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Financing Global Water Resilience

Unlocking Investments for Water Security

Lead authors
Pritish Kumar Acharya
Trisha Ravindranath
Ishleen Kaur
Nitin Bassi

Contributing authors
Alok Kumar Srivastava
Bishwadeep Ghose
Rachna Leveque
Samrat Gupta
William Wallock



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Executive summary

Water is a superconnector: Few resources influence as many dimensions of the economy and society, from food and energy to industry, health, and education. Investments in water can yield substantial returns, with every dollar invested in water and sanitation generating up to USD 4 in economic value (OECD 2026). Yet, the sector remains significantly underfunded relative to its importance. This disconnect between investment priorities and the scale of water-related needs is reflected in the persistent and worsening global water crisis. Billions of people continue to lack access to safely managed water and sanitation: About 2.2 billion lack safely managed drinking water and 3.5 billion lack safely managed sanitation (Madani 2026), while disruptions to the global hydrological cycle intensify. More than three-quarters of the world's population now lives in water-insecure countries, amid growing concerns about the possibility of global water bankruptcy (Madani 2026). The costs of delayed action are significant. Finance is needed not only to build and run water supply and sanitation infrastructure, but also treat used water and its reuse, cut leakage and other utility losses, manage floods and droughts, and protect the catchments, wetlands, and soils that sustain water sources. Yet, the sector remains significantly underfunded relative to its importance. An estimated 45 per cent of the world's GDP might be at risk from water scarcity by 2050 if this growing instability is not addressed, endangering food systems, public health, and economic prosperity (WEF 2025a).

Bridging this financing gap will require a substantial increase in capital flows, with an additional USD 500 billion needed annually to meet Sustainable Development Goal (SDG) 6 targets in low- and middle-income countries (LMICs) alone (GCEW 2024). However, the challenge extends beyond insufficient funding. Institutional fragmentation across the water value chain and catchments, high investment risks due to long payback periods, tariffs set below cost-recovery levels, and unclear or inconsistently enforced regulatory frameworks constrain water financing. Together, these factors create considerable uncertainty for investors. Climate-related risks further compound these challenges; by 2050, droughts, floods, and storms are expected to result in cumulative economic losses of about USD 5.6 trillion across seven major economies (GHD 2022).

These constraints are reflected in the sector's highly disproportionate investment profile: Public sources account for nearly 91 per cent of water sector spending, while private investment accounts for less than 2 per cent (Joseph et al. 2024). This imbalance reflects both the public-good character of water security and the barriers that deter private capital.

Closing this financing gap offers substantial benefits beyond water infrastructure and service delivery. Investments in water have the potential to improve public health, advance gender equality, strengthen food security, alleviate poverty, and build climate resilience and adaptation capacity. This policy brief draws on case studies from India and around the world to demonstrate how strategic project design, stronger institutions, and innovative financing approaches can transform water infrastructure from an underfunded public service into a more investable and financially sustainable asset. It also outlines emerging financing mechanisms and instruments, including resource-recovery revenue models, municipal and outcome-based bonds, payments for ecosystem services, and blended and catalytic financing. These approaches show how capital can be structured to align with the distinct risks, hydrological functions, and investment profiles of the water sector.

The case studies highlight three mutually reinforcing levers for unlocking investment in the water sector, as summarised in Table ES1.

> Investments in water have the potential to improve public health, advance gender equality, strengthen food security, alleviate poverty, and build climate resilience and adaptation capacity.

Figure ES1. Recommendations and interventions for scaling water finance

Recommendation	Intervention	Evidence in practice
Creating an enabling environment for investment through governance reforms	• Recognise water as a foundational input to economic value chains and create the conditions required to attract investment. • Establish independent bodies or country platforms to oversee water projects and facilitate private-sector participation. • Adopt ground-level water budgeting with differential, need-based pricing. • Empower local communities to actively participate in the water value chain.	Egypt's *programme for the Nexus of Water, Food and Energy* (NWFE+) Singapore's *Green Financing Framework* China's *Sponge City Programme*
Diversifying investment avenues and strategically deploying financial instruments	• Mobilise the appropriate blend of public, concessional, and private capital across the full spectrum of water projects, rather than focusing exclusively on water utilities. • Align financing with each project's nature, scale, maturity, revenue potential, risk profile, and public-good characteristics, while accounting for the hydrological functions the project is intended to protect or restore. These include water quality, soil-moisture retention, groundwater recharge, flood regulation, dry-season flows, as well as opportunities for water reuse. • Devise innovative, mixed-financing approaches and beneficiary-led models to support small-scale, local-level projects, such as nature-based solutions (NbS). • Ensure that impact reporting of any water project captures the broader environmental, social, and economic co-benefits and identifies opportunities to capitalise on or incentivise these benefits.	Peru's *Mechanisms of Compensation for Ecosystem Services* (MERESE) Australia's Murray–Darling Basin water market India's Tulsiwadi community toilets UK's NbS by Anglian Water
Improving bankability through effective project design and management	• Build bankability into water projects from the design stage, prioritising identifiable revenue streams and resource-efficiency benefits rather than treating financial viability as an afterthought. • Identify financial risks early and, at the project design stage, allocate execution and operational risks to the parties best equipped to manage them. • Address bottlenecks that stop allocated capital from being spent, such as weak project preparation and limited implementation capacity. • Factor potential climate risks, and the cost of managing them, into the design and lifecycle costing of water infrastructure and utilities.	India's Muzaffarpur faecal sludge treatment plant (FSTP) The Philippines' East Zone Concession by Manila Water Company

Source: Authors' compilation based on the case studies in Sections 3-5: Egypt NWFE (OECD 2025a; Ministry of Planning, Economic Development, and International Cooperation 2024); Singapore PUB (PUB 2025); China Sponge City Programme (Liang 2018; Chan et al. 2022); Peru MERESE (OECD 2021; OECD 2022a); Murray-Darling Basin (Grafton and Horne 2014); Tulsiwadi and Muzaffarpur (Water for People); Anglian Water (Anglian Water Group 2024a, 2024b; CISL 2019); Manila East Zone (IFC 2014).

Together, these levers can help mobilise the right blend of public, concessional, and private finance tailored to different water-system functions. Governments can establish enabling regulatory frameworks, fund essential public functions, provide targeted risk capital, and support project preparation, thereby creating the conditions for predictable revenues and private investment where appropriate. Financial institutions can structure and scale suitable financing instruments, while utilities and project developers can design financially and operationally viable projects. Collectively, these actions can help move the sector beyond financing water towards making water investable.

1. Introduction: Why is financing water so complex?

Water is at the core of almost all global development and climate challenges, yet financing remains a major obstacle. This section examines why water requires urgent financial attention by exploring its interconnections with other sectors and highlighting the scale and urgency of the challenges that make closing the water financing gap essential.

1.1. Water as a superconnector

Water is a superconnector (UN-Water 2026); it is essential to all life on Earth and has always played a central role in the prosperity, sustainability, and well-being of populations. As dependencies on water evolve, its links with the clean energy transition, climate mitigation and adaptation, food systems, digitalisation, circular economies, and the protection and restoration of land and habitats are becoming increasingly important (UN-Water 2026). There is therefore growing recognition that water is a vital entry point for accelerating progress across multiple sustainable development outcomes (UN-Water 2026). Under the 2030 Agenda for Sustainable Development, progress towards most of the other 16 Sustainable Development Goals (SDGs) depends directly or indirectly on adequate water availability (GCEW 2024). Water will remain essential to social cohesion and economic progress, supporting human development, driving economic growth, reducing poverty, and improving quality of life for present and future generations (Joseph et al. 2024).

From an ecological and economic perspective, the entire hydrological cycle, including 'blue water' in rivers, lakes, and aquifers and 'green water' stored in soils and vegetation, which generates around half of the rainfall on land, forms the foundation of water security (GCEW 2024). Yet, the benefits of water investments are often generated across scales that do not align with a single utility, farm, city or infrastructure asset. Upstream land use and ecosystem conditions can influence downstream water quality, flood risk, groundwater recharge, and the reliability of water supplies (GCEW 2024). Similarly, urban demand, agricultural abstraction, and wastewater discharge affect wider catchments and aquifers. The catchment, basin, and landscape scales therefore represent a critical but often overlooked 'missing middle' between national policy and individual projects. Insufficient attention to governance and investment at these scales has contributed to the degradation and depletion of water ecosystems globally, water assets that are not climate-resilient, inequitable access, and increasing societal vulnerability to the looming water crisis. Water-security outcomes must therefore be planned, governed, measured, and, in many cases, financed collectively at these scales.

The widespread undervaluation of water has compounded into limited financing opportunities across the water value chain. Addressing this challenge requires deliberate action and dedicated financing, not only at the project level but also at the broader water ecosystem level. As the global water financing landscape evolves, new governance and financing approaches are being developed and tested. In shaping the 2030 and post-2030 global water agenda, stronger governance and greater financial attention will be essential to managing and valuing this vital resource and leveraging its cross-sectoral importance to unlock finance.

1.2 Why is there an urgent need for financing water?

The urgency of water financing is underscored by the scale of the global water crisis. The world has entered an era of global water bankruptcy (Madani 2026), and the hydrological cycle is, for the first time in human history, reportedly out of balance with some water systems already damaged beyond realistic prospects of full recovery. Freshwater availability is no longer assured as decades of poor management and undervaluation of water have damaged freshwater and terrestrial ecosystems and contributed to the ongoing degradation of water resources (Madani 2026).Nearly three-quarters of the world's population lives in countries classified as water-insecure or critically water-insecure (Madani 2026). Over 2.2 billion people lack access to safely managed drinking water, 3.5 billion lack access to safely managed sanitation, and 4 billion experience acute water scarcity for at least one month each year (Madani 2026). The consequences of this crisis extend across economic and societal systems that depend on reliable water availability.

Water security is closely tied to economic stability, with 45 per cent of global GDP at risk from water scarcity by 2050 (WEF 2025a). The economic consequences are likely to be particularly severe in low- income countries (LMICs). High-income countries may experience an average GDP decline of 8 per cent by 2050, while low-income countries could face declines of 10–15 per cent, driven by changing precipitation patterns, rising temperatures associated with climate change, declining total water storage, and inadequate access to clean water and sanitation (GCEW 2024).

Food systems are similarly exposed to growing water insecurity. Agriculture accounts for approximately 72 per cent of freshwater withdrawals worldwide (FAO 2025), placing agricultural heartlands under increasing pressure as water availability declines. More than half of global food production takes place in regions where total water storage, including surface water, soil moisture, snow, ice, and groundwater, is projected to decline or is already unstable (Madani 2026). Almost 3 billion people also live in these regions (Madani 2026). Groundwater, which supplies approximately half of the water withdrawn for domestic use globally (United Nations 2022) and accounts for an estimated 43 per cent of consumptive irrigation water use, faces growing pressure from rapidly depleting aquifers, posing significant risks to food production and drinking water security (Siebert et al. 2010).

New economic activities are also placing additional pressure on water resources. The expansion of modern digital infrastructure, including data centres, is expected to increase industrial water demand, further straining already depleting water resources. Globally, data centres consume approximately 560 billion litres of water annually, equivalent to the domestic water needs of a city with around 8 million residents (Tripathi et al. 2026).

Under a business-as-usual (BAU) scenario, escalating water risks could trigger wider societal crises, exacerbated by growing inequalities within and between nations and conflicts over shared transboundary water resources. These pressures could lead to nutritional deficiencies among vulnerable populations, the accelerated spread of diseases, and forced migration (United Nations 2024). The cost of inaction would therefore extend beyond individual water-related impacts, posing systemic risks to global socioeconomic stability.

Water in the Global Goal on Adaptation (GGA): Growing international attention to water

As the world navigates the changing climate, the effectiveness of adaptation strategies in reducing climate-related risks declines significantly as temperatures rise. Water-related adaptation strategies, assessed by the share of projected climate risk they avoid, have been found to be 90 per cent effective under warming scenarios below 1.5°C, but their effectiveness falls to 69 per cent at 2°C and just 46 per cent at 4°C (UNEP 2025). As global temperatures approach or exceed these thresholds, investment in water as a climate adaptation measure becomes increasingly urgent.

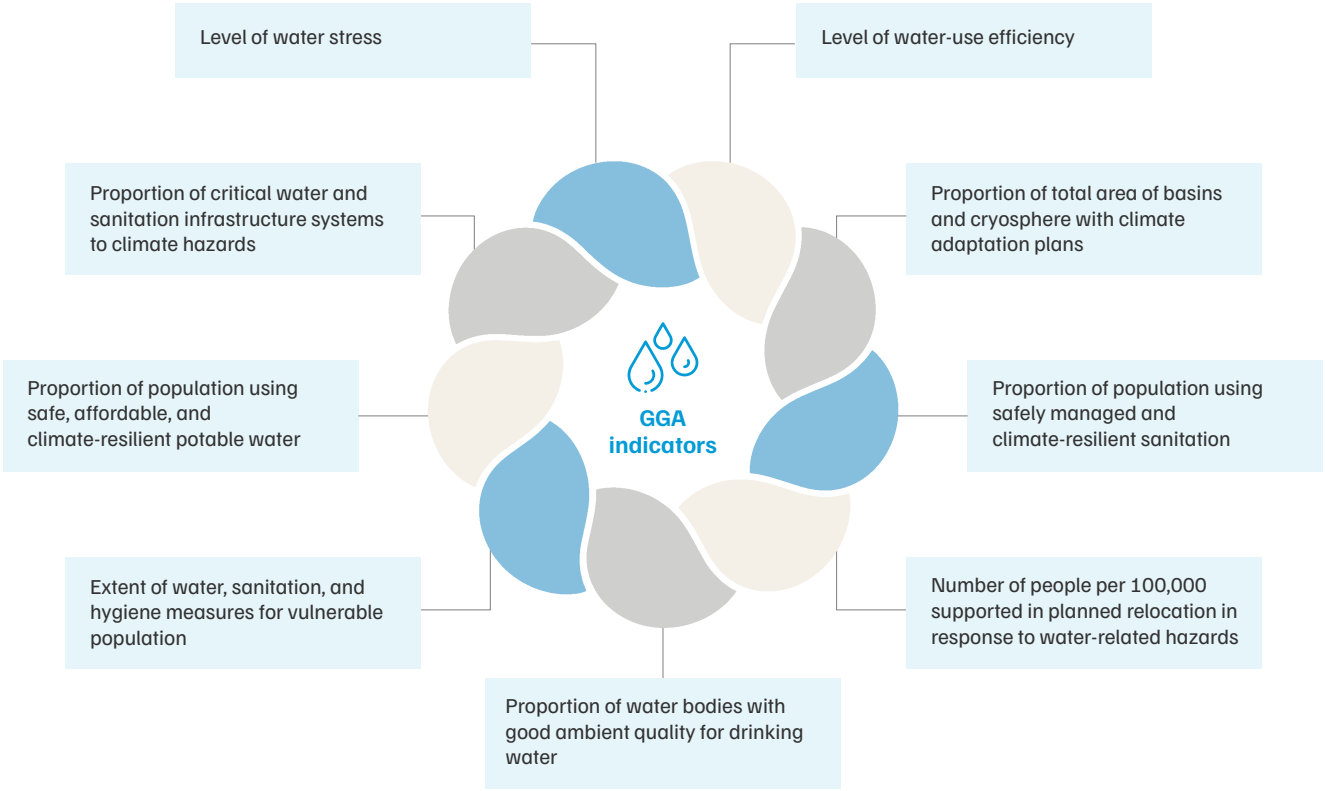
The GGA, a shared commitment under Article 7.1 of the Paris Agreement to enhance adaptive capacity, strengthen resilience, and reduce vulnerability to climate change, reflects this urgency (Hussein et al. 2025). First proposed by the African Group of Negotiators in 2013 and formally established in 2015, the GGA aims to elevate the political priority and financing of adaptation to a level comparable with mitigation. It promotes timely, scalable, and context-specific adaptation efforts that respond to the needs of vulnerable populations and local conditions, guided by measurable targets (Hussein et al. 2025).

Two outcomes of the 30th Conference of the Parties (COP30) in Belém advanced the water-related adaptation agenda: the adoption of 59 Belém Adaptation Indicators, including nine water-related indicators (Figure 1), and the introduction of the *Belém–Addis Vision*, a two-year initiative to coordinate policies and operationalise these indicators (Duluk and Lamhauge 2026).

There are two specific ways in which the inclusion of water in the GGA indicators matters for water financing. First, while allowing for context-specific interventions that are appropriate for local requirements, quantitative indicators provide funders and investors, both public and private, with a common framework to assess and compare water-centric investment opportunities. Second, a globally monitored goal holds governments accountable for prioritising water within their respective national climate policy agendas. The next challenge is turning this recognition into real investment, which depends on how well these indicators are applied and coordinated at all policy levels.

Against this backdrop, financing water extends beyond addressing infrastructure deficits or closing sectoral funding gaps. It is increasingly central to managing interconnected risks to water security, food systems, economic development, climate resilience, and human well-being. The scale and cross-sectoral nature of these challenges underscore the need to increase both the volume and effectiveness of water investments while improving how water is valued, governed, and managed. This policy brief highlights the investment needs of the water sector and identifies approaches to de-risk water investments and mobilise an appropriate blend of public, concessional, and private finance to help close investment gaps in climate-resilient water infrastructure and services, ultimately advancing water security for all.

Figure 1. Nine water-related Global Goal on Adaptation indicators reflecting international policy attention to water security



Source: UNFCCC (United Nations Framework Convention on Climate Change). 2025. Global Goal on Adaptation. Draft Decision -/CMA.7. Proposal by the President. FCCC/PA/CMA/2025/L.25. Conference of the Parties Serving as the Meeting of the Parties to the Paris Agreement, Belém, November 2025. United Nations Framework Convention on Climate Change.

1.3 Structure of the brief

This brief is structured to move from the problem to practice. Section 1 sets the context, examining water's role as a superconnector across the economy and the SDGs and the complexities of financing it. Section 2 presents the scope and methodology. Section 3 examines the key challenges shaping the global water finance landscape, from structural market barriers to gaps in bankable project pipelines. Section 4 sets out the opportunities and co-benefits of greater investment in water, from cross-sectoral value and socioeconomic returns to climate resilience and new sources of capital. Section 5 presents case studies of financing instruments, institutional approaches, and innovations being tested and scaled in India and globally. Section 6 sets out actionable recommendations for policymakers, financiers, and other stakeholders to bridge the gap between water's economic importance and current investment levels. Section 7 concludes by synthesising the key findings and recommendations.

2. Scope and methodology

The global water financing landscape is vast and complex, with a range of established and emerging financing models and instruments deployed worldwide. This policy brief draws on published literature on water finance to synthesise the principal challenges and opportunities shaping this landscape. In doing so, it seeks to establish both the magnitude of the financing challenge and the opportunities emerging as global attention increasingly focuses on water.

The brief is informed by a series of consultations, beginning with a roundtable convened by the Council on Energy, Environment and Water (CEEW) titled 'Bridging the Gap: Financing Global Water Resilience' during London Climate Action Week 2026. The roundtable brought together international experts from multilateral development banks (MDBs), research institutes, and private financial institutions. The session explored approaches to structuring bankable water revenue



Image: CEEW

Participants at CEEW's roundtable, 'Bridging the Gap: Financing Global Water Resilience', during London Climate Action Week , 22 June 2026.

streams, deploying effective risk-sharing mechanisms, and transitioning towards large-scale institutional financing models,which informed this brief. These conversations continued through online discussions throughout the brief's development. The brief also incorporates contributions from partner organisations and experts with on-the-ground knowledge and experience of working with communities, representing perspectives from both the Global North and the Global South and expertise across different dimensions of water and climate.

The deployment of financing instruments across the water value chain is shaped by multiple externalities. The background research therefore involved a structured review of financial instruments deployed globally, examining their financing structures, enabling conditions, observed outcomes, and barriers to wider deployment. The brief draws on 15 case studies of financing approaches and instruments adopted across different geographies and sectors. Each case study examines the underlying governance arrangements and the regulatory and facilitative measures adopted to create an enabling environment and bring stakeholders together.

The scope is deliberately varied rather than exhaustive, covering a range of financial instruments while recognising that emerging approaches continue to drive interventions across the global water sector. The case studies extend beyond conventional infrastructure funding to include nature-based solutions (NbS), interventions targeting water resources and ecosystems, projects at different scales, and end-user-led financing models. Each examines how the instrument was used to address the water financing gap, how it has been deployed at scale, and the governance approaches that have enabled its implementation.

The analysis also recognises the absence of a clear, comprehensive estimate of total investment requirements for the water sector as a whole. Existing studies largely focus on specific sub-sectors, such as water supply, sanitation, wastewater, or water resources, making it difficult to derive a consolidated estimate of the overall financing gap and investment requirement.

Finally, the brief presents recommendations based on these financing solutions and their enabling conditions to help close the global financing gap and attract greater investment in water.



Image: iStock

Rural water supply systems that reach communities on the ground, need sustained, well-structured financing.

3. Existing challenges in the global water financing landscape

Despite growing recognition of water's importance to ecological and socioeconomic stability, the sector continues to attract a disproportionately small share of global finance. Estimated total annual public spending on the water sector, encompassing four sub-sectors – water supply and sanitation (WSS), irrigation, water transport, and hydropower – stands at USD 164.6 billion, equivalent to just 0.5 per cent of global GDP (in 2017 prices; Joseph et al. 2024).

New financial mechanisms and instruments are being developed globally to mobilise private capital, but they remain limited. In the bond market, water- or blue-labelled bonds account for less than 1 per cent of the rapidly growing global sustainable bond market, highlighting the limited mobilisation of dedicated capital for water-related investments (OECD 2026). The availability and deployment of blended finance, concessional finance, blue bonds, climate finance, and other risk-sharing instruments remain inadequate relative to the scale of investment required (OECD 2026).

Water spending and financing needs are also continually reshaped by growing pressures from climate change, food production, the energy transition, and population growth. The challenges facing water finance therefore extend beyond the availability of capital to the absence of enabling conditions and market-based mechanisms required to channel investment into the water sector at scale. Some of the key challenges are:

A. The water financing gap is consistently widening

The world is not on track to achieve SDG 6 on clean water and sanitation, largely because of insufficient investment in the sector. Meeting SDG 6 would require an additional USD 500 billion annually in LMICs (GCEW 2024). Globally, the total annual cost of achieving SDG 6 exceeds USD 1 trillion, or about 1.21 per cent of global GDP (OECD 2022b). Yet, across the 68 countries assessed by the World Bank, water accounted for just 1.2 per cent of total government spending over 2009–20, far behind transport, energy, and human development (Joseph et al. 2024). Several better-funded sectors, particularly energy and agriculture, are themselves major consumers of water, placing additional pressure on the resources that sustain and supply these sectors.

Insufficient funding is compounded by sectoral fragmentation: energy and agriculture are better funded yet depend heavily on water, but water, energy, food, and ecosystems are usually planned and financed separately. One emerging global approach to addressing this fragmentation, interconnecting the multiple benefits of water and enabling a more balanced allocation of financial resources is the Water–Energy–Food–Ecosystems (WEFE) nexus. By recognising the interdependencies between these sectors, the nexus approach positions water not simply as a sectoral investment but as a multiplier for energy security, food systems, and broader development outcomes. Recognising water's broader value and monetising its multiple co-benefits can help unlock more diverse financing sources for the sector.

Egypt's *Country Platform for the Nexus of Water, Food and Energy* (NWFE) offers a compelling example of this approach. Launched in 2022 under Egypt's COP27 Presidency, NWFE was designed as a strategic blended-finance mechanism to systematically mobilise public, private, and concessional capital towards nationally prioritised investments across the water, food, and energy sectors (OECD 2025a).

> Recognising water's broader value and monetising its multiple co-benefits can help unlock more diverse financing sources for the sector.



Box 1. Case study: *Country Platform for the Nexus of Water, Food and Energy* (NWFE) (Egypt)

Sub-sector: Cross-sectoral (water, food, and energy)

Instrument used: Blended finance across interconnected water, energy, and food outcomes

What worked: NWFE illustrates an approach to financing water security by addressing a critical constraint in the water sector: the shortage of investment-ready projects. NWFE brings government, development finance institutions, and private investors together on a common platform, aligning financing and technical assistance across four pillars, including water, energy, food, and transport (under NWFE+).

Under the water pillar, Egypt is developing five renewable-energy-powered desalination plants through public–private partnerships (PPPs), expected to provide an additional 525,000 cubic metres of water per day. Rather than relying on commercial capital for early-stage project preparation, NWFE has used catalytic grant financing to improve project bankability. The African Development Bank (AfDB), the lead partner for the water pillar, mobilised USD 0.575 million from the African Water Facility (AWF) for upstream technical studies and project design, including tariff, cost, and financial viability studies, as well as USD 0.38 million from the Middle-Income Countries Technical Assistance Fund (MIC TAF) for environmental and social assessments and workforce capacity building. Both grants were received by Egypt's Ministry of Housing, Utilities and Urban Communities.

This approach demonstrates a layered financing model: grants fund project preparation across multiple sectors; concessional finance is intended to address viability and affordability gaps; transparency measures, such as public progress reporting, help reduce perceived risks for private investors; and commercial debt and equity are subsequently expected to be mobilised through the PPPs.

Four features of this integrated governance and financing approach stand out:

1. Integrated governance enables integrated financing. By bringing water, energy, and food priorities onto a common platform, NWFE has helped move beyond the financing of water as a standalone sector. Investments can be structured around cross-sectoral interdependencies and co-benefits, strengthening the investment proposition while advancing multiple development outcomes.

2. Country ownership anchors the platform. Strong government leadership brings development partners and private investors together around nationally prioritised projects, reducing fragmentation and ensuring that financing contributes to clearly defined water, energy, and food security outcomes.

3. Project preparation serves as an investment-enabling instrument. Catalytic grants address the early-stage financing gap by funding the technical, financial, environmental, and social studies required to transform project concepts into investment-ready proposals.

4. Financing is sequenced towards bankability and a final investment decision (FID). Rather than treating grants, concessional finance, and commercial capital as separate funding streams, NWFE structures them as successive financing layers.

Source: OECD (Organisation for Economic Co-operation and Development). 2025a. Egypt's Country Platform: Nexus of Water, Food and Energy (NWFE) Program. Blended Finance Case Studies. OECD Publishin; Ministry of Planning, Economic Development, and International Cooperation. 2024. Egypt's Nexus of Water, Food and Energy from Pledges to Implementation: Progress Report No. 2. Arab Republic of Egypt.

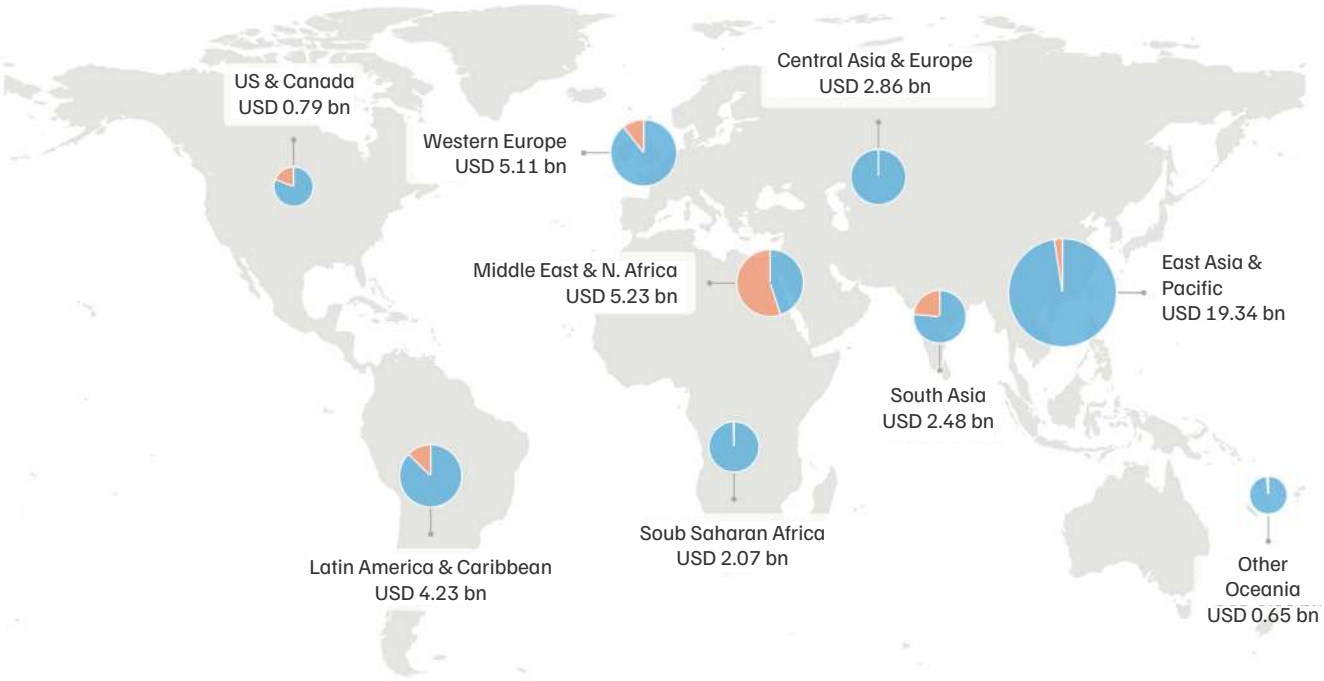
B. The enabling environment for water finance remains underdeveloped

Nearly 91 per cent of global water spending is publicly financed, while private investment accounts for less than 2 per cent, indicating limited private sector participation (Joseph et al. 2024). According to CPI's Global Landscape of Climate Finance, East Asia and the Pacific account for the largest share (USD 19.34 billion) of the approximately USD 45 billion of climate finance tracked for water and wastewater globally in 2024 (CPI 2026; Figure 2).The Middle East and North Africa are a notable exception, with private finance accounting for more than half of the region's USD 5.23 billion; in most other regions, private finance still occupies a smaller share. South Asia (USD 2.48 billion) and sub-Saharan Africa (USD 2.07 billion), among the regions with the greatest water stress and lowest incomes, receive relatively limited financing flows, largely from public sources. The policy challenge is therefore also to deploy public finance more strategically: to fund essential public functions, such as universal access, ecosystem stewardship, and monitoring; protect affordability and equity; prepare projects; absorb risks that markets cannot price efficiently; and mobilise private capital where appropriate and aligned with public water-security objectives.

Within this predominantly publicly financed sector, limited technical, financial, and institutional capacity constrains the development of credible, investment-ready projects. Fragmented institutional responsibilities further compound the problem. Mandates are distributed across the water value chain, from water resources to supply, sanitation, wastewater, groundwater, and ecosystem management, resulting in fragmented planning and investment.

Fragmentation also occurs across spatial boundaries. Financing is commonly organised around administrative boundaries, sectoral mandates, or individual assets, while water risks and benefits often operate at the scale of catchments, groundwater systems, and connected landscapes. This creates a 'missing middle' between national strategies and project-level transactions: interventions that protect upstream water sources, reduce sediment or pollution, improve soil-moisture retention, manage aquifer recharge, or reduce downstream flood risk may benefit multiple users but lack an individual entity able or willing to pay for them. Addressing this gap requires investment planning at the basin and landscape scales, shared governance, and mechanisms to pool contributions from public authorities, utilities, water users, land managers, and other beneficiaries.

Figure 2. Regional allocation of financial resources to water and the public–private funding split



Source: Authors' analysis using 2024 data from CPI (Climate Policy Initiative). 2026. Global Landscape of Climate Finance. Climate Policy Initiative.

These constraints are compounded by the characteristics of water as a resource. Water flows across geographical boundaries, making exclusion difficult and property rights challenging to define. This creates conditions conducive to the 'tragedy of the commons', where unregulated use can lead to overuse and depletion. The sector also faces challenging market conditions: private entrants must negotiate production volumes, pricing, and complex regulatory terms with state agencies. As a result, public institutions retain a central role in governing and financing water systems, even as institutional capacity gaps constrain their effectiveness.

The sector's high-risk profile further limits private participation. Water infrastructure typically requires substantial upfront investment, with capital committed over extended periods. Long investment horizons can make water projects less attractive than investments in sectors offering faster or more predictable returns. At the same time, water services often generate insufficient revenue to recover infrastructure costs, further increasing perceived investment risks.

Cost recovery presents an additional challenge. Many utilities, particularly in developing countries, struggle to recover even their operation and maintenance (O&M) costs, limiting their ability to generate internal financial resources. Operational inefficiencies compound this problem: non-revenue water, which includes losses from leakage, theft, metering errors, and billing failures, amounts to an estimated 126 billion cubic metres annually worldwide, valued at approximately USD 39 billion, and directly undermines cost recovery (Liemberger and Wyatt 2019).

An underlying challenge is the difficulty of capturing the full value of water investments. Much of the social and environmental value generated by these investments is not reflected in financial returns, creating a mismatch between developmental value and commercial viability. Unlike carbon, water does not have a universally fungible unit of impact. Its value is highly dependent on location, timing, quality, and institutional context, making it difficult to standardise water-related impacts into tradable units comparable to emissions reductions.

C. Investments are limited to conventional infrastructure projects

Water-sector spending tends to concentrate on conventional grey infrastructure, often favouring better-served urban and economically productive areas over remote, rural, and underserved communities. Even where investment needs are well established, many water projects focused on ecosystem restoration, local water-source sustainability, and NbS struggle to attract large-scale financing, or to deploy available resources effectively enough to demonstrate long-term impacts.This creates a fundamental imbalance: while substantial resources are directed towards water infrastructure, the natural systems and water sources underpinning its sustainability remain inadequately protected. Over time, this can undermine the resilience, effectiveness, and long-term viability of water investments themselves.

Increasingly, water supply projects are incorporating measures to sustain local water sources, along with dedicated financing arrangements. One example is the inclusion of payments for ecosystem services in water tariffs. Peru's *Mechanisms for Compensation for Ecosystem Services* (MERESE) illustrate this approach, integrating source restoration and protection into water supply and service delivery projects while maintaining a continuous revenue stream (OECD 2022a).

> Water services often generate insufficient revenue to recover infrastructure costs, further increasing perceived investment risks.



Box 2. Case study: *Mechanisms for Compensation for Ecosystem Services* (MERESE) (Peru)

Sub-sector: Watershed management

Instrument used: Payment for ecosystem services/tariff systems

What worked: Peru introduced MERESE, under which a small charge is added to water bills. Water users contribute to a fund managed by utilities that finances upstream watershed conservation and restoration. The model was subsequently supported by national regulations and public investment frameworks, allowing utilities to recognise natural ecosystems as part of water infrastructure. The approach established a recurring financing stream rather than relying solely on grants, while directly linking payments to water-security benefits through investments in upstream ecosystem protection.

Initial pilots generated evidence and built public and government support, helping Peru subsequently recognise NbS within water and public investment planning and enabling the model to scale. This also demonstrated that water tariffs can be designed not only to recover costs but also to create incentives and finance investments that improve long-term water-system performance and resilience. The model's success depended on several enabling conditions: a legal and regulatory basis for utilities to collect and ring-fence tariff revenues, along with institutions capable of designing, implementing, and overseeing upstream investments. It also required hydrological evidence at the basin level, transparent reporting to sustain public willingness to pay, and agreements with upstream communities to ensure that conservation actions were feasible and locally supported.

The MERESE model illustrates a broader shift in recognising watersheds, wetlands, soils, and floodplains that regulate water quality, groundwater recharge, flood flows, and dry-season availability as integral components of water-service infrastructure rather than merely sources of environmental co-benefits. Financing decisions should therefore assess how built and natural infrastructure function together at the catchment scale, recognising that outcomes depend on local hydrogeology, land use, ecosystem conditions, maintenance, and governance.

Source: OECD (Organisation for Economic Co-operation and Development). 2021. Water Governance in Peru. OECD Studies on Water. OECD Publishing; OECD (Organisation for Economic Co-operation and Development). 2022. Driving Performance at Peru's Water and Sanitation Services Regulator. The Governance of Regulators. OECD Publishing.

D. Climate change and ecosystem loss are reshaping the risk profile of the water sector

Climate change and ecosystem loss, two major environmental threats, are directly affecting the water sector by driving substantial changes in the global hydrological cycle. Increasingly frequent and intense droughts, floods, and storms are disrupting water availability and placing greater pressure on water infrastructure. Addressing these risks requires more resilient infrastructure design and construction, alongside climate-proofing and effective risk management. Recent disasters demonstrate the substantial economic costs of failing to account for these risks.

Climate-induced variability in water availability also poses direct financial risks to water infrastructure. Droughts, floods, and storms could cause cumulative economic losses of about USD 5.6 trillion across seven major economies by 2050 (GHD 2022). Yet, adaptation finance remains far below estimated requirements, with the water sector receiving only a small share, around 3 per cent of total climate finance flows (OECD 2025b).

Changes in water availability and the frequency and intensity of extreme events can affect utility performance, increase O&M costs, disrupt service delivery, and undermine projected revenues. As a result, infrastructure

not designed to withstand future climate conditions risks underperforming, becoming stranded, or requiring costly retrofits over its lifetime. These risks create uncertainty around the long-term financial performance of water investments, making projects less attractive to private investors and further constraining private capital flows into the sector.

Singapore provides an example of how a consistent enabling framework, strong government ownership, and the integration of climate risk management can support private sector interest in water infrastructure and utility financing. Singapore's National Water Agency, PUB, has issued two green bonds totalling SGD 1.125 billion (USD 880 million) since 2022, to finance and refinance eligible green projects. Proceeds are allocated according to the eligibility criteria of its *Green Financing Framework*, which is aligned with the Singapore–Asia Taxonomy and supports infrastructure projects for sustainable water and wastewater management (WEF 2026).



Box 3. Case study: *Green Financing Framework* (PUB, Singapore)

Sub-sector: Water supply and wastewater

Instrument used: Green bonds under PUB's Green Financing Framework

What worked: Singapore's approach integrates climate risk considerations into water infrastructure financing through a combination of project selection, resilience-oriented asset design, decarbonisation criteria, governance, proceeds tracking, and impact reporting. PUB's green bonds finance water projects that support water security while simultaneously meeting defined environmental and climate-performance requirements.

From an enabling-environment perspective, PUB's *Green Financing Framework* provides investors with clear eligibility criteria. Water projects are assessed against measurable targets that emphasise environmental performance and climate mitigation. Eligible water and wastewater projects must generally demonstrate outcomes such as net-zero or reduced greenhouse gas emissions compared with a business-as-usual baseline, pollution prevention, water recycling and resource conservation, reduced waste generation, and the prevention of water losses in collection, storage, and distribution projects. Moreover, PUB's Sustainability Committee acts as an internal climate and sustainability filter: project departments nominate potential assets, the Committee tests eligibility against different adaptation and mitigation metrics, environmental and social risks are screened, and approved projects are earmarked for green-finance proceeds. External auditing adds a further layer of assurance, mitigating the risk of greenwashing.

PUB adopts a lifecycle-cost approach supported by climate-risk and operational metrics, accounting for capital, operating, and renewal costs. Climate risks are assessed using relevant water-security, energy, flood, and coastal-resilience indicators.

For private investors, the *Green Financing Framework* helps position water infrastructure as a credible, measurable, and investable green asset class. It reduces information-related risks, strengthens confidence in the appropriate use of proceeds, and provides evidence of environmental impacts. The framework also ensures that financial implications of climate risks are considered during project planning and asset selection, before proceeds are allocated, rather than being addressed solely through post-construction reporting.

Source: PUB, Singapore's National Water Agency. 2025. Green Bond Report for the Financial Year 2024. PUB, Singapore's National Water Agency.

In summary, the fundamental challenge facing global water finance is not simply mobilising more capital but establishing the conditions needed to deploy it at scale and sustain investment. This requires moving beyond fragmented, project-by-project financing towards robust, end-to-end investment pipelines; strengthening risk allocation and de-risking instruments; creating a supportive policy ecosystem for financially sustainable and climate-resilient water utilities; and improving alignment across public, private, and global climate finance streams. Addressing these constraints also creates opportunities to expand the availability, accessibility, and diversity of water finance while strengthening the systems, institutions, and governance frameworks that underpin effective and sustainable water management. The following section examines these emerging opportunities and the pathways through which they can help unlock greater investment in the sector.

4. Opportunities and co-benefits of greater investment in the water sector

Global investment in water infrastructure currently stands at approximately USD 377 billion annually, equivalent to USD 47 per capita. This is well below the estimated annual requirement of approximately USD 874 billion, or USD 109 per capita, equivalent to just under 1 per cent of global GDP in 2025. Bridging this gap by 2040 would require an additional USD 497 billion in annual investment, or approximately USD 62 per capita (WEF 2025b). The scale of these investment needs also presents an opportunity to reposition water as a strategic investment sector rather than solely a public expenditure priority.Water solutions can help investors manage climate risks amid market volatility and economic instability, given water's critical role in the global economy, its links to climate change, and its potential to diversify investment portfolios (WEF 2025a).

Water investments can generate benefits across multiple development and economic outcomes, deliver climate mitigation and adaptation co-benefits, and reduce financial risks in water-dependent sectors. Several opportunities can therefore be leveraged to strengthen project bankability, diversify financing sources, and mobilise investment at scale.

A. Positioning water as a cross-sectoral investment opportunity

Investments in water generate benefits across agriculture, energy, urban development, health, livelihoods, and ecosystems, creating opportunities to capture value beyond the immediate water sector. Integrating water considerations into project design and impact monitoring across these sectors can demonstrate broader economic and social returns and strengthen the bankability of water-related investments (OECD 2026). Improved water security can also deliver significant benefits for health, productivity, livelihoods, and societal resilience, particularly for vulnerable populations and LMICs.

> The scale of investment needs also presents an opportunity to reposition water as a strategic investment sector rather than solely a public expenditure priority.

B. Making a socioeconomic case for water investments

Water infrastructure projects draw on and benefit a wide range of industries, from construction and engineering to manufacturing, digital technologies, and professional services, generating extensive indirect and induced economic effects. The World Economic Forum's (WEF) socioeconomic impact model estimates that closing the investment gap could generate an additional USD 20.1 trillion in economic output and support the creation of more than 206 million full-time jobs worldwide by 2040. On an annual basis, this translates into approximately 14 million new jobs. (WEF 2025b). Together, these estimates illustrate the potential economic value of investing in water security.

Beyond direct economic returns, water investments can generate additional social and environmental benefits. Improved access to safe water and sanitation reduces the time and energy households spend collecting water, particularly in underserved regions, freeing up time for employment, education, and other productive activities, especially for women and girls,who in many households carry most of the responsibility for collecting water (WHO and UNICEF 2023). Healthier populations experience lower morbidity and mortality associated with waterborne diseases, enabling more consistent participation in economic activities (GCEW 2024). Sustainably managed water infrastructure also supports healthier ecosystems and biodiversity, strengthening nature's capacity to provide the goods and services on which economies and societies depend.

South Africa's *Working for Water* (WfW) programme demonstrates this relationship between water security, ecosystem health, and socioeconomic returns by illustrating how the rehabilitation of water-related ecosystems can simultaneously generate employment and community benefits (Martin 2018).

C. Investing in water security is investing in climate resilience

Water is fundamental to both climate adaptation and mitigation, making investment in water systems central to building climate resilience and supporting broader low-carbon transitions. According to CPI's *Global Landscape of Climate Finance*, water and wastewater accounted for nearly 40 per cent of tracked climate adaptation finance in 2024 (CPI 2026; Figure 3), while their share of mitigation finance remained small, with energy, transport, buildings, and infrastructure accounting for most mitigation finance.



Box 4. Case study: Working for Water (South Africa)

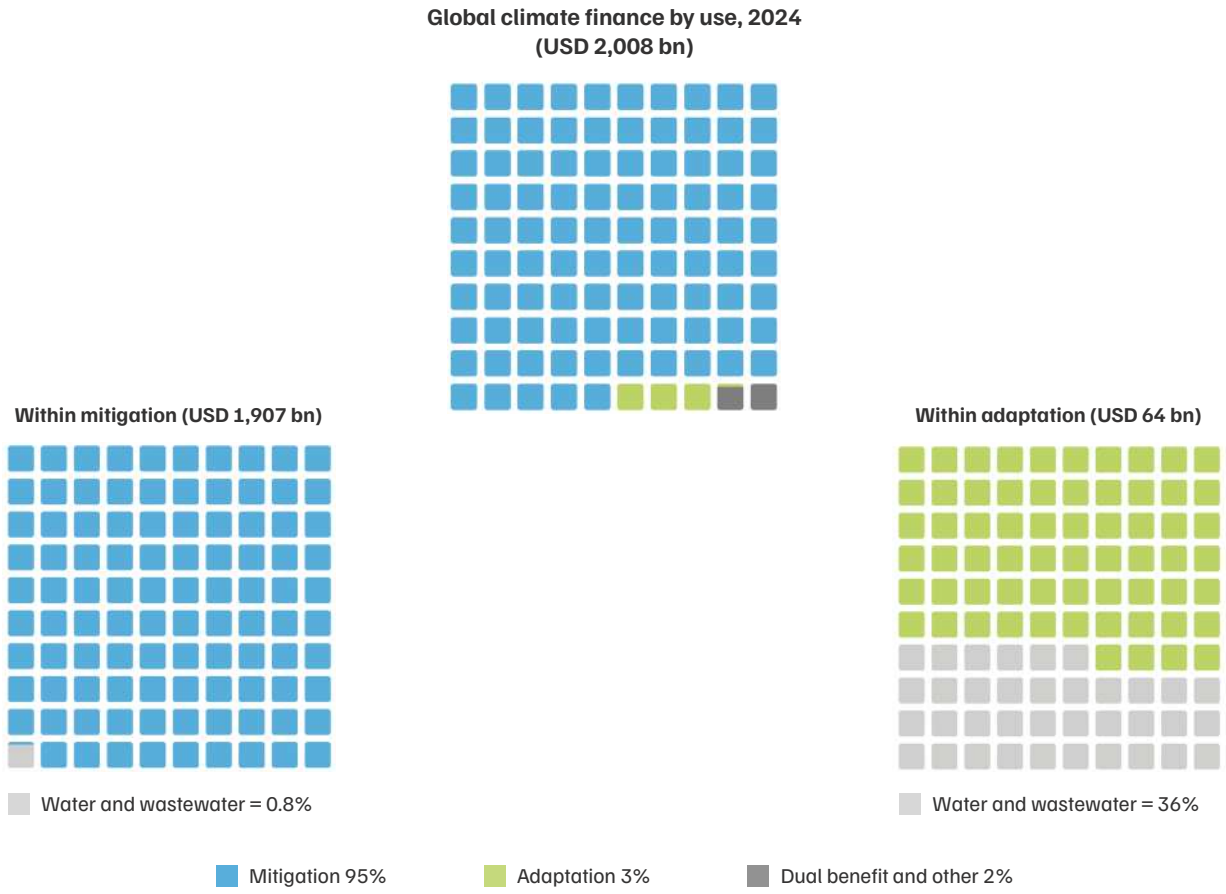
Sub-sector: Ecosystem restoration and climate resilience

Instrument used: Payment for ecosystem services (PES)/public works programme, complemented by private-sector contributions

What worked: The programme linked ecosystem restoration with employment generation through the labour-intensive removal of invasive plants, simultaneously improving water availability, restoring ecosystems, and supporting vulnerable communities. By 2017, it was generating approximately 50,000 jobs annually, operating more than 300 projects across all nine provinces, and had cleared over 3 million hectares while training and employing more than 300,000 people. Clearing invasive plants along riverbanks was estimated to increase annual streamflow by nearly 46 million cubic metres, demonstrating a tangible water-security benefit. Funding came primarily from government poverty-relief funds, supplemented by contributions from private companies that recognised the business value of invasive plant removal. The programme also involved bringing local beneficiaries into the ambit of financial contributions and decision-making. On their own land, local farmers contributed around 60 per cent of WfW's costs for removing invasive species, while the forestry industry provided support through planning, mapping, vehicle donations, and training.

Source: Martin, Ben. 2018. "Working for Water in South Africa." Green Economy Coalition, November.

Figure 3. Share of water and wastewater in global climate finance



Source: Authors' analysis using 2024 data from CPI (Climate Policy Initiative). 2026. Global Landscape of Climate Finance. Climate Policy Initiative.

Note: Each cell = 1 per cent of the panel's total.

The climate crisis is, to a large extent, a water crisis. Therefore, investing in water is a critical strategy for managing climate-related risks as the global hydrological cycle becomes increasingly disrupted. From prolonged droughts to extreme floods, climate change is intensifying water-related risks across sectors and geographical areas. Water investments can also deliver multiple climate mitigation and adaptation co-benefits. Investments in resilient water systems have supported drought and flood resilience, ecosystem restoration, resource efficiency, and reduced climate vulnerability. Demonstrating these benefits can strengthen the case for climate funds, creating opportunities to access financing beyond conventional water-sector sources.

Market-based tools can also build climate resilience at the scale of an entire river basin. Australia's Murray-Darling Basin water market uses tradable water rights, rather than project financing, to allocate scarce water to higher-value uses during periods of water scarcity.



Box 5. Case study: Murray–Darling Basin Water Market (Australia)

Sub-sector: Irrigation and agricultural water

Instrument used: Tradable water entitlements and allocations (water market)

What worked: Australia's Murray–Darling Basin was severely affected by the Millennium Drought (1997–2009), alongside over-allocation, declining river flows, and wetland degradation. To address these challenges, the government introduced a water-trading scheme that separated water rights from land ownership. The model succeeded because the government enforced a strict cap on basin-level water extraction, creating scarcity and establishing a clear financial value for water. This market was built on over two decades of public investment in water metering, clearly defined legal rights, and digital registries, enabling transparent and reliable trading. As a result, high-value agricultural activities, such as orchards, could withstand severe droughts by purchasing water from lower-value users.

Three features helped transform drought management from a predominantly supply-side challenge into one that also addressed water demand:

1. As water became scarcer, its market price signalled the need to reduce lower-value and more water-intensive uses, while enabling water to be reallocated to activities generating greater economic value.

2. Flexible mechanisms, such as carryover provisions, allowed users to save water allocations in wetter years and deploy them during droughts, strengthening resilience and reducing pressure on scarce supplies.

3. Water entitlements also became tradable financial assets, allowing users to sell unused water and generate income while enabling high-value users to secure supplies when needed.

These mechanisms helped align water conservation with economic incentives, a 'win-win', in which scarcity encouraged more efficient demand, water could generate financial returns beyond its immediate use, and environmental water recovery could be integrated into the same market architecture.

Source: Grafton, R. Quentin, and James Horne. 2014. "Water Markets in the Murray-Darling Basin." Agricultural Water Management 145: 61–71.

D. Recognising the diversity of water projects and their investment and return opportunities

The water sector offers a wide range of investment opportunities, from conventional grey infrastructure to NbS, water technology, efficiency improvements, wastewater treatment and reuse, and digital water systems. This diversity enables the use of a broader range of financial instruments tailored to the characteristics, risk profiles, and revenue models of different water projects. Expanding beyond conventional water utilities and grey infrastructure can therefore diversify investment opportunities and financing sources.Financing green-water resilience and water-smart land management is also emerging as an important investment priority because of their implications for food production and ecosystem health. The ability of landscapes to absorb, retain, and release water is another determinant of water security. Approximately 80 per cent of the world's cropland is rainfed and depends on green water, or soil moisture available to vegetation and crops. Substantial reductions in water storage could make irrigation difficult in some areas and reduce global cereal production by 23 per cent (GCEW 2024).

Aligning agricultural support, rural credit, insurance, and funding for landscape restoration with quantifiable improvements in soil moisture, infiltration, groundwater recharge, and water quality presents an opportunity to link water, food, climate, and nature finance through shared resilience outcomes. A basin programme could, for instance, combine public support for soil health, concessional rural credit, utility contributions for source protection, and outcome-based payments for verified improvements, as in green water credit schemes, through which downstream beneficiaries fund upstream practices (GCEW 2024). The aim is to establish sustained financing for the hydrological conditions on which food production and water services depend.

Innovative beneficiary- and community-led financing models for water services can complement institutional finance, particularly for decentralised, nature-based, and locally managed water interventions. The Tulsiwadi women-centred community toilet project in India illustrates the potential catalytic role of MDB financing at the community scale, using such funding to de-risk an unconventional sanitation model before it can attract more conventional financing.



Box 6. Case study: Tulsiwadi women-centred community toilet (India)

Sub-sector: Sanitation (urban community toilets)

Instrument used: MDB catalytic finance

What worked: Tulsiwadi demonstrates a multistakeholder financing and implementation approach combining technical assistance, private sector implementation capacity, multilateral catalytic funding, and public sector support. Different partners contributed financing and expertise across implementation, monitoring, and community engagement, while the allocation of land and permissions by the Brihanmumbai Municipal Corporation/Municipal Corporation of Greater Mumbai (BMC/MCGM) removed significant upfront barriers to implementation in a densely populated urban area.

At this early stage, the project's primary financing value lies not in generating financial returns but in demonstrating how MDB catalytic finance can reduce the risks associated with an innovative sanitation model before conventional commercial financing becomes viable. This could create a foundation for future replication and scale-up. The project is structured to generate evidence on operational performance and user outcomes.

Source: Authors' compilation based on information from Water for People.

Not all water investments, however, involve greenfield infrastructure. Investing in technologies and innovations that improve the efficiency, reliability, and performance of existing water systems presents a significant opportunity to safeguard systems against future climate risks. Water utilities can incur losses of up to USD 21.38 million annually due to system inefficiencies (Joseph et al. 2024), highlighting the substantial economic value that could be unlocked through investments in leakage reduction, smart monitoring, and improved system operations. By reducing operational losses and improving service delivery, such investments can generate both financial and developmental returns. Efficiency gains can also ease pressure on increasingly constrained water resources, lower financial and operational risks across the water value chain, and strengthen the capacity of water systems to withstand future climate shocks.

Existing water infrastructure therefore presents significant opportunities for the modernisation of water systems in response to an uncertain climate future. Strategic investments in operational efficiency and technology can transform existing assets into more productive, adaptive, and resilient systems, enabling utilities to achieve better outcomes with fewer resources. The East Zone concession in Manila, Philippines, provides an example of how private-sector participation, supported by International Finance Corporation (IFC) funding and explicit performance incentives, can improve efficiency at the utility scale (IFC 2014).



Box 7. Case study: East Zone Concession (Manila Water Company, Philippines)

Sub-sector: Urban water supply and sanitation

Instrument used: Concession agreement/public-private partnership (PPP), backed by IFC equity and debt

What worked: In the mid-1990s, Metro Manila's public utility was heavily indebted and losing 63 per cent of its water through leakage and theft. The government divided the utility's service area into two concession zones and awarded the East Zone concession to Manila Water. A transparent tariff-adjustment mechanism provided long-term revenue predictability, while IFC provided anchor debt and equity financing to establish commercial viability. The company's profits were linked to strict performance targets. As a result, Manila Water successfully reduced non-revenue water from 63 per cent to 13 per cent, outperforming the regulatory target of 25 per cent.

Source: IFC (International Finance Corporation). 2014. Manila Water Company. World Bank Group.

E. Unlocking untapped sources of capital, including private sector capital

Water has historically been underrepresented in investment portfolios despite its strategic importance. This is gradually changing as investors recognise opportunities extending beyond traditional utilities, with water-related solutions relevant to nearly every industry. Investment opportunities are wide-ranging, spanning treatment and efficiency technologies, NbS, circular water systems, and water-related applications in digital technologies and artificial intelligence (AI), among others. This breadth of largely untapped investment opportunities makes the sector relevant to impact-driven, returns-focused, and environmental, social, and governance (ESG)-aligned investors alike (WEF 2025a).

One investment opportunity with applications across multiple sectors is the circular use of treated water. According to the World Bank's 2025 report, *Scaling Water Reuse: A Tipping Point for Municipal and Industrial Use*, investment in water reuse could reach USD 340 billion over the next 15 years under appropriate policy and financing frameworks, with the private sector potentially contributing a substantial share (Khemka and Eberhard 2025).

India's Hybrid Annuity Model (HAM) shows how specific mechanisms such as effective responsibility matrices and risk-sharing were able to attract private investors into wastewater treatment.



Box 8. Case study: *Namami Gange* Sewage Treatment Plants (India)

Sub-sector: Municipal wastewater treatment plants

Instrument used: Hybrid Annuity Model (HAM) PPP

What worked: Municipal wastewater treatment projects have historically struggled to attract private investment because urban local bodies (ULBs) often lack the financial capacity and creditworthiness to support long-term O&M payments.

The HAM adopted by the *National Mission for Clean Ganga* (NMCG) addresses this challenge by shifting payment and counterparty risk from ULBs to the government, providing greater certainty to private investors. The government finances 40 per cent of construction costs upfront, while the remaining 60 per cent is repaid through annuity payments over 15 years, alongside O&M payments linked to performance and effluent-quality standards. This establishes a predictable, performance-linked revenue stream for private operators, aligning financial returns with sustained plant performance. By combining public support for upfront capital, predictable long-term payments, and clearly defined performance obligations, HAM improves the bankability of wastewater treatment projects and enables private capital and operational expertise to enter a sector traditionally dominated by public procurement.

Importantly, NMCG has also helped establish a revenue pathway for treated wastewater by linking sewage treatment plants (STPs) with identified end users. At Mathura, Uttar Pradesh, for instance, a 20-million-litre-per-day (MLD) tertiary treatment plant was designed to supply industrial-grade treated water to an Indian Oil refinery, creating a committed industrial off-taker. More broadly, *Namami Gange* has promoted the reuse of treated wastewater for non-potable applications, including industry, horticulture, construction, and road cleaning, while exploring additional markets for treated wastewater. This creates potential additional revenue from wastewater reuse, improves the financial sustainability of treatment infrastructure, and reduces industrial dependence on freshwater.

Source: NMCG (National Mission for Clean Ganga). 2021. Namami Gange Patrika, No. 25. Ministry of Jal Shakti, Government of India.

These emerging opportunities demonstrate that water investments can generate value across multiple sectors, outcomes, and scales, extending well beyond conventional infrastructure. This creates an opportunity to transition from a predominantly publicly financed sector towards a more diversified financing ecosystem. Doing so would require recognising the different value propositions of water investments to broaden the pool of available capital and strengthen investment cases. Importantly, different water investments have distinct risk, revenue, and impact profiles, making it important to match each project with an appropriate financial instrument or combination of instruments. The next section therefore examines financing instruments and approaches that can help translate these opportunities into investable projects and scale capital flows to the water sector.

5. Global approaches to financing water: Instruments, innovations, and lessons

Governments, utilities, international organisations, and private investors are increasingly adopting approaches to unlock investment opportunities in the water sector and mobilise capital at scale across regions and income levels, although considerable progress is still needed. This section presents case studies illustrating how different financing strategies and instruments have been applied to unlock capital for water security, drawing on practical implementation experiences. The cases are organised by instrument type and span India, Africa, Asia, Europe, Latin America and the Caribbean, North America, and Australia.

Collectively, they demonstrate that closing the water financing gap requires financing approaches tailored to the scale, maturity, revenue potential, risk profile, and public value of different interventions. This begins with identifying the specific function being financed within the water system, such as reducing losses, improving water quality, recharging aquifers, regulating floods, restoring water sources or enabling safe reuse, as well as the spatial and temporal scales over which benefits accrue.

A. Financing through bonds and debt instruments

Green, blue, sustainability-linked, and performance-linked bonds are increasingly being used to mobilise long-term capital for the water sector. Green bonds finance projects with defined environmental benefits, including water efficiency, wastewater treatment, and ecosystem restoration, while blue bonds are emerging as instruments for financing sustainable water and marine resource management. Sustainability-linked and performance-linked bonds, by contrast, link financing terms to measurable improvements against predefined targets. These instruments can help utilities and other creditworthy entities access institutional capital and distribute large infrastructure costs over an asset's operating life, rather than placing the full financial burden on current users.

DC Water in Washington, DC, illustrates this approach through the first 100-year green bond in the US water sector, which financed its deep-tunnel sewer system, and an environmental impact bond, a performance-linked instrument that financed green infrastructure. Similarly, Águas do Rio in Brazil combined results-based grants,sustainable and blue bonds, and development bank loans to address the sanitation financing gap. In the UK, Anglian Water mobilised partner investment and issued green bonds and sustainability-linked loans under its Sustainable Finance Framework to integrate wetland restoration into its broader water management strategy.

Across the DC Water, Águas do Rio, and Anglian Water cases, the central lesson is that water investments become more attractive when public-purpose outcomes are translated into credible, measurable, and financeable risks and returns. Although the instruments differ in how bond financing complements other financing sources, all three cases are governed by measurable service outcomes, credible entities with robust repayment plans, and credible links between funds, activities, and intended results.

> Closing the water financing gap requires financing approaches tailored to the scale, maturity, revenue potential, risk profile, and public value of different interventions.



Box 9. Case study: DC Clean Rivers Project (DC Water, United States)

Sub-sector: Urban wastewater and stormwater

Instrument used: Green municipal bonds and environmental impact bonds

What worked: DC Water needed to finance a USD 2.6 billion deep-tunnel system to prevent combined sewer overflows into local rivers without imposing an unsustainable short-term increase in water rates on residents. To address this challenge, DC Water issued the US water sector's first 100-year Green Century Bond. Aligning the bond's repayment period with the tunnel's long operational life distributed costs more equitably across generations of ratepayers. It was the first certified green bond in the US debt capital markets to receive an independent second-party opinion, with the debt tenure, repayment structure, and asset life aligned with the project's long-term implementation.

Complementing this financing, DC Water issued a USD 25 million environmental impact bond that linked investor returns directly to project performance. If the green infrastructure failed to meet its targets, investors would receive a lower payout, protecting local ratepayers from some of the risks associated with early-stage technology adoption.

Source: DC Water. 2014. "DC Water Announces Successful Sale of $350 Million Green Century Bonds." Press release, July 10. DC Water; EPA (United States Environmental Protection Agency). 2017. DC Water's Environmental Impact Bond: A First of Its Kind. Water Infrastructure and Resiliency Finance Center.



Box 10. Case study: Industrial water reuse and sanitation (Águas do Rio, Brazil)

Sub-sector: Urban water supply and sanitation, with industrial water reuse

Instrument used: Non-recourse project finance (blended debt, sustainable/blue bonds, and development bank loans)

What worked: The metropolitan area of Rio de Janeiro has experienced severe discharges of untreated sewage into local waterways and Guanabara Bay. The financing mechanism combined blue and sustainable bonds with long-term project financing. Águas do Rio issued bonds to finance the expansion and improvement of water and wastewater infrastructure, with proceeds linked to defined environmental investments. The bonds were backed by expected stable, long-term revenues from the sanitation concession, strengthening investor confidence in repayment. The Brazilian Development Bank (BNDES) provided a long-term loan and also bought part of the first bond issue (LatinFinance 2024).

Brazil's updated legal framework (Aegea's *Sustainable Finance Framework*) supported the use of private concessions to address substantial investment gaps in sanitation and industrial water reuse. A clear national regulatory framework with enforceable performance targets helped establish long-term tariff revenue certainty. Combining local development bank loans, domestic and international green/blue bonds, and results-based grants enabled the project to be financed through its own cash flows. Under its sanitation concession, Águas do Rio treats sewage at its own plants and sells part of the treated water to industrial clients, adding a commercial revenue stream to household tariffs.

Source: LatinFinance. 2024. "Water / Sanitation Financing of the Year – Infrastructure Financing of the Year Brazil: Águas do Rio Blocks 1 & 4." LatinFinance, October 11; Proparco. 2024. "Drinking Water for All: The Work of Águas do Rio in Brazil." Proparco; IDB Invest. 2023. "IDB Invest and PROPARCO Partner with Águas do Rio to Provide Clean Water and Sanitation to 10 Million Brazilians." IDB Invest.



Box 11. Case study: Nature-based solutions by Anglian Water (United Kingdom)

Sub-sector: Catchment management, water quality, and flood resilience

Instrument used: Green bonds, sustainability-linked bonds, shareholder funding, central government grants, and municipal co-financing

What worked: To strengthen resilience and biodiversity, Anglian Water incorporated NbS, such as artificial wetlands and river restoration, into its water management plan. Anglian Water operates in one of the driest regions of the UK and faces risks from both droughts and floods. In accordance with the International Capital Market Association (ICMA) Green Bond Principles, the company issued green bonds and sustainability-linked loans under its Sustainable Finance Framework.

The company also provided approximately USD 9.4 million in shareholder funding for 53 cooperative NbS projects, leveraging an additional USD 12 million in matching contributions from partners, including WWF-UK and the Norfolk Rivers Trust. Its River Ingol wetland treatment site, which uses natural processes to filter wastewater and reduce energy-intensive treatment costs, illustrates the potential cost-effectiveness of this approach.

Within a broader capital programme exceeding USD 1.35 billion, more than USD 21.6 million was invested in NbS projects over 2020–25, resulting in improved river health, increased flood resilience, and a lower carbon footprint. This demonstrates how utility-led NbS, financed through a combination of shareholder capital, green bonds, and partnerships, can generate quantifiable environmental and financial returns when supported by a regulatory framework that promotes long-term viability.

The broader lesson is that catchment and wetland interventions can function as operational water infrastructure when they reduce treatment requirements, protect water quality, manage flood risks or improve source-water resilience, provided their performance is assessed against locally relevant hydrological and service outcomes.

Source: Anglian Water Group. 2024a. Sustainable Finance Impact Report 2024. Anglian Water Group; Anglian Water Group. 2024b. "Natural Capital and Our Climate Change Adaptation." Anglian Water Grou.; CISL (University of Cambridge Institute for Sustainability Leadership). 2019. Modelling Better Business: Anglian Water's Approach to Valuing Its Land for Biodiversity and Preparing for Net Gain. University of Cambridge Institute for Sustainability Leadership.

Bond-based financing nevertheless depends on several enabling conditions, including a credible and creditworthy issuer, predictable revenue streams or a reliable repayment mechanism, a sufficiently large investment pipeline, measurable and verifiable environmental or service outcomes, and strong financial and reporting systems. Clear use-of-proceeds reporting frameworks, independent verification, and transparent disclosure are also important for maintaining investor confidence in green and blue bonds and mitigating greenwashing risks.

B. Blended finance instruments

Blended finance combines concessional and commercial capital, guarantees, grants, and technical assistance to improve the viability of water investments and attract private finance. In water and sanitation, guarantees are the most widely used risk-sharing instrument, helping reduce credit and political risks and lower the cost of commercial borrowing. Grants and technical assistance can support project preparation, while viability gap funding (VGF), output-based grants, and first-loss capital can address affordability or revenue gaps that would otherwise prevent projects from reaching financial close (OECD 2019).

The approach can be deployed at different stages of the financing chain: upstream, by making projects investment-ready; at the project or utility level, by improving their risk–return profiles; and downstream, by supporting affordability for households and underserved users (OECD 2019).The Barbados and Morocco cases illustrate different blended finance instruments, but both demonstrate how public or development finance support can transform water investments that are otherwise too expensive or risky into financeable, lower risk transactions. In Morocco, IFC provided a USD 36.7 million risk-sharing facility (IFC 2023), while in Barbados, the Inter-American Development Bank (IDB) and European Investment Bank (EIB) provided guarantees totalling USD 300 million, split equally between the two institutions (EIB 2024). Both approaches demonstrate predefined risk-sharing arrangements among public and private stakeholders and banks, supported by transparent monitoring and reporting systems and defined sustainability-performance targets.



Box 12. Case study: South Coast Water Reclamation Project (Barbados)

Sub-sector: Wastewater treatment and reuse (agricultural reuse)

Instrument used: Debt-for-climate swap

What worked: Barbados faced severe water scarcity, worsening climate impacts, and environmental risks from an ageing STP. High public debt necessitated an innovative debt-for-climate swap to finance wastewater upgrades for agricultural reuse. Barbados used a USD 300 million guaranteed sustainability-linked loan to replace more expensive government debt. Guarantees from the IDB and EIB reduced risks for participating commercial banks and helped secure more favourable financing terms.

Replacing expensive existing debt with lower-cost financing generated significant fiscal space without increasing the overall public debt stock. The key was combining different forms of capital, each serving a distinct purpose. The Green Climate Fund (GCF) co-financed the physical water infrastructure and anchored the debt-for-climate conversion's long-term impact. Credit guarantees provided by international development banks absorbed sovereign risk, enabling commercial banks to participate at lower interest rates. The financing was also linked to measurable water-reuse targets, with financial penalties if the government failed to meet them, creating accountability for delivering the intended climate and water-security outcomes.

Source: GCF (Green Climate Fund). 2024. "FP251: Barbados Climate Resilient South Coast Water Reclamation Project (SCWRP)." Green Climate Fund. Central Bank of Barbados. 2025. "Debt-for-Development Swaps: A Tool for Climate Action and Economic Resilience." Central Bank of Barbados; EIB (European Investment Bank). 2024. "Barbados: EIB and Inter-American Development Bank Approve Guarantees to Support Climate and Fiscal Resilience." Press release. European Investment Bank.



Box 13. Case study: Solar and Efficient Irrigation Systems (Morocco)

Sub-sector: Irrigation for agriculture

Instrument used: Risk-sharing facility (RSF)/blended finance

What worked: Smallholder farmers and small and medium-sized enterprises (SMEs) in Morocco faced high operational costs and water scarcity associated with fuel-powered pumps. Restricted commercial bank lending prevented farmers from accessing loans to purchase modern solar-powered and drip-irrigation equipment. The blended financing model combined commercial bank lending with development finance risk-sharing and concessional support. The International Finance Corporation provided a risk-sharing facility of up to USD 36.7 million, covering part of the risk associated with a portfolio of loans extended by Banque Centrale Populaire (BCP) to farmers and SMEs for purchasing solar-powered and drip-irrigation equipment from CMGP - Compagnie Marocaine de Goutte-à-Goutte et de Pompage, a Moroccan irrigation company. The International Finance Corporation also provided a small interest-rate buy-down through the Global SME Finance Facility, making the loans more affordable.

The model combined commercial bank loans with an IFC risk-sharing facility and concessional interest-rate support. The multilateral risk-sharing facility absorbed first-loss risk, enabling commercial banks to extend affordable loans to smallholders and SMEs previously considered too high risk. Partnering directly with an established equipment distribution network addressed challenges related to client origination, technical support, and local delivery.

Source: IFC (International Finance Corporation). 2023. "IFC Guarantees Loan to Provide Farmers, Agribusiness SMEs in Morocco with Solar and Efficient Irrigation Systems." Press release, October 10. International Finance Corporation.

C. Catalytic public-sector-led financing instruments

To catalyse investment before private capital enters, public institutions deploy fiscal instruments such as dedicated levies, capital grants, seed funding, guarantees, and VGF. These instruments can address the upfront cost, revenue, or risk constraints that make socially valuable water projects commercially unattractive. The objective is to use public finance catalytically rather than as a substitute for private capital, targeting specific viability or risk gaps through clear eligibility criteria, performance requirements, and a defined pathway towards commercial financing. This aligns with the broader financing principle that governments should strengthen project pipelines and deploy public resources strategically to maximise returns on public investment and catalyse private sector investment.

China's *Sponge City Programme* illustrates this approach, using central government grants to establish pilot projects before transitioning towards local co-financing and green finance mechanisms. Here, seed funding enabled the public sector to demonstrate the technical and financial sustainability of a model, allowing private investors to assess its risks and returns with greater confidence.



Box 14. Case study: Sponge City Programme (China)

Sub-sector: Urban stormwater management and flood resilience

Instrument used: Central government grants, municipal co-financing, and emerging green finance mechanisms

What worked: In response to severe flooding and water scarcity exacerbated by rising urbanisation, China launched the *Sponge City Programme* in 2014 to help urban areas absorb, store, and purify rainwater for reuse. Cities such as Changde and Zhuanghe used municipal funds and local subsidies to sustain O&M activities.

The central government provided seed funding to 30 pilot cities, allocating CNY 400–600 million (USD 60–90 million) to each over three years, supplemented by local government contributions. Through a combination of constructed and natural solutions, including wetlands, permeable pavements, and green roofs, total investment in the pilot cities exceeded CNY 20 billion (nearly USD 3 billion), improving flood resilience, groundwater recharge, and water quality.

The pilots helped demonstrate the technical feasibility and public value of nature-based urban water infrastructure while building local capacity and experience in planning and implementation. Municipal financing and, subsequently, instruments such as green bonds and PPPs provided pathways for scaling beyond the initial grant-funded pilots. The programme illustrates how catalytic public funding can reduce uncertainty surrounding new water financing models, demonstrate their viability, and create conditions for other financing sources to enter at scale.

Source: Liang, Xiao. 2018. "Integrated Economic and Financial Analysis of China's Sponge City Program for Water-Resilient Urban Development." Sustainability 10 (3): 669. https://www.mdpi.com/2071-1050/10/3/669.; Chan, Faith Ka Shun, Wendy Y. Chen, Zilin Wang, et al. 2022. "Meeting Financial Challenge Facing China's Sponge City Program (SCP) – Hong Kong as a Gateway to Green Finance." Nature-Based Solutions 2: 100019.

D. Entrepreneur-led investment

Last-mile service gaps can be addressed by enabling small-scale private entrepreneurs to serve segments of the water and sanitation market that conventional utilities or large infrastructure providers often struggle to reach. Decentralised projects can lower entry barriers through smaller upfront investments, enable services to be tailored to local demand, and create opportunities for entrepreneurs to generate revenue through user fees, resource recovery, or the sale of treated products. Where these revenue streams are sufficient to cover operating costs, such models can reduce dependence on continued public subsidies while creating a commercially viable track record for decentralised service delivery.

The Muzaffarpur faecal sludge treatment plant (FSTP) in India illustrates this approach. Operated as an entrepreneur-led enterprise, the facility converts faecal sludge into two marketable products, Sona Khaad and Sona Taral, linking treatment operations, resource recovery, and revenue generation.



Box 15. Case study: Muzaffarpur FSTP (India)

Sub-sector: Sanitation (faecal sludge management)

Instrument used: Entrepreneur-led investment (private enterprise ownership and operation)

What worked: Muzaffarpur demonstrates an entrepreneur-led decentralised sanitation approach in which resource recovery and product-based revenue are closely linked to faecal sludge treatment. The business has a direct financial stake in plant efficiency, cost control, and revenue generation through its 2-kilolitre-per-day (KLD) Tiger Biofilter–based facility, which converts treated sludge into two marketable products, Sona Khaad and Sona Taral.

Across 182 tanker trips between February 2025 and June 2026, the facility processed 546,000 litres of faecal sludge and sold 9,612 kg of Sona Khaad and 6,879 litres of Sona Taral. This generated INR 212,970 in product revenue, averaging INR 12,527 per month, adequate to recover 107.1 per cent of O&M costs. The case illustrates actual market demand for recovered sanitation goods, with further benefits potentially arising from greater utilisation, reliable production, and increasingly robust market channels.

Source: Authors' compilation based on information from Water for People.

Together, these cases illustrate the range of approaches available to improve the viability of water investments, from innovative debt instruments and catalytic capital to blended finance and entrepreneur-led models. The common requirement is to match the financing and delivery model to the specific characteristics of each investment while creating pathways for capital to reach projects and actors that conventional financing may overlook. Figure 4 consolidates the investment opportunities across the water value chain and maps the financing instruments adopted in the case studies, providing a snapshot that informs the policy recommendations that follow.

Figure 4. Instruments, financing models, and business models across water sub-sectors based on the case studies

	Sub-sector					
Financial instrument/ structure/ business model	**Multi-purpose/ resilience infrastructure**	**Wastewater and desalination**	**Watershed management**	**Ecosystem restoration**	**Irrigation and agriculture**	**Water supply and sanitation**
Blended finance	■	■			■	
PPP/concession-based finance	■	■				■
Water credits and tariffs			■		■	
Payment for ecosystem services			■	■		
Debt-for-nature/climate swaps		■			■	
MDB catalytic finance			■	■		■
Bonds-based finance	■	■	■	■		
Public levy and other fiscal instruments	■	■				
Private enterprise ownership						■

Source: Authors' analysis.

Note: MDB: multilateral development bank; PPP: public–private partnership.

6. Key recommendations and pathways to unlock investments for water security

Closing the water financing gap requires addressing constraints across the entire investment cycle rather than focusing solely on increasing the volume of available capital. The scale of investment needs is substantial: global requirements for water-related infrastructure have been estimated at USD 6.7 trillion by 2030 and USD 22.6 trillion by 2050 (Joseph et al. 2024).

These figures point to a structural constraint in water finance. The challenge is not only the availability of capital but also the sector's capacity to translate financing into investable, financially sustainable projects that deliver measurable water-security outcomes. The WEF's work on financing adaptation through water similarly identifies the need to translate resilience benefits into financial value, aggregate fragmented projects, align risk–return profiles with different sources of capital, strengthen governance and coordination, and establish credible impact measurement systems (WEF 2026).

Three areas therefore warrant particular attention. First, **governance and policy frameworks must provide robust regulations, targeted incentives, clear mandates** for shared resource allocation and institutional responsibilities, and effective risk-sharing and management mechanisms. These measures can create the conditions for a financially sustainable and climate-resilient water value chain. Second, **existing financial instruments, both within and beyond the water sector, must be deployed more strategically** to reflect the diverse risk, maturity, revenue, and impact profiles of water investments. This includes strategically using public and concessional capital to mobilise commercial and private finance. Third, **project bankability and implementation capacity must be strengthened** through robust project structures, viable revenue models, appropriate risk allocation, and credible outcome measurement.

The following recommendations address these three dimensions and identify pathways towards a stronger investment ecosystem capable of directing capital towards resilient, sustainable, and financially viable water systems.

6.1 Creating an enabling environment for investment through governance reforms

Effective water financing requires governance frameworks that ensure predictable implementation and financial outcomes, transparent systems for establishing baselines, monitoring, and reporting, and clear allocation of responsibilities and risks. Across the 15 case studies, one of the most replicable enabling factors was the presence of a credible and creditworthy anchor institution responsible for monitoring project performance and reporting to lenders, investors, regulators, and communities.

Similarly, policy and regulatory certainty, including stable rules governing water and water-asset ownership, service provision, tariffs, concessions, PPPs, procurement, and environmental protection, emerged as key factors in attracting private sector interest and investment. One example was the earmarking of predictable revenue from tariffs, property taxes, pollution charges, or utility revenues by governments to provide greater investment certainty and reduce the risk of funds being diverted to competing priorities.

> Governance and financial reforms for local water projects must reflect local realities.

Risk-sharing models must identify financial, implementation, and operational risks and establish frameworks that allocate them to the parties best equipped to manage them. Such arrangements can strengthen investor confidence, particularly when supported by instruments such as guarantees, first-loss facilities, and payment-security mechanisms, with clear terms specifying which party bears each risk, to what extent, and for how long. Morocco's risk-sharing facility and the guarantees used in Barbados demonstrate these principles. Insurance can complement these instruments by covering specific insurable risks, including climate events.

Measurable outcomes and **transparent, accountable reporting** are also essential to effective water financing. Standardised impact-reporting templates with clear ecological, economic, and social metrics, accounting for spatial and temporal differences, can strengthen monitoring by anchor institutions. They can also support the assessment and optimisation of technical, environmental, and climate outcomes, thereby strengthening the case for future investment.

Finally, **governance and financial reforms** for local water projects must reflect local realities. Rather than relying exclusively on national water budgets and public funding, governance frameworks can incorporate innovative combined financing approaches, including localised pricing that reflects differences in scarcity, affordability, and community needs.

Pricing reforms must also account for the political economy of water. As water is both an economic good and a human right, moves towards cost-recovery tariffs should be phased and accompanied by transitional measures, such as targeted public subsidies and multistakeholder consultations, to ensure that vulnerable populations are not priced out of essential services. Greater adoption of end-user- and beneficiary-led financing, where appropriate, can generate benefits beyond funding by regulating the delivery and management of water services and strengthening accountability for outcomes that respond to local needs.

> The challenge is not only the availability of capital but also the sector's capacity to translate financing into investable, financially sustainable projects that deliver measurable water-security outcomes.

6.2 Diversifying investment avenues and strategically deploying financial instruments

Mobilising capital at the required scale depends on matching financing instruments to the maturity, risk, revenue potential, and social and ecological value of each intervention rather than applying a single financing model across the water sector. This process should begin by identifying the hydrological function being financed, the beneficiaries, the scale of benefits, and whether those benefits can generate revenue, reduce costs, or require public and collective funding.

Catalytic and concessional finance can support early-stage innovation, as demonstrated by China's *Sponge City Programme*, while established models with predictable revenues can progressively access commercial debt, equity, and institutional capital, as demonstrated by water utilities, as in the case of DC Water, Águas do Rio, Anglian Water.

Beyond conventional water utilities, **governments, development partners, and financiers should expand the scope of eligible water investments to include green-water resilience and water-smart land management**. This requires aligning agricultural support, rural finance, and insurance with measurable gains in soil moisture, recharge, and water quality. Because these benefits extend across landscapes and river basins, financing arrangements will often need to combine public, collective, and private contributions.

The case studies presented in this brief demonstrate that the challenge is not necessarily a lack of available instruments. A wide range of financing mechanisms already exists, from bonds and blended finance to fiscal levers and entrepreneur-led models. Approaches that have succeeded in other sectors can also be adapted to water investments, from individual community facilities to large-scale programmes. The greater challenge lies in identifying and deploying the most appropriate instruments.

As projects scale, **financing structures should adopt a layered approach to risk allocation**, matching each risk with an instrument designed to address it. Revenue risks that private investors cannot readily absorb can be mitigated through public guarantees, targeted subsidies, or other credit-enhancement mechanisms, while climate-related risks can be addressed through instruments

such as parametric insurance. Innovative financing approaches, including water-resilience debt, outcome-based finance linked to measurable ecological outcomes, and MDB-backed municipal bonds, can further help mobilise private and institutional capital.

Risks should be allocated to the parties best equipped to manage them. For example, India's HAM places payment risk with the government while transferring construction and performance risks to private investors. At the same time, financing strategies must broaden how the value of water investments is assessed. Measurable outcomes, such as freshwater savings, resource recovery, improved sanitation, reduced losses, and enhanced ecosystem services, can strengthen the investment case. This can help shift the focus from managing water-sector risks to investing in the economic, environmental, and social value generated by water security.

Ultimately, the priority is less about designing new instruments and more about moving from demonstration to implementation at scale, translating evidence from the case studies into replicable, bankable pipelines that investors can act on.

6.3 Improving bankability through effective project design and management

While this brief highlights the substantial financing gap in the water sector, a significant proportion of allocated public funding remains unspent. Budget execution for water averaged only 72 per cent over 2009–20 (Joseph et al. 2024), highlighting a gap between capital availability and investment readiness.

The challenge, therefore, is also to **design water projects that financiers recognise as commercially viable, scalable, and investable**. Bankability must become a core principle of project design, incorporated from the outset through clear revenue models, appropriate risk allocation, predictable cash flows, and measurable returns.

This requires moving beyond financing individual water assets towards designing **integrated, revenue-generating water services**. Projects that connect the full service chain, such as sludge collection and treatment, resource recovery, product markets, water reuse, and service delivery, can create new market opportunities, diversify revenue streams, and strengthen financial viability.

For water-resilience investments, however, financial bankability alone is insufficient. Project design should also assess **hydrological viability**: whether an intervention is likely to improve water availability, quality, resilience, equity, or ecological integrity at the relevant spatial scale and over time. Such assessments should account for catchment conditions, groundwater, land use, climate variability, and upstream–downstream dependencies. An intervention that is financially viable but relies on unsustainable water abstraction or transfers risks elsewhere in the basin should not be considered resilient or fully investable.

Scaling decentralised, entrepreneur-led approaches, such as Muzaffarpur's 2 KLD faecal sludge treatment facility, which recovers its O&M expenses through product revenue, involves significant logistical challenges, particularly in megacities where numerous facilities would be needed to meet city-level demand.

At scale, standardised tariffs, predictable revenue streams, and robust contracting models can further enhance commercial viability and make water interventions more attractive to investors across large project pipelines.

Recognising and monetising the wider ecological and social value generated by water investments can also strengthen their attractiveness to investors and the private sector. Water projects often deliver benefits beyond direct financial returns, including groundwater recharge, flood-risk reduction, ecosystem restoration, biodiversity gains, improved public health, livelihood creation, and enhanced climate resilience.

Mechanisms to measure, value, and reward these co-benefits, including payments for ecosystem services, water-quality or resilience credits, performance-linked payments, avoided-cost mechanisms, and other outcome-based instruments, can create additional revenue or incentives for projects that deliver broader public value. This can help bridge the gap between the private returns captured by a project and its wider social and ecological benefits, making otherwise marginally bankable projects more attractive to private capital.

Building bankability into water projects also requires **broadening the definition of investable water infrastructure**. Public investment frameworks can play a catalytic role by recognising nature-based and ecosystem infrastructure alongside conventional grey infrastructure, creating clearer pathways for public and private investment. Peru provides an example: investment in NbS for water increased thirteenfold in the five years after public investment guidelines began recognising nature as infrastructure (OECD 2022).

Finally, **measurable outcomes can strengthen access to finance**. Defining and independently verifying outcomes such as water savings, pollution reduction, ecosystem restoration, resource recovery, and social benefits can demonstrate value, reduce investor uncertainty, and enable outcome-based and impact-oriented financing.

Together, these three levers can transform water projects from public expenditure propositions into investable opportunities, supported by diversified revenues, monetised co-benefits, and measurable outcomes that can help unlock greater private sector participation in the water sector.

7. Conclusion

Given water's role as a superconnector, the consequences of inadequate financing extend well beyond the water sector, impacting food security, public health, climate resilience, and economic growth. This policy brief contends that closing the water financing gap requires addressing the structural challenges that have historically contributed to water being underpriced, underfunded, and undervalued relative to the benefits it generates. These include weak governance, limited availability of fit-for-purpose financial instruments for water projects and inadequate project bankability.

As the case studies presented in this brief demonstrate, these challenges can be overcome. The examples range from China's nationally scaled *Sponge City Programme* and risk-sharing mechanisms for irrigation finance in Morocco to utility-led NbS in the UK and community-based sanitation initiatives in India. Water investments can transition from being perceived as high-risk public liabilities to being recognised as bankable, resilient, and potentially profitable assets when governance frameworks are clear, revenue streams are incorporated into project design from the outset, and instruments are matched to projects' hydrological functions and stages of maturity.

Achieving this transition at scale will require sustained, coordinated action across the three levers identified in this brief: strengthening enabling governance frameworks, deploying financial instruments strategically to mobilise the right blend of public, concessional, and private capital, and improving project bankability. These levers are mutually reinforcing. Without effective governance, financial instruments cannot be deployed successfully; and without a reliable pipeline of bankable initiatives, available capital cannot be translated into meaningful outcomes. As climate change places increasing pressure on water ecosystems and systems, the costs of delayed action will continue to rise. Strengthening the conditions for investment in water is therefore not merely a financing imperative but an opportunity to advance climate resilience, economic security, and sustainable development.

> Closing the water financing gap requires addressing the structural challenges that have historically contributed to water being underpriced, underfunded, and undervalued relative to the benefits it generates.

Acronyms

AfDB	African Development Bank
AI	artificial intelligence
AWF	African Water Facility
BAU	business as usual
BCP	Banque Centrale Populaire
BMC	Brihanmumbai Municipal Corporation
BNDES	Banco Nacional de Desenvolvimento Econômico e Social
CNY	Chinese Yuan
COP	Conference of the Parties
CPI	Climate Policy Initiative
EIB	European Investment Bank
ESG	environmental, social, and governance
FID	final investment decision
FSTP	faecal sludge treatment plant
GCF	Green Climate Fund
GCEW	Global Commission on the Economics of Water
GDP	gross domestic product
GGA	Global Goal on Adaptation
GHD	GHD Group
HAM	hybrid annuity model
ICMA	International Capital Market Association
IDB	Inter-American Development Bank
IFC	International Finance Corporation
INR	Indian Rupee
KLD	kilolitres per day
LMICs	low- and middle-income countries
MCGM	Municipal Corporation of Greater Mumbai
MDB	multilateral development bank
MERESE	Mechanisms for Compensation for Ecosystem Services
MIC TAF	Middle-Income Countries Technical Assistance Fund
MLD	million litres per day
NbS	nature-based solutions
NMCG	*National Mission for Clean Ganga*
NWFE	Country Platform for the Nexus of Water, Food and Energy
O&M	operation and maintenance
OECD	Organisation for Economic Co-operation and Development
PES	payment for ecosystem services
PPP	public–private partnership
PUB	Public Utilities Board
RSF	risk-sharing facility
SDG	Sustainable Development Goal
SGD	Singapore Dollar
SME	small and medium-sized enterprise
STP	sewage treatment plant
ULB	urban local body
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
USD	United States Dollar
VGF	viability gap funding
WEF	World Economic Forum
WfW	Working for Water
WEFE	Water–Energy–Food–Ecosystems
WSS	water supply and sanitation

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The authors



Pritish Kumar Acharya

Research Analyst, CEEW
pritish.acharya@ceew.in
Pritish Kumar Acharya



Trisha Ravindranath

Research Analyst, CEEW
trisha.ravindranath@ceew.in
Trisha Ravindranath



Ishleen Kaur

Engagement Lead, CEEW
ishleen.kaur@ceew.in
Ishleen Kaur



Dr Nitin Bassi

Fellow, CEEW
nitin.bassi@ceew.in
Dr Nitin Bassi



Alok Kumar Srivastava

Manager Programs, Water for People
asrivastava@waterforpeople.org
Alok Kumar Srivastava



Bishwadeep Ghose

Country Director, Water for People
bghose@waterforpeople.org
Bishwadeep Ghose



Dr Rachna Leveque

Founder & Director, Impact Atelier Ltd.
rachna@impactatelier.uk
Dr Rachna Leveque



Samrat Gupta

Sr Manager, Market Systems Development, Water for People
sgupta@waterforpeople.org
Samrat Gupta



William Wallock

Analyst, Climate Policy Initiative
william.wallock@cpiglobal.org
William Wallock



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SELECT POLICY ENGAGEMENTS

NATIONAL/INTERNATIONAL

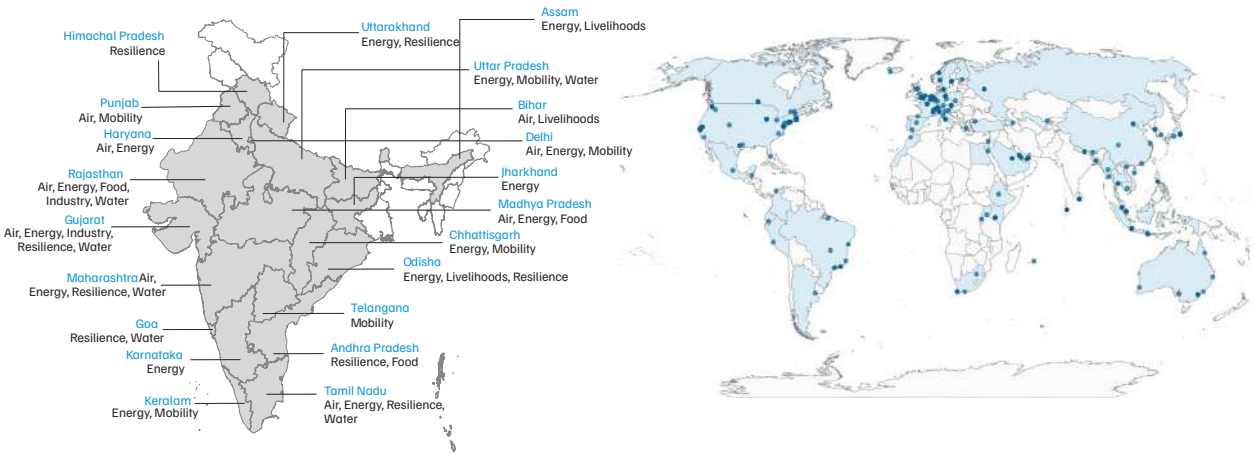
2011 | National Water Resources Framework
2014 | 175 GW renewables target
2015 | International Solar Alliance
2016 | PM *Ujjwala Yojana*
2017 | *Saubhagya Scheme*
2019 | *India Cooling Action Plan*
2021 | Net Zero by 2070
2022 | *Mission LiFE*
2022 | *National Bioenergy Programme*
2022 | E-waste (Management) Rules
2023 | G20 Green Development Pact
2023 | *National Green Hydrogen Mission*
2024 | Green Steel Taxonomy
2024 | *PM Surya Ghar Yojana*
2025 | *National Critical Mineral Mission*
2025 | Rajya Sabha Guidelines on Crop Residue Burning
2025 | India's Carbon Credit Trading Scheme (CCTS)
2025 | IFSCA's Framework for Transition Bonds
2026 | Disaster Risk Index for 16th Finance Commission
2026 | India's NDC 3.0
2026 | India's Scenarios towards Viksit Bharat and Net Zero

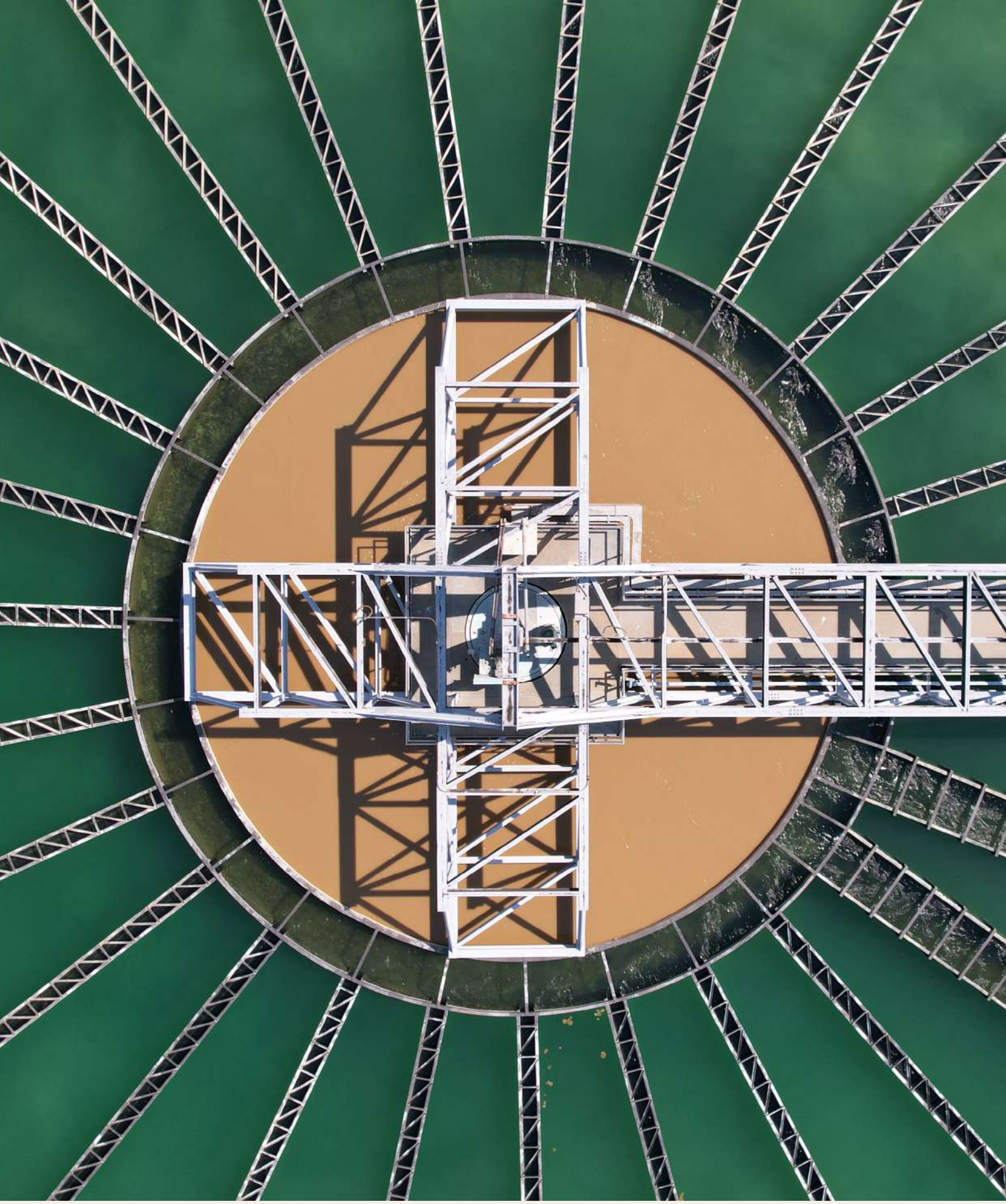
STATE

2022 | *Rajasthan Organic Farming Mission*
2022 | *Jharkhand State Solar Policy*
2022 | *Uttar Pradesh Vidyut Sakhi programme*
2023 | *Rajasthan Renewable Energy Policy and Green Hydrogen Policy, 2023*
2023 | *Uttarakhand Solar Policy*
2025 | Green Odisha Initiative
2025 | *Maharashtra Climate Action Plan 2.0*
2025 | *Delhi Clean Air Action Plan*
2026 | *Delhi EV Policy 2.0*
2026 | Bihar Promotion of New and Renewable Energy Sources
2026 | Gujarat Integrated Renewable Energy Policy and Green Hydrogen Policy
2026 | *Uttarakhand Mukhyamantri Saur Swarojgar Yojana*
2024-26 |
Directives of Commission on Air Quality Management
Net Zero Roadmaps (BH, GJ, TN, UK)
Agroforestry Roadmaps (AS, MH, OD)
140+ Heat Action Plans (GJ, MH, OD, TN)
Treated Used Water Reuse Plans (MH, UP)
Flood Risk Mitigation Plans (GJ, MH)

COLLABORATIONS SINCE 2010

21 Indian states | **60+** countries | **230+** global institutions/forums





Council on Energy, Environment and Water (CEEW)

ISID Campus, 4 Vasant Kunj Institutional Area
New Delhi - 110070, India
T: +91 (0) 11 4073 3300

info@ceew.in | ceew.in | @CEEWIndia | ceewindia

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