal.

The **Pennon Group** uses an independently verified Sustainable Financing Framework and reporting process that facilitates the pooling of smaller projects into green bonds and provides transparency for investors, while avoiding the need to raise financing deal-by-deal. Likewise, the **Kenyan Pooled Water Fund (KPWF)** aims to aggregate many water supply projects into one investable vehicle, where the KPWF will serve as intermediary between the projects and the funding raised.

## Overcoming governance challenges

**Cooperating with countries that have clear strategic goals regarding water & sanitation and where government receptiveness to private investment helps create a supportive enabling environment.**

The willingness of governments to involve the private sector in the domestic water sector is a prerequisite for the success of infrastructure projects funded with private capital. For example, in Rwanda, the government's strategic policy goal to achieve universal access to drinking-quality water created the framework conditions for the **Kigali Bulk Water Project**, where public and private actors worked closely together. Similarly, Egypt has a clear strategy and vision to develop water infrastructure, and the government has proactively worked towards creating an enabling environment for these investments in cooperation with Development Finance Institutions.

**Political risk insurance and collaboration with trusted local institutions can be used to overcome political and corruption risks.**

Political risk insurance can help lower the risk from unexpected policy changes and political conflict. For instance, the **U.S. International Development Finance Corporation** offers coverage of up to USD 1 billion against losses due to factors such as currency inconvertibility, government interference, and political violence including terrorism. Another approach is to work with quasi-governmental institutions in emerging markets, such as the **Colombian Financiera de Desarrollo Nacional**, a financial corporation for infrastructure projects that had been founded as part of the Colombian government's move to strengthen its institutional capacity and build up national infrastructure.

Over time, private providers of political risk insurance in emerging markets, such as **Liberty Specialty Markets**, could increasingly be used as water and sanitation project development becomes more standardised.

**Better understanding and standardising water impact measurement would help companies and investors to engage in the field.**

Without a common understanding of water impact, providers struggle to credibly measure the impact of investments, impact investors have difficulties to tell a compelling water story, and all investors struggle to quantify their water liabilities. Compared to greenhouse gases, there is no universally agreed-upon standards for water but rather a multitude of competing efforts to measure impacts that are often locally specific (e.g. **Alliance for Water Stewardship Standard, Ceres Valuing Water Investor Taskforce, Science-Based Target Network**). New concepts like 'water net positive' and 'water footprinting' have been developed but are still in a low maturity. There needs to be a concerted effort from NGOs and the scientific community to develop alignment on a single, usable water impact framework which investors and multinational companies can use for their ESG reporting & screening. This could, for instance, follow the example of current efforts to align ESG and climate frameworks, by the likes of the **International Sustainability Standards Board** and the Task Force on **Climate-related Financial Disclosures (TCFD)**.



# CONCLUSION AND RECOMMENDATIONS

**While the funding gap has widened, there is growing interest in and demand for financing projects in the water and sanitation sector.**

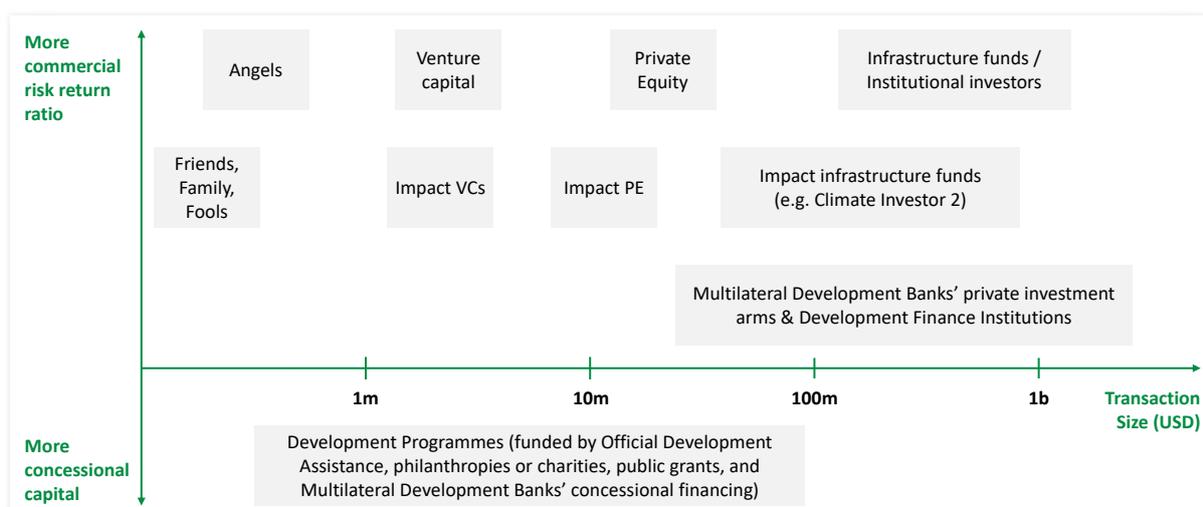
The rising interest in sustainable investing, reflected by a growing number of sustainability funds that target ESG or SDG-related themes or sectors, means the potential 'pot' of funding for water and sanitation has grown in recent years. In 2021, global issuance of green bonds alone is on track to reach a record USD 500 billion.<sup>xviii</sup>

The water and sanitation sector provides outsized impact, contributing to a range of SDGs including improved health, biodiversity, gender equality, food security, and climate adaption while providing for underserved communities in emerging markets. Using blended vehicles to better match investor criteria with project needs is key to unlocking this impact.

**However, interested investors struggle to find assets which match their investment criteria.**

Different investors have different risk/return appetites & size requirements

ILLUSTRATIVE



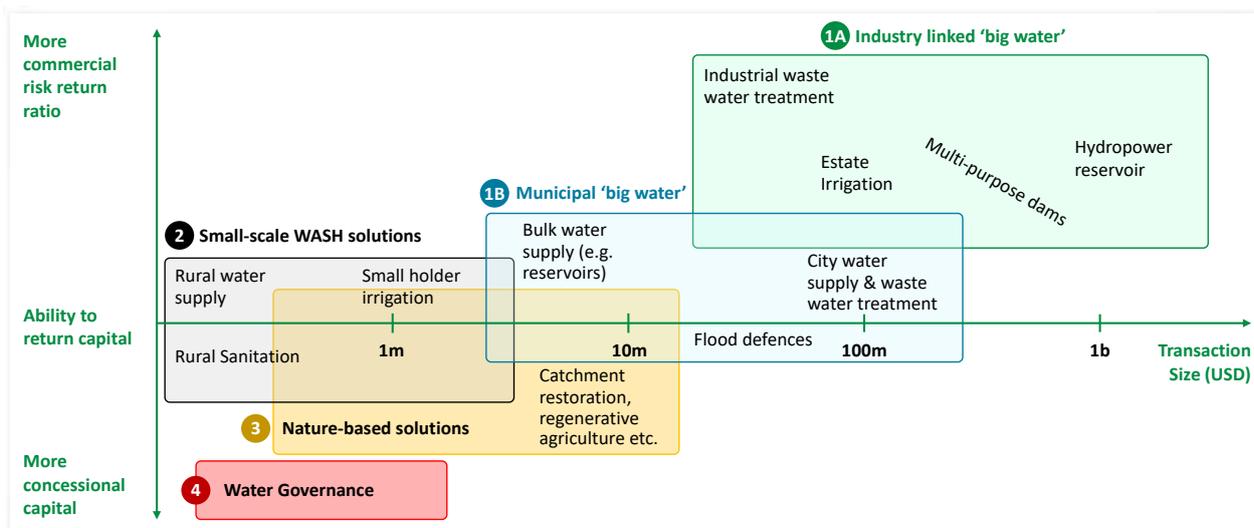
BLENDED FINANCE TASKFORCE

Despite interest and demand for water projects, investment in this area has been limited to a small number of successful projects, and water projects struggle to compete with those in other sectors that have a more commercial risk-return ratio. For example, in low- and middle-income in Latin America and Asia, only 9% of water funding is private versus 87% in telecoms and 45% in power.<sup>xix</sup> One of the major reasons for this is that the assets and services that need funding currently do not match interested investors' investment criteria and preferred transaction size.

**Lessons learnt from case studies show that this mismatch can be overcome with tailored financing models, innovative business models, and the right type of concessional support.**

## Many water investments are mismatched with interested investors criteria today

ILLUSTRATIVE



Looking at the array of water and sanitation sub-sectors, solutions can be found to allow each type of project to meet investor requirements. Where possible, opportunities in each category can be 'daisy-chained' together, to move those opportunities with less attractive risk-return ratios towards bankability.

**1. A. Industry linked 'big water':** This group represents where most financing has traditionally gone as projects are large-scale with clear revenue streams from reliable payers (e.g., **Rwanda's Nyabarongo II Hydrodam**). However, these large infrastructure projects can potentially have significant impacts on downstream and upstream communities and ecosystems, as well as geopolitical repercussions. They therefore require impact assessments, the involvement of relevant stakeholders, accountability mechanisms, and a business model that ensures a fair distribution of benefits. Remaining barriers to investment can be overcome by:

- **Utilising blended instruments to de-risk investments:** Guarantees from international donors for 'big water' investments can help overcome barriers including long payback periods (~30 years), perceived lack of credit worthiness and payback reliability, and currency risks. Meanwhile other mechanisms, such as securitisation to overcome liquidity risks or insurance to cover political and technical risks, can also be used.
- **Leveraging private sector experience** early in the project development process to ensure the project is set up efficiently and sustainably. This will include identifying, and working with locally connected project developers and consulting with investors from early stages

**1. B. Municipal 'big water':** In addition to the recommendations made for industrial or agricultural 'big water', for these assets to attract additional investment they must be designed using blended structures and a more catalytic use of development finance to improve risk/return ratios and reduce transaction costs. This means projects should:

- **Clarify and strengthen revenue streams.** This can be done by linking projects to industry, reducing non-revenue water inefficiencies, or by exploring new revenue models – such as

pay-as-you-go. Tariff designs could be tailored (e.g. intensive users paying largest tariffs) and subsidies could be targeted based on thorough affordability assessments linked to performance improvements. However, due to the entrenched interests of stakeholders that benefit from current support frameworks, changing subsidy frameworks tends to be a challenging approach that requires significant political will and potentially financing for compensation schemes.

- **Where possible, standardise and bundle transactions.** Taking lessons from IFC's **Scaling Solar** 'one stop shop', work to standardise balanced project documents to ensure speed, reduce transaction costs and to achieve sufficient scale.

**2. Small-scale water & sanitation solutions:** Innovative decentralised WASH technologies and business model solutions are being developed (e.g. **Majik Water solutions** to harvest drinking water from air, decentralised desalination run by solar energy, decentralised container sanitation, pit emptying, fecal sludge and septage management, and rural water supply operations and management) but these companies need support in rapidly scaling.

- **Incubate and accelerate innovative WASH start-ups**, via dedicated WASH incubators and accelerators. Philanthropies or non-profits such as **AquaForAll** can galvanise private investment into these venture builders by providing early-stage capital or by providing grants and technical assistance to cover transaction costs, project development and pipeline building activities. Venture capital firms can drive investment into technological innovation that reduce costs. National governments can support growth of these businesses by improving ease of business and enabling environment for start-ups. To avoid grant dependence of 'social enterprises' that are not set up to scale commercially, these ventures should be supported through a spectrum of capital that allows them to scale and reach financial sustainability.
- **Link 'unbankable' aspects to more profitable elements of the value chain**, for example through sanitation business models that use sludge as input for the power or fertilizer industry, thereby cross-subsidising service access.

**3. Nature-based Solutions:** Nature-based solutions like regenerative agriculture and catchment restoration have a wealth of benefits for water and beyond but if these benefits aren't monetised, projects lack secure revenue streams to raise capital.

- **Further develop impact frameworks and payment mechanisms which allow the benefits of good natural capital management to be monetised.** Whether through formal carbon markets or adopting more tailored solutions (like **Pennon's** sustainable financing framework)

**4. Water governance:** Good governance will be a pre-requisite for systemic changes to the water investment environment, and required to allow greater flows of investment into the water system in low- and middle-income countries.

- **Dedicate public budget to water governance activities** such as monitoring and enforcement. As well as directly leveraging and de-risking, philanthropic and development capital should also be used to support institutional capacity building. The private sector can usefully engage in dialogue with governments – where this is conducted transparently – on conducive policy reforms. It may also contribute to cost-recovery for governance activities, for example through service fees. However, core governance activities will generally not be financed directly by private capital. Governments should ensure public finance is available where needed, but private finance is used wherever possible, tailoring for differing risk-return profiles and appetites.

**To narrow the funding gap, capture the USD 500 billion economic prize, and mobilise private capital for water & sanitation, each actor has a critical role to play.**

Tailored financing models, innovative business models, and the right type of concessional support required to overcome the funding gap will only be achieved through collaboration from a wide range of actors from public, private and philanthropic sectors.

The USD 200 billion financing gap and at least USD 500 billion of benefits will only be achieved through public/private/philanthropic collaboration



The table on the following pages sets out some targeted recommendations for each actor to enable this to happen.



## Providers of development capital

### Donor governments

Deploy concessional capital more catalytically to de-risk and crowd in private investment

- **Embed water & sanitation in existing grant programmes** as a key way to deliver climate, nature, and covid outcomes
- **Create and scale dedicated blended finance initiatives for water** to increase funding for the sector
- **Launch and fund incubators, accelerators and project developers** for water assets and credit schemes for entrepreneurs
- **Provide targeted technical assistance to national governments and sub-national agencies**, building capacity to strengthen the enabling investment environment by developing the right policies and targeting pipeline development that aligns with national climate targets
- **Mandate development banks and climate funds (donors as shareholders)** to set mobilisation targets for water & sanitation, applying standardised measurement of additionality and ensuring market development
- **Scale the use of more catalytic products like guarantees** for investment in the water sector that help overcome key barriers of long payback periods and perceived risks (credit, currency, counterparty, political etc) for 'big water' infrastructure (donor governments) and smaller transactions (philanthropies)
- **Partner with other capital providers** to ensure coherent, effective, and synergistic interventions

### Philanthropies

Play a pathfinder role, utilising flexible capital to innovate and scale new business models and trial new solutions to the barriers which currently prevent investment in the water sector

- **Support incubation of early-stage technologies and business models** in sanitation and small-scale water supply and treatment
- **Partner with domestic financial institutions** to improve their understanding of water and sanitation assets and businesses to help distinguish between real and perceived risks, and support small-scale water and sanitation solutions via guarantees and capacity building with in-country commercial lenders
- **Require clear scaling pathways** and roadmaps to financial independence as a condition for concessional finance, in order to avoid donor dependence
- **Partner with other capital providers** to ensure coherent, effective, and synergetic interventions
- **Finance feasibility and development studies** that provide the knowledge base for strategic private sector investments and accelerate high quality pipeline development

### Multilateral Development Banks (MDBs) and Development Finance Institutions (DFIs)

Set mobilisation targets, embed a more strategic focus on water & sanitation in climate finance, and use guarantees and other catalytic instruments for 'big water' infrastructure

#### MDB PUBLIC FINANCE ARMS

- **Support national policy roadmaps** for making water and sanitation a strategic political priority by leveraging relationships with local governments & financial institutions
- **Develop replicable transaction structures and test frameworks** for investment that can be later replicated by private sector
- **Provide concessional loans** for 'big water' projects in partnership with local organisations
- **Provide guarantees** for 'big water' investments that help overcome key barriers of exceptionally long payback periods and perceived credit risk as well as currency risks

#### DFI AND MDB PRIVATE FINANCE ARMS

- **Set private capital mobilisation targets for water positive projects**, both for water investments and for existing portfolios with impacts on water in a way that prices in negative/positive water impacts of different projects
- **Bundle smaller projects in funds or other financing vehicles**, to diversify risks, lower transaction costs, and improve attractiveness to private investors

- **Partner with other capital providers**, to ensure coherent, effective, and synergistic interventions
- **Apply standardised measurements** for impact and additionality

## Actors involved in developing projects & shaping the local enabling environment

### National Governments

Send clear signals to investors about favourable investment environment through enabling regulation

- **Make water and sanitation a strategic priority and ensure water targets are embedded in climate planning** (including NDCs) to signal to investors that this is a long-term opportunity, and reassure them against unexpected policy changes
- **Improve water regulation and tariff structures to create a better enabling environment** and thereby improve the credit worthiness of water projects and businesses. Smarter design of tariff structures could account for different affordability levels while helping recuperate investment costs sooner and shorten amortisation periods
- **Extend private sector water infrastructure/services to communities**, building on local water treatment facilities that industries have set up to serve their own business, e.g., livestock farming and mining, and use public financing to leverage this infrastructure for serving surrounding communities by adding the necessary distribution infrastructure
- **Facilitate local water governance activities**, such as watershed planning, monitoring and enforcement, and financial regulation
- **Provide sovereign guarantees** for domestic 'big water' projects, expand sovereign funding opportunities by leveraging DFI support
- **Bring in private sector expertise** to improve efficiency of water infrastructure operations

### Project developers, entrepreneurs, incubators, and NGOs

Strengthen partnerships to ensure bankable solutions

- **Scale business models with clear revenue streams**, such as innovative low cost, decentralised solutions
- **Bring in private sector expertise early on**, including private companies to design and operate assets and investors to structure financing
- **Conduct affordability assessments** to ensure prices are feasible; partner with providers of catalytic capital to help cover early-stage project costs
- **Develop projects with replicability in mind**, whether in terms of scalable start-ups or standardisation of water and sanitation assets
- **Cooperate with local commercial lenders** as a cost-effective mechanism to provide loans to small-scale water and sanitation solutions
- **Improve the understanding of different kinds of financing** including impact investor criteria and language

## Non-governmental stakeholders involved in water

### Academia and NGOs

Standardise what 'water positive' assets and impact looks like

- **Develop water impact frameworks**, share knowledge with industry partners and raise awareness with providers of development capital and local governments. Independent entities, such as universities and NGOs can have an outsized impact by developing water risk frameworks to develop a common understanding and measurement framework of positive and negative water impacts and standardise these frameworks with industry partners. This will allow climate-aligned investors (and investors more broadly) to better understand how to design and ensure investments are 'water positive' and how to mitigate water liabilities within their current portfolio
- **Contribute to wider efforts** to ensure blended finance solutions are additional and efficient

## Private sector

### Corporations

Explore water conservation and restoration activities to reduce costs and improve ESG outcomes

- **Provide strategic funding in a local context** if they are intensive water users and procure water for commercial uses, to reduce costs and ensure sustainability of the watershed area
- **Explore water as an option for ESG improvements and carbon offsetting (or insetting)**, and improve understanding of water impacts

### Private equity firms & asset managers

Explore innovative ways to ringfence assets to reduce risks and bundle transaction to achieve scale

- **Invest in companies that own and operate water plants** to address scale issues, make it easier to control the asset, and lower risks by securing offtake agreements, and contracting with utilities (backed by the state) rather than facing end consumers
- **Design blended finance funds for water infrastructure investment** that allow for risk diversification and bundling of smaller assets
- **Support the development of water and sanitation deals** by providing financial and structuring expertise
- **Align existing portfolios with SDG goals for water**, based on an improved understanding of water impacts

### Banks, insurers & pension funds

Scale sovereign financing for water infrastructure de-risked by guarantees

- **Provide early expert advice** in finance structuring for water investments during project development
- **Provide finance to governments for water infrastructure** to facilitate de-risking through guarantees and insurance mechanisms
- **Explore water and sanitation as a high impact sector** in the context of in-house impact investing

## Upper Tana-Nairobi water fund

Upper Tana Water Fund	Challenge to be addressed	Impact and challenges
<p><b>Geography:</b> Kenya, Upper Tana River basin</p> <p><b>Sector:</b> Agriculture, Energy, Municipal water</p> <p><b>Organisations involved:</b> TNC, IFAD, Coca Cola, Kenya Electricity Generation Company (KenGen), Nairobi City Water and Sewerage Company (NCWSC)</p> <p><b>Blended finance structure:</b> Endowment + revolving water fund</p> <p><b>Funding sources:</b> Public concessional funding (GEF), private concessional (Coca Cola Foundation), In-kind contributions from beneficiaries</p> <p><b>Established:</b> 2015</p>	<p>The Tana river supplies 95% of Nairobi's drinking water and 50% of the country's electricity from hydropower. Agricultural activities along the Upper Tana river basin over the last several decades have increased the amount of sediment and chemical run-off entering the river, increasing water treatment costs and reducing the reliability of hydropower. Over 300,000 smallholder farmers rely on the river for irrigation, but unsustainable abstraction has led to a lowering of water levels, putting further pressure on water supplies downstream in Nairobi, where only 40% of residents have access to a reliable supply of drinking water.</p> <p><b>Blended finance solution</b></p> <p>To stem the decline in both water quality and quantity in the Tana river (and thus Nairobi), public and private partners worked together to establish a watershed management plan, funded through Upper Tana Nairobi Water Fund (UTNWF). The premise behind this fund is that it is typically much cheaper to invest in protecting water resources at their source rather than paying to clean up downstream. The fund developed a programme to train and support smallholder farmers in the Upper Tana basin to reduce erosion, improve water use efficiency, and sustainably increase productivity. This in turn helps improve overall water supply and quality for downstream users such as KenGen and NCWSC.</p>	<ul style="list-style-type: none"> <li><b>&gt;1 million litres/day</b> increase in water availability in Nairobi</li> <li><b>15% reduction</b> in sedimentation, achieving WHO standards</li> <li><b>40% increase in yields</b> for around 8,500 coffee farmers trained</li> <li><b>Estimated \$850k in revenue increase</b> and cost reduction for KenGen and NCWSC</li> </ul> <p>A key challenge for the water fund is to validate the cost-reduction business case in order to attract more private capital</p>
<p><b>Key learnings</b></p> <p>The Upper Tana case highlights the value of using concessional funding for up-front technical assistance and business planning. The business case developed by TNC helped to create a crucial link between up-stream farmers and impact they had on downstream users such as Coca-Cola.</p>		



## CityTaps

CityTaps	Challenge to be addressed	Impact and challenges
<p><b>Geography:</b> Niamey, Niger</p> <p><b>Sector:</b> Municipal water supply, Smart meters</p> <p><b>Organisations involved:</b> CityTaps, GSM M4D (Mobile for Development grant programme), Orange Niger (local telecoms and payments),</p> <p><b>Blended finance structure:</b> Grant financing coupled with technical advisory services, user payments</p> <p><b>Funding sources:</b> Public concessional, Public non-concessional, private non-concessional (venture capital)</p> <p><b>Established:</b> 2015</p>	<p>Over one billion urban people live without access to running water in their homes. For residents, disconnection from water supplies due to non-payment is a common challenge. For water utility companies, it can be difficult to expand service to poor communities while also reducing the physical and commercial losses they need to remain financially sustainable. Post-payment systems for water services act as a barrier to access due to opaque payment structures and poor customer service. As a result, poor communities often pay more for water from non-utility sources than their wealthier neighbours.</p> <p><b>Blended finance solution</b></p> <p>CityTaps with initial funding from a digital innovation fund, have developed an integrated smart metering and cloud-based account management platform to enable pay-as-you-go water access through mobile payments. This pre-payment model improves reliability and transparency of services to water customers, while allowing utilities to reduce operating costs and improve collection ratios (to 100%). In Niger and Kenya, CityTaps have enabled utilities to expand their service to new and previously disconnected customers. After initial concessional funding they have attracted venture capital, while also improving the economics to the water utilities they work with.</p>	<ul style="list-style-type: none"> <li>An average per-litre cost reduction of <b>20%</b> for new customers</li> <li>Over <b>1,000 meters</b> installed, with an order for <b>10,000 more</b></li> <li><b>50% of CityTaps</b> customers were first-time mobile money users</li> <li><b>10-20% OPEX savings</b> for water utilities from streamlined billing</li> </ul> <p>A key challenge is to finance the up-front cost of providing smart-meters. This investment takes time to recoup when using a tariff-share model.</p>
<p><b>Key learnings</b></p> <p>Leveraging existing technologies like mobile payments can help overcome challenges in providing water services to the urban poor. Despite a common conception that access to financing is a key barrier for poor communities, greater convenience and transparency can go a long way (25% of CityTaps users are on less than \$25/month). Grant capital can lead to follow on private funding (VC in this case), but also enhance user payments for utilities.</p>		



## Water Credit Initiative

<p><b>Water Credit Initiative</b></p> <p><b>Geography:</b> International  <b>Sector:</b> Sanitation &amp; hygiene  <b>Organisations involved:</b> Water.org, Local microfinance lenders  <b>Blended finance structure:</b> Technical assistance/ small grants for local financial institutions who offer commercial microfinance to users;  Water.org has also established <b>Water Equity</b>, which enables international investors to buy into the model, for example through lending to the domestic financial institutions  <b>Funding sources:</b> philanthropic concessional and private commercial funding  <b>Established:</b> 2003</p>	<p><b>Challenge to be addressed</b></p> <p>People in need pay high prices for water daily, in both time and money. Many could get a long-term water or sanitation solution in their home for a fraction of their annual water costs, but do not have access to affordable financing that would allow them to pay for these improvements over a reasonable period of time, since many financial institutions in developing economies do not offer loans tailored to financing water and sanitation.</p> <p><b>Blended finance solution</b></p> <p>Running for more than 15 years, Water Credit is addressing this gap by cooperating with domestic financial institutions on offering microfinance services. After identifying a region where people need access to water and sanitation, Water Credit partners with selected local institutions and provides technical assistance, connections and small grants to support them in establishing small, affordable loans for water and sanitation in their portfolio. Households in need, the majority of which live on less than \$3.20 a day, use these loans to put a tap or toilet in their homes. Water.org, the organization behind the Water Credit Initiative, have also established Water Equity, which enables international investors to buy in to the model.</p>	<p><b>Impact and challenges</b></p> <p><b>8.5 million loans/ \$3.1 billion</b> for water and sanitation disbursed;</p> <p><b>Over 6.7 million people</b> p.a. reached; so far, <b>38 million people</b> benefitted</p> <p><b>99% of loans are paid back</b></p> <p><b>25% of borrowers report reduced illness</b></p> <p>A key challenge is access to loan capital due to potential reluctance among local commercial banks to finance WSS portfolios</p>
<p><b>Key learnings</b></p> <p>A viable market can be created for financing water and sanitation improvements in developing economies; not only are poor households willing to take up loans, but there is also a very low risk for the financial institutions as repayment rates are extraordinarily high. Cooperation with domestic/local institutions can be crucial to achieve desired outcomes.</p>		



## Water Finance Facility – Kenya pooled water fund

<p><b>Water Finance Facility</b></p> <p><b>Geography:</b> Kenya (pilot)  <b>Sector:</b> Water and sanitation  <b>Organisations involved:</b> Innovation Lab for Climate Finance, Dutch Ministry of Foreign Affairs, Waterworx, Kenyan National Treasury, Ministry of Water and Irrigation, Water Sector Trust Fund, USAID, SIDA, SNV  <b>Blended finance structure:</b> Securitization, guarantees &amp; other credit-enhancing instruments  <b>Funding sources:</b> concessional capital, commercial debt  <b>Established:</b> 2015</p>	<p><b>Challenge to be addressed</b></p> <p>Kenya aims to achieve access to safe water and sanitation for all by 2030; as of 2017, water coverage stood at 55%, and sewerage at 16%. Water supply and treatment infrastructure is usually very capital-intensive with long pay-back periods. However, in many developing economies, water utilities have little or no access to commercial finance, or only at unfavorable terms, such as short tenors. These projects are perceived as high-risk, and the small size of single investment opportunities is usually not attractive for the capital market as it implies high transaction costs.</p> <p><b>Blended finance solution</b></p> <p>To help local water utilities obtain access to financing, WFF develops local water financing facilities – the first one in Kenya – that will mobilise large-scale private investment from domestic institutional investors. The facilities pool loans from creditworthy water service providers and issue a single bond to the capital market, which lowers transaction costs and diversifies risk; the risk is further reduced through de-risking instruments such as guarantees or reserve accounts. Once the bonds are issued to the market, bond proceeds are on-lent to water utility companies to fund projects, who have 15 years to pay back the loans.</p>	<p><b>Envisaged impact and challenges</b></p> <p>Aims to enable <b>water &amp; sanitation access to 400,000 people</b> in Kenya</p> <p>25% of which are living in Low Income Areas</p> <p>A key challenge is the time-intensive process to set up the national facilities, and the high complexity due to the variety of stakeholders involved.</p>
<p><b>Key learnings</b></p> <p>Initial funding, time, and effort need to be invested to identify the opportunities on the ground. It might take several years to develop the structure and investment, and technical assistance is continuously necessary.</p>		



## Kigali Bulk Water Project

Kigali Bulk Water Supply	Challenge to be addressed	Impact and challenges
<p><b>Geography:</b> Rwanda</p> <p><b>Sector:</b> Water treatment and supply</p> <p><b>Organisations involved:</b> International Finance Corporation (IFC), African Development Bank (AFDB), Rwanda's Energy Water and Sanitation Authority (EWSA); Private Infrastructure Development Group (PIDG), Emerging Africa Infrastructure Fund (EAIF); Metito</p> <p><b>Blended finance structure:</b> well-coordinated package of blended finance</p> <p><b>Funding sources:</b> Public concessional, Public non-concessional, private non-concessional</p> <p><b>Established:</b> 2017, construction complete in 2021</p>	<p>Only 40% of Rwanda's population had access to piped water supply as of 2015, especially in rural areas. One of Rwanda's strategic policy goals has therefore been to achieve universal access to safe drinking water. Rapid urbanisation in the country's capital Kigali has further exacerbated the problem of limited public water supply.</p> <p><b>Blended finance solution</b></p> <p>The Kigali Bulk Water project is a long-term PPP to finance a large-scale water treatment facility south of the city which draws water from the Nyaborongo River. Kigali Water Ltd. (KWL), a subsidiary of Dubai-based water company Metito, builds, maintains, and operates the treatment plant, and sells drinking-quality water to Rwanda's public water utility WASAC which distributes it to local consumers. After 27 years, Metito will transfer KWL over to WASAC. The project capital investment included 40 million in debt from AFDB and EAIF, backed by a guarantee from the Ministry of Infrastructure of Rwanda, as well as USD 11 million equity finance provided by Metito, and a 6 million technical assistance grant from PIDG, which also allowed the government to expand the piped water supply system without raising tariffs</p>	<p>Daily supply of <b>40 mega-litres</b></p> <p>Providing <b>&gt;500,000 people</b> with drinking quality water</p> <p>Covering <b>40 % of Kigali's water supply</b> need</p> <p>A key challenge is currency risk since loans and equity were provided in USD, while tariffs are paid in local currency (RWF), which a free-floating currency</p>
<p><b>Key learnings</b></p> <p>The project has received much recognition for its financial structuring and successful implementation. Separating the distribution infrastructure from the plant under a concessional loan helped significantly reduce project costs, and transparency within the PPP about the composition of the tariff helped keep tariffs affordable by addressing 'hidden' costs.</p>		



## Pennon Group - Sustainable Financing Framework

Sustainable Finance Framework	Challenge to be addressed	Impact and challenges
<p><b>Geography:</b> UK</p> <p><b>Sector:</b> Water utility, wastewater services, NBS and watershed management</p> <p><b>Organisations involved:</b> Pennon Group PLC, Sustainable finance providers, Independent monitoring and verification organisations (including DNV)</p> <p><b>Blended finance structure:</b> Sustainability-linked bonds, loans, private placements</p> <p><b>Funding sources:</b> Project-dependent, Pennon's upstream projects with farmers are 50% match funded by the UK government.</p> <p><b>Established:</b> 2018</p>	<p>As a leading water utility in the UK, providing clean water and/or wastewater services to over 3 million customers, Pennon Group must balance the needs of the business and its customers with its ESG goals. Pennon is typically an infrequent issuer of debt to the market for infrastructure or other upgrade projects. Linking sustainability outcomes with financing requirements on a deal-by-deal basis can be cumbersome and slow down the capital raising process. Yet the company realizes its long term business and ESG objectives must be aligned to secure the future for the business and its customers.</p> <p><b>Blended finance solution</b></p> <p>To fully align their financing and ESG strategies, Pennon have developed a Sustainable Financing Framework that allows them to raise capital linked to Sustainability Performance Targets and KPIs. This framework, which is independently monitored and verified, allows Pennon to raise new sources of finance for sustainable projects while progressing the company towards its goals (including Net Zero by 2030). In some cases, performance on sustainability KPIs reduces interest costs. Since the inception of the framework, Pennon have drastically improved their sustainability scoring, and moving forward aim to raise all their financing through the Sustainable Financing Framework.</p>	<p>Over <b>350,000 customers</b> with improved drinking water from new facilities</p> <p><b>85,000 hectares of land</b> restored or improved as part of upstream projects</p> <p>Nearly <b>£1bn in new financing</b> raised through the framework, <b>75% of total debt raised</b></p> <p>A key challenge for Pennon is to find the right projects to bundle together so they can diversify risk while achieving their KPIs</p>
<p><b>Key learnings</b></p> <p>Monitoring and Evaluation of sustainability outcomes can increase up-front costs of raising capital, but also provide tremendous value. In this case, by creating the Sustainable Financing Framework, Pennon were able to not only streamline their financing process, but also see improved interest rates and enhance customer engagement around ESG goals.</p>		



## Jamaican credit enhancement facility

<p><b>Jamaican Credit Enhancement Facility</b></p> <p><b>Geography:</b> UK</p> <p><b>Sector:</b> Water utility, wastewater services, NBS and watershed management</p> <p><b>Organisations involved:</b> Pennon Group PLC, Sustainable finance providers, Independent monitoring and verification organisations (including DNV)</p> <p><b>Blended finance structure:</b> Sustainability-linked bonds, loans, private placements</p> <p><b>Funding sources:</b> Project-dependent, Pennon's upstream projects with farmers are 50% match funded by the UK government.</p> <p><b>Established:</b> 2018</p>	<p><b>Challenge to be addressed</b></p> <p>While access to piped water had been well developed in Jamaica, as of 2010 only 18% of the population had a sewer connection, and only 7% effluent sewage was treated. The government took regulatory action to promote better wastewater management, but a significant proportion of the country's wastewater facilities were operating below standards. The deteriorating infrastructure also undermined water revenues due to leakage and illegal connections. Addressing this problem required long-term financing, which is rarely available from domestic commercial banks.</p> <p><b>Blended finance solution</b></p> <p>The Jamaica Credit Enhancement Facility (JCEF), a pilot project of the Caribbean Regional Fund for Wastewater Management (CRew), was implemented as a 3 mn USD guaranteed fund at the National Commercial Bank of Jamaica. The bank provided a 12-year loan of JMD 1.4 bn (USD 12 mn) to the National Water Commission (NWC), for which the JCEF provided secondary collateral. The initial collateral and source of payment came from a surcharge collected monthly from NWC's customers ('K-Factor' funds). In return, efficiency gains from investments were reflected on customers' bills.</p>	<p><b>Impact and challenges</b></p> <p><b>8 wastewater facilities</b> were rebuilt or rehabilitated</p> <p>In the follow-up, the NWC secured a <b>96 million USD</b> bond for further projects, guaranteed by the K-Factor funds</p> <p>Key challenges were the co-ordination among stakeholders, lengthy negotiations over currency risk, and delays in the procurement process</p>
<p><b>Key learnings</b></p> <p>Significantly reducing the credit risk through high collateralisation of loans can be critical to build local banks' confidence, especially when the financial structure is novel to domestic financial institutions. Contributions by customers can be a reliable source of funding and designed in a way that rewards customers in the mid-to long-term.</p>		



## Sanitation

<p><b>Sanitation</b></p> <p><b>Geography:</b> Naivasha, Kenya</p> <p><b>Sector:</b> Off-grid wastewater management</p> <p><b>Organisations involved:</b> Sanitation, County or Municipal Governments</p> <p><b>Funding sources:</b> Sale of waste-to-energy products covers operational costs, Local government funding for up-front capital</p> <p><b>Established:</b> 2015</p>	<p><b>Challenge to be addressed</b></p> <p>The fecal sludge management (FSM) sector faces several challenges to developing viable and investable business models. The safe management of human waste provides numerous health and other benefits, but FSM services often face a high degree of latent demand. Models often depend on payments from local governments which are in turn influenced by policy priorities. Off-grid FSM service providers operate in fragmented markets, making it hard to capture the full value of FSM services (collection, transport, treatment, re-use) As a result, where services are available they are usually expensive and unreliable.</p> <p><b>Blended finance solution</b></p> <p>Sanitation is a social-enterprise that develops and builds FSM plants in 'African secondary cities' in partnership with local governments. Sanitation facilities treat the fecal sludge, turning it into briquettes that can be used for firewood fuel. These briquettes are then sold-on, covering the operational costs of the facility. Up-front capital for construction of the treatment plant is provided by the government.</p>	<p><b>Impact and challenges</b></p> <p>Pilot plant in Naivasha is providing FSM services for <b>10,000 residents</b>, with plans for <b>scaling to 100,000</b></p> <p>The plant produces and sells <b>350 tons of fuel per month</b>, substituting the need for wood-biomass fuels</p> <p>Operational costs of the facility are <b>covered by fuel sales</b></p> <p>A key challenge in developing new projects is to source financing for the capital cost of treatment facilities</p>
<p><b>Key learnings</b></p> <p>Sanitation services, particularly off-grid solutions, are likely to always require at least some portion of public funding to create viable business models. Even so, new processes or technologies (like waste-to-energy) show a promising route to bridge the 'monetization gap' when it comes to financing sanitation.</p>		



## ENDNOTES

- i WHO/UNICEF Joint Monitoring Programme (2021): Progress on household drinking water, sanitation and hygiene
- ii HELP (2021) - Global Report on Water and Disasters
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- iv International Resource Panel (2015): Options for Decoupling Economic Growth from Water Use and Water Pollution; and 8. IPCC AR5 (2014): Coastal Systems and Low-Lying Areas
- v Various sources including WaterAid (2020): Mission Critical; UNCTAD (2014): World Investment Report
- vi OECD (2017): Technical note on estimates of infrastructure investment needs
- vii Prüss-Ustün et al (2019): Burden of disease from inadequate water, sanitation and hygiene for selected adverse health outcomes: An updated analysis with a focus on low- and middle-income countries, International Journal for Hygiene, Environment and Health
- viii Global Water Partnership (2015): Water Insecurity a Drag on Global Growth
- ix ODI (2020): Just add water: a landscape analysis of climate finance for water
- x Based on WaterAid internal research
- xi Partly building on OECD (2019): Making Blended Finance work for Water and Sanitation
- xii OECD (2019): Making Blended Finance work for Water and Sanitation
- xiii 2030 Water Resources Group (2010): Charting Our Water Future
- xiv Blended Finance Taskforce (2018): Better Finance, Better World
- xv OECD (2020): Blended Finance in Least Developed Countries
- xvi ODI (2019): Blended Finance in the poorest countries: the need for a better approach
- xvii OECD (2019): Making Blended Finance work for Water and Sanitation
- xviii Climate Bonds Initiative: 2021 Green Forecast
- xix World Bank (2020): Private Participation in Infrastructure Database



S Y S T E M I Q

# Mobilising Capital for Water: Blended Finance Solutions to Scale Investment in Emerging Markets