

WHITE PAPER

The Glass is Half Full

How Texas Can Lead in Catalytic Capital to Expand Water Funding

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Preface

Water security is one of the defining infrastructure challenges in the United States today. Aging systems, shifting environmental conditions, and rising consumption are creating supply-demand imbalances in many parts of the country. Fourteen states already face high or extremely high water stress, with that figure projected to rise.

Texas is a state to watch – both because its water challenges are acute and because it is mounting one of the strongest responses to address them. The state’s near- and long-term outlook is shaped by growing water supply deficits and resource variability, with a projected water supply deficit of 3 million acre-feet by 2030 and nearly 7 million acre-feet by 2070. At the same time, Texas has a long history of addressing water challenges and the state’s planning and governance framework, anchored by the Texas Water Development Board (TWDB) and its State Water Plan (SWP), provides a strong foundation for action.

This is the first paper in a two-part series that explores Texas as a model for water security in the U.S. This paper focuses on the funding challenge at the center of Texas’s water future. It examines how the state’s planning and policy frameworks can be paired with financial innovation to mobilize the capital needed to close its long-term funding gap. BCG’s analysis suggests that catalytic capital instruments, along with bond programs, could leverage the state’s recent \$20 billion commitment into an additional \$70 billion in investment, bridging nearly half its funding gap. The second paper in this series, forthcoming, will explore the specific question of how manufacturing expansion is reshaping Texas’s supply–demand equation – and identifies additional levers to restore balance in the water system.

This paper draws on a rich collection of public sources starting with TWDB and extending to the work of leading research institutions, such as Texas 2036, Texas Water Foundation, University of Texas at Austin, Texas A&M, Texas State University and the Baker Institute at Rice University – combined with BCG’s analysis of catalytic capital instruments and mobilization ratios, case study assessments, and more. The synthesis of these sources underscore a central insight: Texas’s approach to water finance will shape how the U.S. writ large builds the infrastructure needed to sustain growth in a resource-constrained world.

Accordingly, the findings and recommendations in this paper extend to water-stressed regions beyond Texas. The analysis offers guidance for policymakers, financial institutions, corporations, and communities in regions confronting rising water stress. Readers looking for the key takeaways and practical implications can turn directly to Chapter 5, which distills insights across key stakeholder groups.

Finally, the breadth and subject-matter expertise in this paper are credited to a long list of contributors. The authors would like to extend a special thanks to Jeremy Mazur, Director of Infrastructure and Natural Resources Policy at Texas 2036, along with his team. We also thank the many other individuals and organizations who contributed insights and perspectives to this paper.

Executive summary

- **Water scarcity is intensifying across the United States.** Aging infrastructure, shifting environmental conditions, and growing consumption are tightening the balance between supply and demand. Fourteen states already face high water stress, with that number expected to rise. **Texas exemplifies this challenge, with a projected water deficit of 3M acre-feet by 2030 and rising to 6.9M acre-feet by 2070** in a drought-of-record scenario.
- **Closing Texas's water deficit will cost over \$200B – recent funding commitments are a strong start, but a \$140B gap remains.** The recent \$20 billion commitment to the Texas Water Fund represents a historic step forward, and when combined with existing funding programs, the state has secured about one-third of the total need. The remaining \$140B will require new approaches to capital mobilization.
- **Catalytic capital, along with bond programs, has the potential to leverage Texas's recent \$20B funding commitment into an additional ~\$70B, closing nearly half the gap.** By combining public, concessional, and private capital through catalytic instruments – deployed in tandem with bond instruments – Texas can unlock multiples of private investment. Examples from Michigan, the UK, and global markets show that well-structured catalytic instruments can de-risk innovation, attract institutional investors, and scale infrastructure.
- **To realize this opportunity, Texas and other water-stressed states can select from a range of catalytic capital instruments,** such as short-term structured debt, guarantees and credit enhancements, and offtake agreements, to identify those best suited to their fiscal and operational contexts. **These tools can unlock between 1.5 and 10 dollars of private investment for every public dollar committed,** de-risking and helping to scale projects across both mature and emerging technologies.
- **Texas has an opportunity to pioneer the use of catalytic capital for at-scale water technology and infrastructure.** With a strong institutional framework (the Texas Water Development Board and its State Water Plan), Texas is well positioned to deploy approaches that mobilize private capital for public benefit. Its example can guide other water-stressed states seeking to secure water and economic resilience for the decades ahead.

The Glass is Half Full

How Texas Can Lead in Catalytic Capital to Expand Water Funding

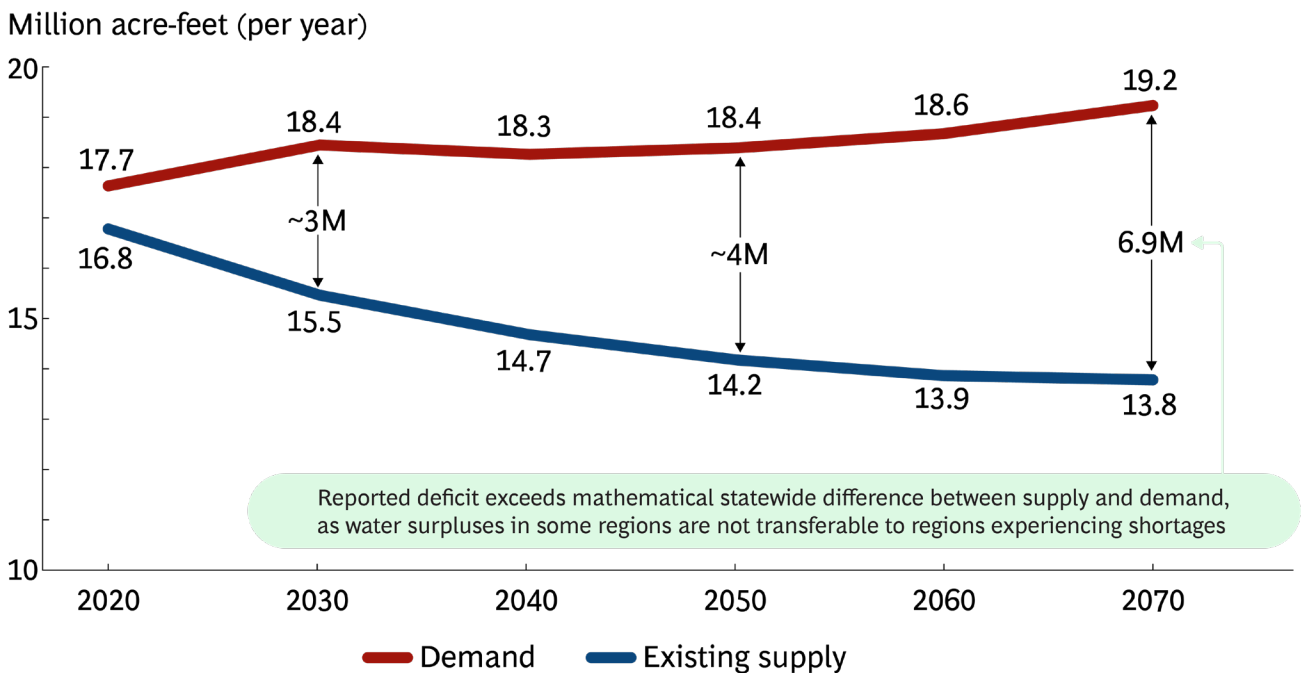
1. Water scarcity is intensifying across the U.S., and Texas is poised to play a leading role in addressing it

Water is emerging as a critical resource constraint in many parts of the U.S. Fourteen U.S. states already face high or extremely high water stress, and that number is projected to grow to seventeen by 2050.¹ According to the U.S. Geological Survey, 30 million Americans live in areas where surface water is limited.² Aging infrastructure compounds the problem: roughly 14% of treated water is lost to leaks nationwide, exceeding 60% in some systems.³ The Environmental Protection Agency estimates that more than \$600 billion will be required over the next two decades to modernize drinking-water infrastructure alone.⁴ If left unaddressed, these water challenges will have major impacts on people, the economy, and the environment.

ⁱ Extremely high: Arizona, New Mexico, Colorado, Nebraska, California, Idaho; High: Wyoming, Kansas, Nevada, Delaware, Texas, North Carolina, Utah, Florida

EXHIBIT 1

Texas's water deficit could reach 6.9M acre-feet by 2070, driven by a combination of rising demand and depleting supply

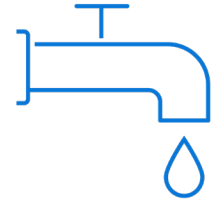
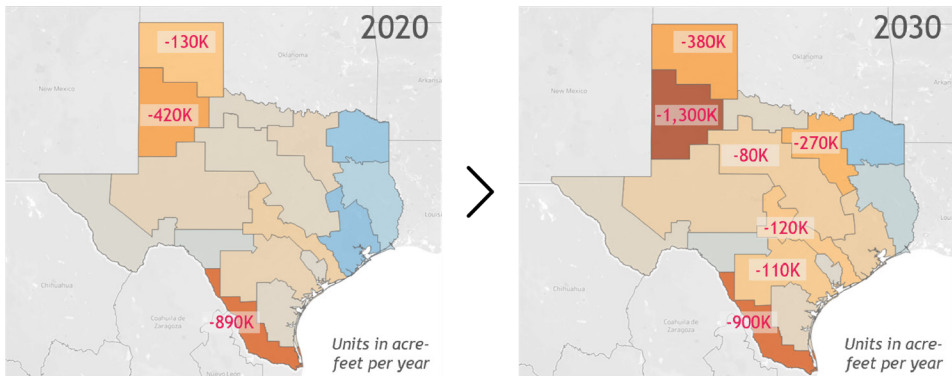


Source: Texas State Water Plan (2022).

EXHIBIT 2

A "right now problem", deficits are occurring and will accelerate

Water deficits already exist in many regions and are set to increase
Regions with >80K deficit tagged



- 11/16 regions experiencing a deficit of some level
- 3/16 regions have a deficit greater than 80K acre-feet per year
- Regions M & O have the greatest deficits at 890K and 420K acre-feet per year respectively

- 13/16 regions experiencing a deficit; regions H & P no longer have surplus
- 7/16 regions have a deficit greater than 80K acre-feet per year
- Regions M & O have the greatest deficits at 900K and 1,300K (3x increase) acre-feet per year respectively

Texas has a projected state-wide water deficit of 3 million acre-feet by 2030

Source: Texas Water Development Board, 2022 State Water Plan

Source: TWDB State Water Plan 2022; Texas 2036, Assessing Texas' Water Infrastructure Needs (2024); Rice University's Baker Institute for Public Policy, Prospective costs and consequences of insufficient water infrastructure investment in Texas (2025).

Texas is a state to watch because its water challenges are among the most acute in the nation. The state’s water deficit, during a repeat of the “drought of record”ⁱⁱ, is projected to reach 6.9 million acre-feet per year by 2070, according to the Texas Water Development Board (TWDB).ⁱⁱⁱ Rising demand from population growth and water-intensive industries, combined with declining groundwater reserves and lack of constructed reservoir capacity, are pushing supply and demand out of balance (**Exhibit 1**).

The state’s water stress is not a distant threat. The vast majority of Texas (11 of 16 water regions) already face deficits during prolonged drought periods, a number expected to rise to 13 by 2030. The severity of these deficits is also increasing. Regions with annual shortages exceeding 80,000 acre-feet (the equivalent of water consumed by an entire San Antonio suburb) are projected to more than double, from three today to seven by the end of the decade (**Exhibit 2**).^{iv, 5} Taken together, Texas’s state-level water deficit is projected to increase to 3 million acre-feet by the end of this decade. Texas is also a state to watch because it has built one of the strongest institutional frameworks for water security. Through the Texas Water Development Board (TWDB), the state runs a regionally-led process that rolls 16 regional plans into a single 50-year State Water Plan (SWP), linking local priorities with statewide demand and supply projections. This structure, created under Senate Bill 1 in 1997, couples rigorous planning with financing tools such as the State Water Implementation Fund for Texas (SWIFT) and the State Revolving Funds, which together have committed more than \$23 billion to plan-backed projects since 2015.⁶

The most recent SWP (2022) outlines a wide set of supply and demand levers to close the 6.9M acre-foot deficit that is anticipated by 2070 in a drought-of-record scenario (**Exhibit 3**). On the supply side, expanded surface water is projected to contribute over one-third of new

ii Deficit projections in TWDB’s State Water Plan are based on the “Drought of Record” scenario, which models a recurrence of the 1950s drought – the most severe statewide extreme drought event.
iii Approximately 2.25 trillion gallons of water
iv Frio Country water demand = 84,430 acre-feet; Victoria Country water demand = 76,311 acre-feet

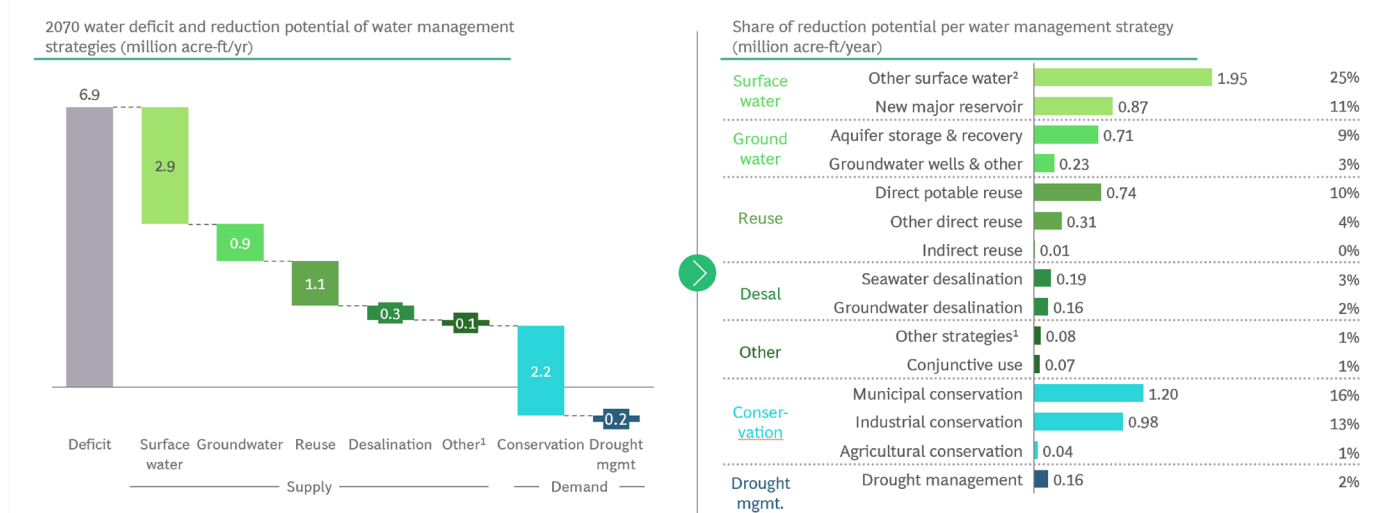
supply, accounting for nearly 3 million acre-feet. New minor reservoirs and major reservoirs enable that expansion. The expansions of ground water (0.9 million acre-feet) and reuse (1.1 million acre-feet) are driven by aquifer storage and recovery and direct potable reuse, respectively. Desalination will also play a key role – both seawater and inland brackish – and contribute 0.3 million acre-feet to closing the deficit.⁷ On the demand side, conservation measures are expected to reduce water use by 2.2 million acre-feet – 1.2 million from municipal users and 1 million from industrial sectors. Municipal initiatives will include incentives for efficient plumbing, public education, and landscape irrigation controls, while industrial strategies will focus on efficient cooling processes, water audits, and submetering.⁸

Delivering on the State Water Plan will demand investment on an unprecedented scale. The scope and diversity of the projects, ranging from new reservoirs to large-scale reuse and desalination, requires long-term, predictable funding. Ensuring that this capital is available and efficiently deployed can help Texas close the 6.9M acre-foot water deficit and secure its water future.

EXHIBIT 3

The State Water Plan details a robust set of supply and demand levers that will close the deficit and leave a safe "buffer"

Water management strategies to close the deficit - 2022 Texas State Water Plan



1. Other includes surface water desalination, weather modification (cloud seeding), brush control (removing organisms that reduce runoff), and rainwater harvesting 2. Other surface water includes minor reservoirs (less than 5,000 AF), subordination of surface water rights, and other strategies that convey, treat, reassign, or otherwise make additional surface water accessible to users, with or without additional infrastructure; Note: Deficit exceeds the arithmetic demand-supply gap, as surpluses in one region are assumed not to offset deficits elsewhere in absence new infra / water rights

Source: Texas 2022 State Water Plan.



2. Texas has made a historic funding commitment, but a gap remains

Texas has taken significant steps toward addressing its long-term water security challenges. The state's recent \$20 billion commitment marks the largest water-related investment in its history and sets the stage for meaningful progress.

In May 2025, the Texas Legislature approved House Joint Resolution 7 (HJR 7), establishing a \$20 billion dedication of state sales tax revenues over 20 years to the Texas Water Fund.^v The fund will be financed through existing sales tax and is designed to cover both supply and demand-side initiatives.⁹ Half of the funds are earmarked for new supply, such as reservoir development, desalination, and conservation programs, while the other half will initially be directed toward the Texas Water Development Board's (TWDB) discretionary activities.¹⁰ HJR 7 appeared on the public ballot in November 2025 as Proposition 4, and was confirmed with a majority by the Texas electorate.¹¹

While HJR 7 is an important milestone, it represents only a portion of Texas's long-term water infrastructure funding needs. Leading research group Texas 2036 estimates that the state will need \$153.8 billion through 2070; \$59 billion for new supply, \$74 billion for repairs to aging infrastructure, and \$21.1 billion for wastewater improvements.¹²

Building on this, BCG's analysis suggests that once resilience measures such as flood management are factored in, total needs could exceed \$200 billion (**Exhibit 4**). The TWDB's 2024 State Flood Plan identifies a \$54.5 billion funding gap across flood management evaluations, strategies, and mitigation projects.¹³

This leaves a remaining gap of approximately \$140 billion. Meeting this scale of investment will be difficult without major fiscal policy adjustments (i.e., expanding the tax base). Following the success of HJR 7 and Proposition 4, Texas faces the challenge – and the opportunity – to expand water funding through financial innovation.

v A special funding vehicle created in 2023, administered by TWDB

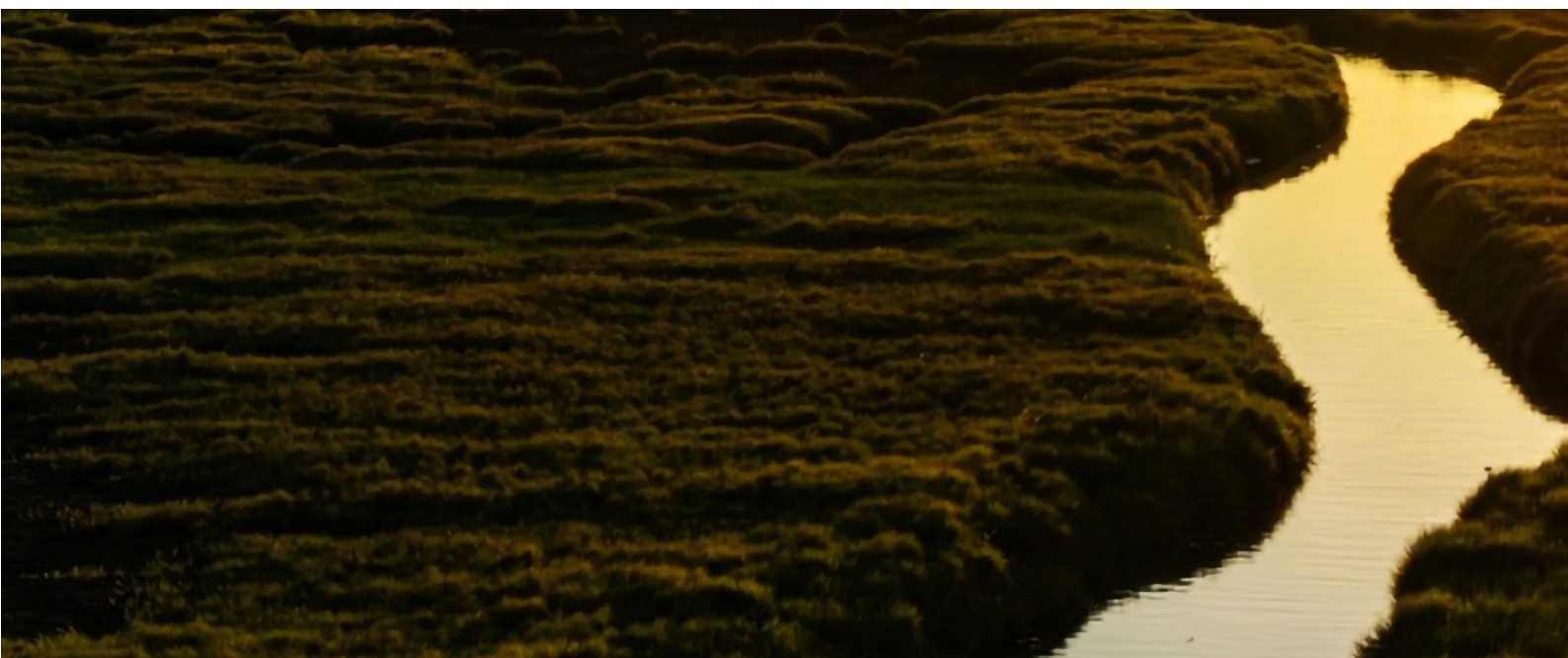
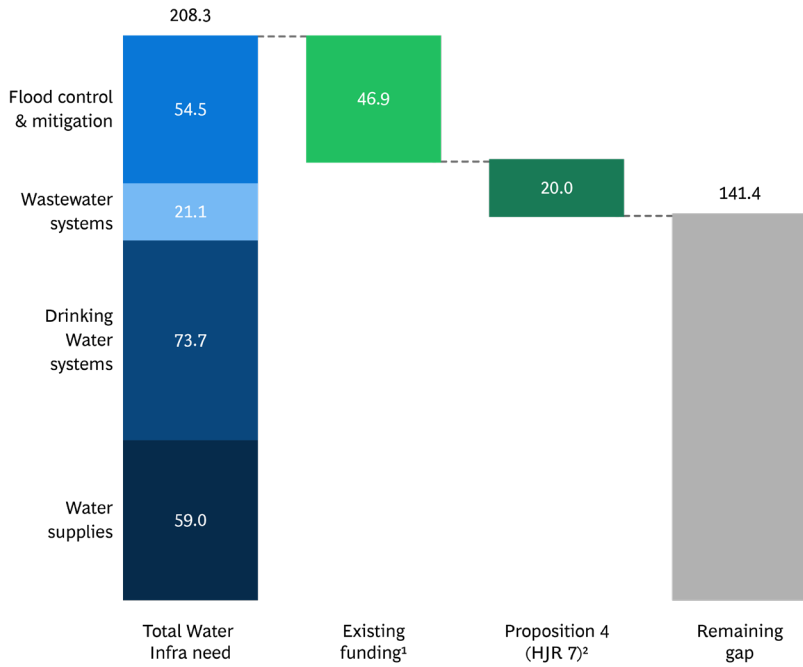


EXHIBIT 4

While a historic commitment, Proposition 4 funds only ~10% of the expected water infrastructure need; A further ~\$140B gap remains

Financing gap through 2070 based on allocated & pending sources (B\$)

Closing the funding gap



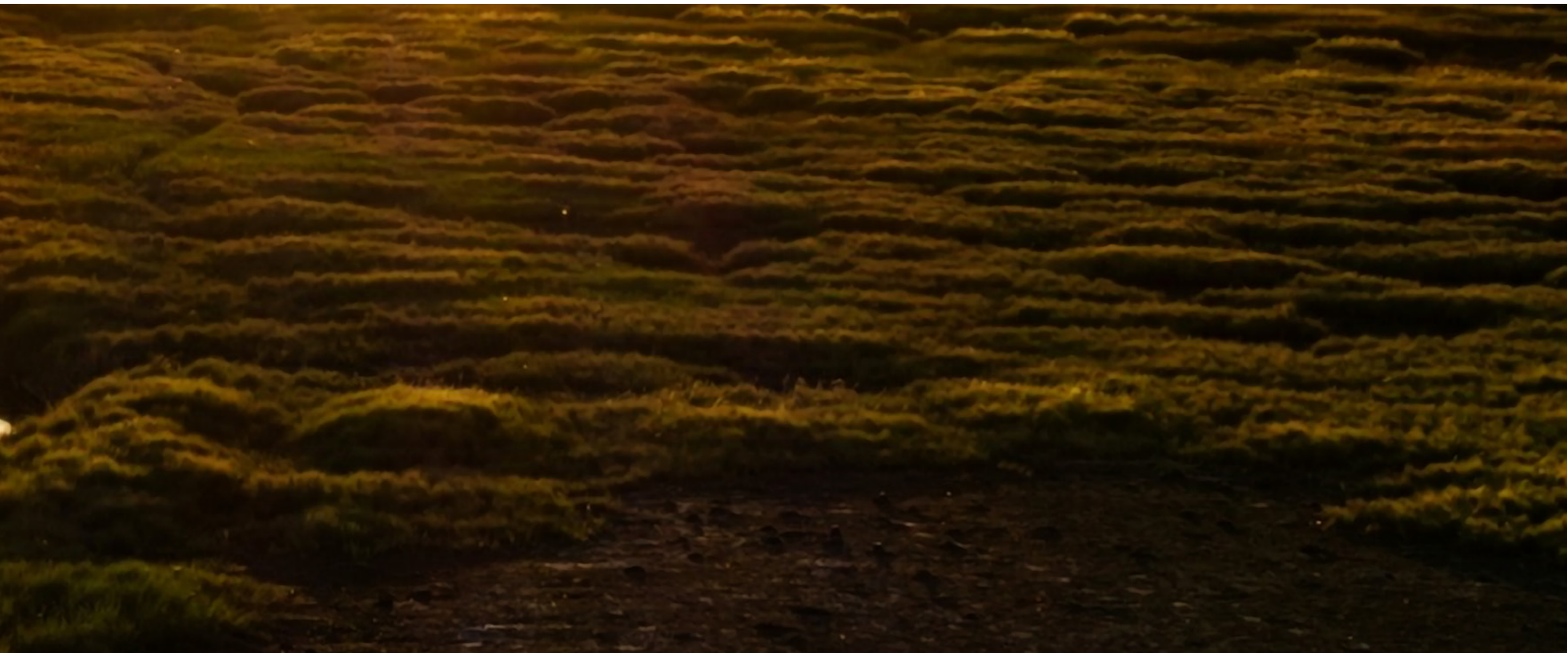
Ratepayer inflows already accounted for; \$208.3B represents residual state funding need

Catalytic capital – instruments that use public finance to support and de-risk investments – offer a viable path to crowd in enough private capital to close the gap



1. Includes SWIFT (State Water Implementation Fund for Texas), Drinking water state revolving fund (assumes 227M annually through 2040), Clean water state revolving fund (assumes 448M annually through 2040), Flood Infrastructure Fund, TX Infrastructure Resiliency Fund, Economically Distressed Areas Program, Rural Water Assistance Fund, and Texas Water Fund (includes SB 30 \$1B supplemental appropriation passed in 2023 and HB 500 \$2.5B one-time allocation passed in June 2025) 2. November 2025 ballot Note: Costs in real 2024 USD, escalated using CPI index

Source: Texas 2036 Infrastructure Investment; TWDB 2022 State Water Plan, TWDB 2024 State Flood Plan, EPA Drinking Water Infra Needs Survey & Assessment, EPA 2022 Clean Watersheds Needs Survey, BCG analysis.



3. Catalytic capital has the potential to close nearly half of Texas’s funding gap

What is Catalytic Capital?

Catalytic capital and associated models can open new channels of investment for Texas’s water system. These approaches enable public-sector entities to attract private capital to projects that would otherwise remain underfunded. A range of instruments fall under this umbrella, but at its core **catalytic capital** refers to an investment that accepts disproportionate risk and/or concessionary returns to enable third-party investment that otherwise would not be possible.¹⁴ In this sense, catalytic capital is an overarching investment strategy.

Catalytic capital can be seen as an evolution of **public-private partnerships (PPPs)** – a collaboration model long used in infrastructure development.¹⁵ PPPs may span multiple stages of the project lifecycle – planning, development, operations, and more – and are designed to share risk and return across public and private actors.¹⁶ As the challenge of financing infrastructure has grown more complex, this model has evolved into approaches focused specifically on capital formation.¹⁷ In essence, catalytic capital applies PPP principles to finance, leveraging a range of specialized instruments in the process. The next section details these instruments and how they are deployed.

EXHIBIT 5A

Range of financial products available to catalyze additional funding, tailored to project maturity, risk appetite, and investment profile

Maturity of project seeking capital		Relative risk of project seeking capital	
Investment profile Commercial	1-1.5X addtl. capital per \$ initial investment	Investment profile Scaling	1-2X addtl. capital per \$ initial investment
Investment profile Innovation	3-10X addtl. capital per \$ initial investment		
Project Bundling & Warehousing Public entity aggregates smaller projects into a larger portfolio to attract private institutional investors that provide liquidity at-scale	Guarantees & Credit Enhancements Public or philanthropic entities fund a "first-loss" tranche. Private lenders extend loans at lower rates, knowing early losses will be covered by guarantee.	D-SAFE² Private investors provide funding to early-stage companies or projects, contingent on key milestones (e.g., project permitting)	
Short-Term Secured Debt Public or philanthropic lenders provide credit lines that are secured against project capital (e.g., equipment) to mobilize short-term private investment	Revolving Credit Facilities Public entities provide reusable credit to developers that bridge working capital needs until projects are de-risked and can refinance with private lending	Offtake Agreements Corporates or public entities sign long-term contracts to guarantee demand for a nascent technology, de-risking the project and enabling further investment	
Public-Private Development Fund Public entity ¹ seeds a fund with capital to mobilize private investors. Public and private entities partner with specialist fund manager to deploy pooled capital.	Industrial Development Bonds State or local govt. issues tax-exempt securities to help private companies finance the construction or scaling of industrial projects (e.g. industrial-scale desalination)	Revenue-Linked Financing Investors (often private or philanthropic) provide upfront capital to nascent projects or technologies, with flexible repayment tied to future revenues	
Risk-adjusted Co-Investment Fund initiator (often public) creates "senior tranche" to attract institutional investors and "junior tranche" for philanthropic; both adjusted for risk expectations	Outcome-linked Bonds Private investors provide capital to deliver a project (e.g., stormwater reduction); public or philanthropic entities repay investors only if outcomes are achieved	Grants Non-repayable funds that that reduce project costs and/or support early-stage research into emerging technologies (e.g., atmospheric water generation)	

1. E.g., state wealth fund 2. Development Simple Agreement for Future Equity, model after Y Combinator's SAFE, designed to make convertible debt accessible for startups

Source: Deal announcements; Catalytic Capital Consortium; United States EPA; Sustainable Markets Initiative | Investor Leadership Network; US GAO; BCG analysis

How is Catalytic Capital Deployed?

Catalytic capital is deployed through a diverse set of lending and investment instruments that reflect the wide variety of projects, investors, and risk profiles involved in infrastructure finance. In practice, it is useful to think about these instruments through two key parameters: the maturity of the project being financed (both its market and technological readiness) and the desired investment profile – specifically, the amount of additional capital mobilized for each dollar of its initial commitment.^{vi, 18}

Once these parameters are defined, leaders can select from a broad menu of catalytic instruments suited to their objectives. **Exhibit 5A** presents an illustrative overview of these instruments, all of which facilitate novel forms of lending and catalytic investment between some combination of public, philanthropic, and private actors (e.g., private financial institutions and corporations). These actors may underwrite different types of risk to attract additional investment and ensure viable returns:¹⁹

- **Public entities** may underwrite larger, longer-term risks to build system-level assets and infrastructure that strengthen the wider water system (e.g. large-scale upgrades to aging drinking water systems).
- **Philanthropic foundations** can provide early-stage capital for innovative solutions that align with their mission and may be too risky for commercial investors – for instance, financing emerging technologies like atmospheric water generation in rural communities.
- **Private financial institutions** typically engage when risks are well defined, financing mature projects with stable returns – for example, a new reservoir in a region with reliable long-term demand from ratepayers.
- **Corporations** can deploy concessional capital to advance solutions that both strengthen business resilience and reinforce their social license to operate – for example, investing in advanced reuse facilities whose outputs serve both their operations and the surrounding community.

These examples illustrate the motivations and risk profiles of different actors engaged in catalytic capital. **Exhibit 5A** builds on this by providing a deeper level of detail – delineating, for specific financial instruments, how public entities, philanthropic foundations, and private investors (both financial institutions and corporations) tactically participate in and leverage these tools. It highlights how their complementary roles, from underwriting long-term infrastructure to financing early-stage innovation, can combine to mobilize funding and deliver shared benefits for water infrastructure.

vi Often referred to as an investment's "mobilization ratio" (World Bank)

Why Should Texas Pursue Catalytic Capital?

Texas has a strong foundation to build on. Municipal bonds, while considered conventional rather than catalytic, have demonstrated the value of financial instruments in Texas’s water system. Issued by state and local entities, these bonds^{vii} attract a mix of public and private investors^{20, 21} and have financed roughly \$16 billion in water projects through SWIFT since 2015. In some cases, these programs have attracted investment up to five times the amount of their initial issuance.²² Texas’s bond programs will no doubt play a critical role in maximizing the value of the \$20 billion commitment. However, there are advantages to not concentrating all resources in traditional bond mechanisms. For example, bond programs generally focus on mature, low-risk projects (potentially limiting innovation) and are constrained by the cashflows of issuing governments or utilities (potentially limiting involvement of large-scale, private investors and partners).

Catalytic capital provides a pathway to maximize the reach of Texas’ \$20B commitment. Used alongside bond programs such as SWIFT^{viii}, it can maximize public funding by diversifying risk, engaging private investors and encouraging their buy-in to water infrastructure, and supporting a broader mix of projects. Indeed, closing the state’s water deficit will require capital not only for proven, lower-risk solutions – such as reservoirs and groundwater wells – but also less mature ones that face market or technological barriers. These include, for example, desalination (limited by cost and stakeholder buy-in) and data-driven demand management, such as smart sensors for irrigation²³ (constrained by early-stage adoption). BCG’s analysis maps the major solutions in the State Water Plan across two dimensions of readiness – market maturity and technological maturity – identifying three investment profiles: **commercial** (high on both dimensions), **scaling** (high on one, low on one), and **innovation** (low on both) (**Exhibit 5B**). Conventional solutions, well suited to existing funding mechanisms, such as bond programs, are also outlined.

BCG analysis indicates that catalytic capital, along with bond programs, has the potential to leverage Texas’s \$20 billion appropriation into as much as \$87 billion in total investment – including an additional \$67 billion that would close nearly half of the state’s \$140 billion funding gap. This analysis allocates the \$20 billion appropriation across an illustrative set of investment profiles (top half of Exhibit 5B), including a theoretical share for bond programs. For each investment profile, catalytic instruments are then applied to attract additional investment (bottom half of Exhibit 5B), at ratios ranging from 1.5X to 10X, based on best-in-class examples where the instruments have been deployed.^{ix} The feasibility of this approach will depend on the public sector’s risk tolerance and its willingness to enable greater private-sector participation in water infrastructure. These mechanisms are not without risk: catalytic capital requires careful design and rigorous evaluation of potential downside scenarios, including cases where the underwriter may ultimately absorb losses or fund the project outright. Quantifying, articulating, and stress-testing these risks will be critical to ensure that public funds are used responsibly while still unlocking the broader benefits of financial innovation.

To realize this opportunity, Texas – as well as other water-stressed states – can begin by evaluating the full suite of catalytic capital instruments to establish which best fit their fiscal and operational contexts. Another critical step is to draw insights from sectors and regions where these tools have already been applied successfully. Catalytic capital has proven effective in energy innovation and sustainable development in other states and global regions, as show in the next chapter. Texas has the opportunity to adapt and scale these models for water infrastructure – pioneering an approach that other water-stressed states can replicate to apply financial innovation to long-term water security.

^{vii} Predominately revenue bonds in the case of TWDB

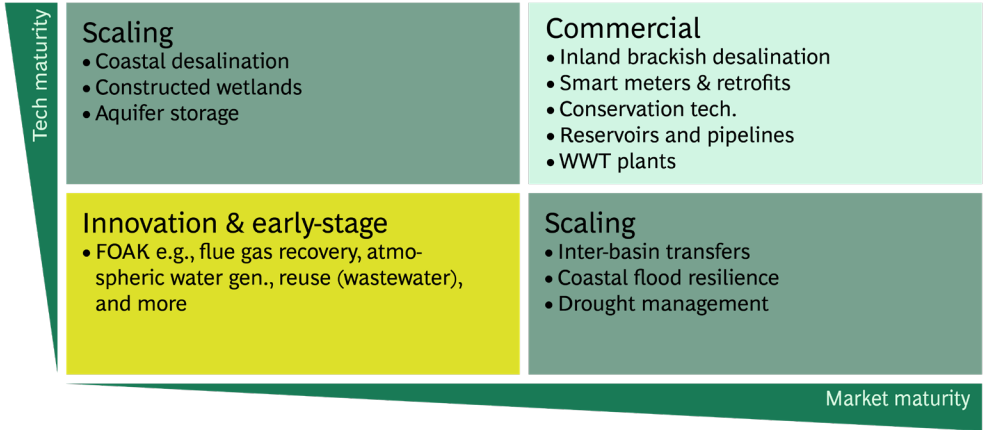
^{viii} Beyond SWIFT, Texas programs with bond-issuance authority include the State Revolving Funds and the Development Fund

^{ix} Mobilization ratios anchor to the high-end estimates for each investment profile and its underlying instruments, as indicated in Exhibit 5A (Commercial = 1–1.5X; Scaling = 1–2X; Innovation = 3–10X). Those ranges are based on deployments from other regions and industries, as follows – “Commercial” mobilization ratio is based on deployments from the UK National Wealth Fund, IDB Invest, and African Development Bank. “Scaling” mobilization ratio is based on deployments from the USDA Forest Service (in partnership with the National Forest Foundation, Blue Forest, and World Resources Institute), NYGB, and Mobilist. “Innovation” mobilization ratio is based on deployments from the U.S. Department of Energy’s APRA-E program, Elemental Impact and Capture6, and the World Bank in partnership with India’s PRSF program. “Conventional” mobilization ratio is based on historical data from TWDB’s SWIFT program.

EXHIBIT 5B

Catalytic capital has the potential to leverage Texas's recent \$20B commitment into an additional ~\$70B, nearly halving the funding gap

1. Closing Texas's water deficit requires every tool in the toolkit; some of which are progressing in market or tech maturity, providing good investment profiles for catalytic capital...



Illustrative

Match water projects and techs with investment profiles

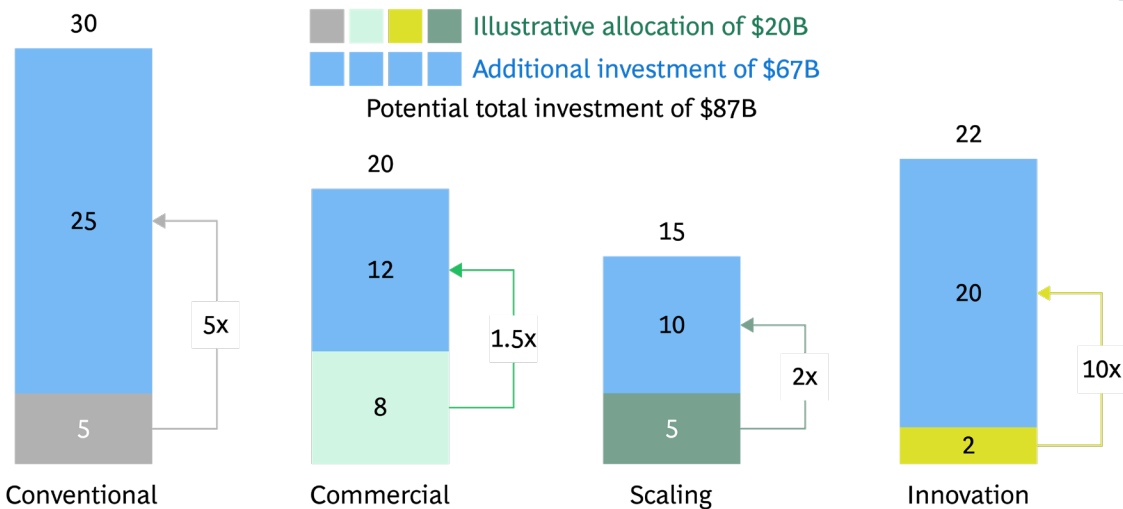
2. ...Others are more established, providing good investment profiles for bonds – the foundation of Texas's water funding



3. Catalytic capital, along with bonds, can fund the full toolkit: Our analysis starts with an illustrative allocation of Texas's \$20B commitment across investment profiles...



4. ...each employs catalytic instruments or bonds to attract additional investment, at ratios from 1.5X-10X



Allocate funds across investment profiles & leverage financial instruments

Note: Illustrative mobilization ratios are based on best-in-class examples where the instruments have been deployed, as detailed in footnote ix on page 12.

Source: BCG Analysis; expert interviews

4. The next step is to turn ambition into impact – lessons from global and regional leaders

Around the world, and within the U.S., governments have used catalytic capital to accelerate investment in critical infrastructure – most visibly in sustainable development and energy innovation. While the investment landscapes differ, water infrastructure faces parallel challenges in terms of scale, innovation, and public fiscal limits. Leaders in energy innovation have shown that catalytic capital can help tackle these challenges by unlocking multiples of private funding. U.S. states like Michigan, international governments like the United Kingdom (UK), and multilateral initiatives in emerging markets all demonstrate how public funding can be structured to mobilize private capital, while sustaining investor confidence, sound governance, and delivering measurable outcomes.

Texas – and states facing similar water challenges – can take insights from these experiences and apply them within their own context. The mechanisms that helped de-risk first-of-a-kind energy projects – short-term structured debt, guarantees and credit enhancements, and offtake agreements, for instance – can have applications for water technology and innovation. What distinguishes these models is not the sector but the design: each aligns public objectives with private-sector rigor, creating investable pipelines that attract institutional partners. The following examples, from the Michigan Saves program, the UK's Infrastructure Bank, and the SDG Loan Fund, illustrate how catalytic capital has turned policy ambition into market momentum.

Michigan Saves: \$70M in Catalytic Capital Mobilized Over \$500M in Private Lending²⁴

The challenge. Access to affordable financing has long been a barrier to scaling distributed infrastructure such as energy efficiency upgrades, small-scale renewables, and resilience improvements. Many local lenders view these projects as too small, fragmented, or risky to finance without credit support. As a result, even well-proven technologies often fail to reach commercial scale because investors lack experience underwriting these assets.

The catalyst. Michigan created Michigan Saves to fill this financing gap. Seeded with approximately \$70 million from state and philanthropic sources, including the Michigan Public Service Commission and the Kresge Foundation, the program provides loan-loss reserves, credit enhancements, and partnership guarantees to reduce lender risk. These catalytic mechanisms enable banks and credit unions to extend financing to households, small businesses, and public entities for infrastructure upgrades that reduce long-term costs and improve system resilience.

The impact. Since inception, Michigan Saves has mobilized more than \$500 million in private lending – about seven dollars of private investment for every public dollar committed. The model has proven that limited catalytic capital can crowd in commercial lenders, creating a sustainable market for distributed infrastructure investment. The program's governance – multi-stakeholder, transparent, and data-driven – has made it a leading U.S. example of how targeted credit enhancements can unlock private capital for essential local infrastructure.

UK Infrastructure Bank: \$28B in Public Capital Targeting \$40-60B in Private Investment^{25, 26}

The challenge. Like many advanced economies, the UK faces an aging infrastructure base and a major investment gap in transport, energy innovation, digital systems, and water resilience. Traditional public funding and one-off project bonds were insufficient to deliver the level of coordinated investment needed to meet national infrastructure and growth objectives.

The catalyst. To address this, the UK government launched the UK Infrastructure Bank (UKIB) in 2021 as a permanent, state-owned institution dedicated to mobilizing private capital for national infrastructure priorities. UKIB was capitalized with £22 billion (approximately equal to \$27.5 billion) in public funds and a mandate to invest through loans, equity stakes, and guarantees – each designed to attract private investors to projects that advance economic growth and infrastructure resilience. The bank operates independently but under HM Treasury oversight, ensuring commercial discipline alongside public accountability.

The impact. UKIB aims to crowd in £30–50 billion (≈ \$38–63 billion) in private investment – roughly two pounds of private funding for every public pound committed – while accelerating project delivery across energy, transport, and water sectors. Early investments include joint financing of regional transport systems, energy storage facilities, and flood resilience infrastructure. Beyond individual transactions, the institution has demonstrated how a dedicated public investment platform can systematically deploy catalytic capital, aligning private markets with long-term national priorities.

SDG Loan Fund: \$136M in Catalytic Capital Mobilized \$1.1B in Private Investment^{27, 28}

The challenge. Emerging and frontier markets face a persistent financing gap for sustainable growth. Many commercially viable projects in sectors like energy innovation, financial inclusion, and agribusiness remain underserved by institutional investors because of credit risk, market unfamiliarity, and limited risk-adjusted return profiles. Development finance institutions (DFIs) such as FMO Investment Management (FMO IM) can deploy early-stage capital, but their balance sheet capacity is finite. Bridging that gap requires new fund structures that can channel institutional investment into higher-impact, riskier markets while maintaining investor confidence.

The catalyst. To address this challenge, FMO IM and Allianz Global Investors (AllianzGI) launched the Sustainable Development Goals (SDG) Loan Fund in 2022. With a total fund size of \$1.1 billion, it is one of the largest catalytic funds ever raised for sustainable lending. The capital stack includes \$111 million in first-loss capital from FMO, supported by a \$25 million unfunded guarantee from the MacArthur Foundation under its Catalytic Capital Consortium initiative. The senior tranche, approximately \$1 billion from institutional investors such as Allianz SE, participates in FMO-originated senior loans. This structure attracted roughly nine dollars of private investment for every dollar of catalytic capital from FMO.

The impact. The SDG Loan Fund channels debt financing to agribusiness, financial institutions, and energy projects across Africa, Asia, Eastern Europe, and Latin America. Over its investment period, the fund is expected to support 100–120 loans and sustain approximately 60,000 jobs. By demonstrating how first-loss DFI capital, enhanced with philanthropic guarantees, can unlock large-scale institutional participation, the SDG Loan Fund set a new benchmark for catalytic capital fund design in sustainable infrastructure and finance.

5. Implications for Key Stakeholders

Texas has laid the foundation for a new era of water investment, anchored by disciplined planning, strong policy alignment, and a historic funding commitment. Yet meeting long-term water needs – for Texas and other water-stressed states – will require financial innovation and scale at unprecedented levels. The following actions outline how key stakeholders can leverage catalytic capital to unlock new sources of water funding. While this paper has focused on Texas as a model, these actions are applicable to leaders in any water-stressed region.

Public-Sector Leaders (State and Regional)

Create the enabling environment for private capital to flow toward water.

- Expand existing funding vehicles, such as bond programs, into state-level platforms – a “Water Investment Bank” that is designed to deploy capital through a wide range of instruments such as short-term structured debt, credit enhancements and guarantees, offtake agreements, and more.
- Standardize project finance models with template contracts, offtake agreement terms, and credit frameworks to lower transaction costs.
- Integrate finance with strategic planning, by linking state- or regional-level water planning directly to catalytic instruments and financial mobilization targets.
- Support regional coordination to bundle smaller municipal or basin-scale projects into investable portfolios.

Private Financial Institutions (Commercial and Development Lenders)

Approach water infrastructure as an investable asset class.

- Pilot catalytic instruments in partnership with state and regional authorities for innovative water technologies and large-scale infrastructure.
- Develop standardized underwriting criteria using credit data from state and regional water authorities, as well as utilities.
- Integrate water in overall risk and credit strategies, supporting signals that water resilience is valued by financial markets.
- Deploy technical-assistance capital to help smaller utilities structure projects that meet local requirements.

Corporate and Philanthropic Investors (Concessional, Philanthropic, & Impact Investing)

Use catalytic capital to bridge early risk and unlock institutional scale.

- Provide first-loss or subordinated capital to de-risk early-stage projects and help attract institutional investors.
- Support fund design and corporate incubation for catalytic capital structures, based on successful examples of public-private co-investment in other regions.
- Align concessional capital with measurable outcomes tied to efficiency, reuse, and long-term business resilience.
- Convene partnerships between foundations, corporate sustainability funds, and public agencies to scale catalytic approaches.

Utilities and Water Service Providers

Evolve from grant recipients to active partners in finance.

- Adopt performance-based financing models that link capital access to measurable gains in reliability and efficiency.
- Co-invest with private lenders and developers in innovative water technology and large-scale infrastructure projects that currently face financial constraints.
- Increase transparency by publishing project and performance data to improve creditworthiness.
- Pool procurement and financing across utilities to reduce costs and access larger capital markets.



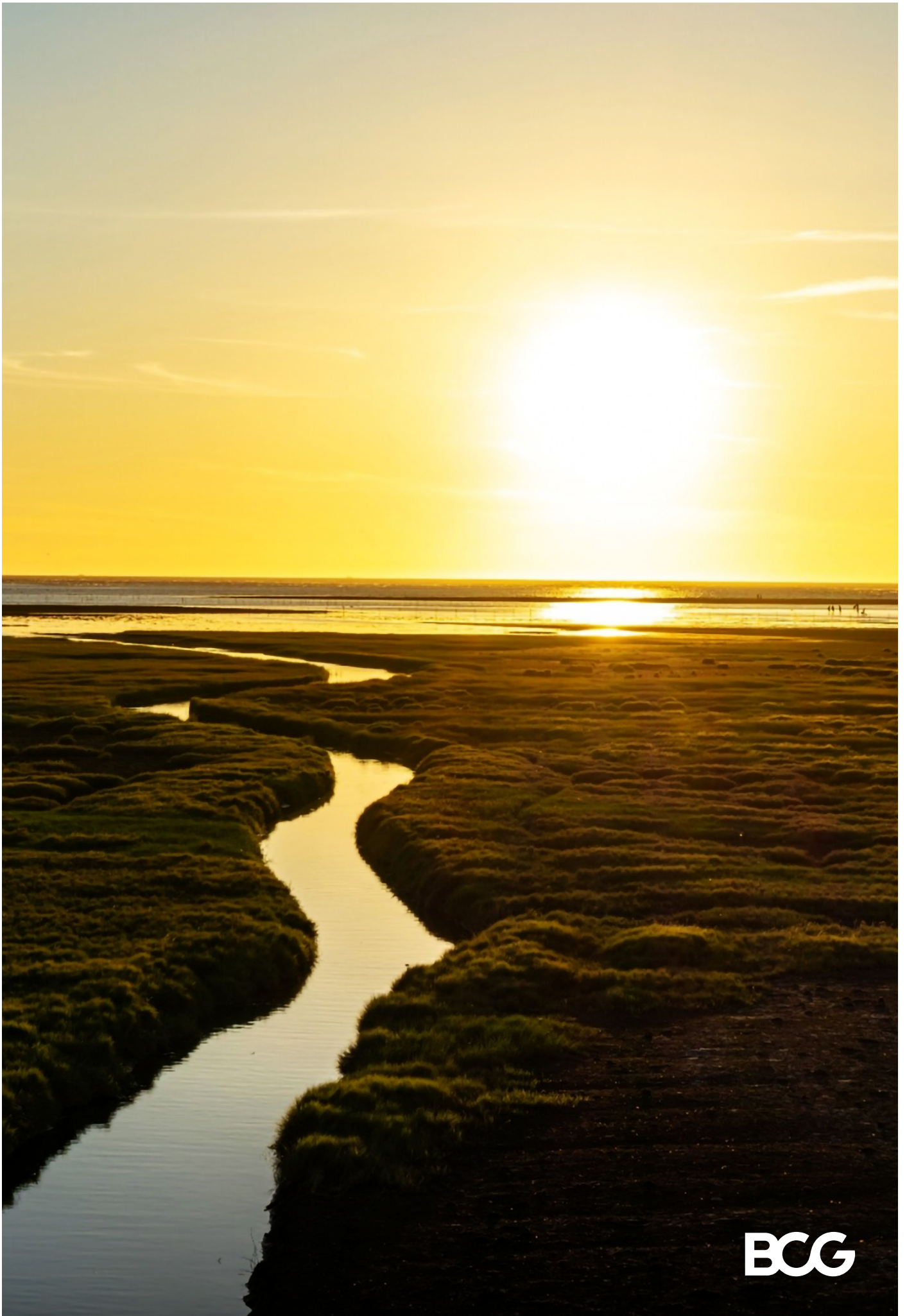


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End Notes

- 1 World Resource Institute, *Aqueduct Water Risk Atlas*, 2023
- 2 US Geological Survey, *National Integrated Water Availability Assessment*, 2025
- 3 US Environmental Protection Agency, *Water Efficiency for Water Suppliers*, 2025
- 4 US Environmental Protection Agency, *7th Drinking Water Infrastructure Needs Survey and Assessment*, 2023
- 5 Texas Water Development Board, *State Water Plan, 2022*; BCG Analysis
- 6 Texas Water Development Board, *Financial Assistance Project Details – Online Database*
- 7 Texas Water Development Board, *State Water Plan, 2022*
- 8 Texas Water Development Board, *State Water Plan, 2022*
- 9 Texas Legislature Online, *Bill: SB 7, 2025*
- 10 *Ibid*
- 11 Texas Tribune, *Texas Set to Make \$20B Investment in Water after Voters Approve Proposition 4*, 2025
- 12 Texas 2036, *Assessing Texas's Water Infrastructure Needs*, Mazur J., 2025
- 13 Texas Water Development Board, *2024 State Flood Plan, 2024*
- 14 Catalytic Capital Consortium, *Frequently Asked Questions About Catalytic Capital*, 2022
- 15 UBS, *The Power to Scale Impact: A Primer on Blended Finance*, 2024
- 16 UN Investment Policy Hub, *What are PPPs?*, 2025
- 17 UBS, *The Power to Scale Impact: A Primer on Blended Finance*, 2024
- 18 World Bank, *World Bank Group Approaches to Mobilize Private Capital for Development*, 2020
- 19 Catalytic Capital Consortium, *Frequently Asked Questions About Catalytic Capital*, 2022
- 20 U.S. Securities and Exchange Commission, *What are Municipal Bonds*, 2024
- 21 Tax Policy Center, Urban Institute & Brookings Institution, *What are Municipal Bonds and How are They Used*, 2024
- 22 Texas Water Development Board, *Financial Assistance Project Details – Online Database*
- 23 World Economic Forum, *Harnessing Digital Technologies for Smarter Water Management in Agriculture*, 2025
- 24 Michigan Saves, *2024 Annual Impact Report*, 2024
- 25 UK Infrastructure Bank, *UKIB Strategic Plan, 2022*; *Ibid, Policy Design*, 2021
- 26 Financial Times, *UK Infrastructure Financing on Track to Reach Record High*, 2025
- 27 Convergence, *The SDG Loan Fund – Blended Finance Fact Sheet*, 2022
- 28 Boston Consulting Group, British International Investment, *Scaling Blended Finance: Practical Tools for Blended Finance Fund Design*, 2025



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