

Roundtable on Financing Water

The Roundtable on Financing Water

Regional meeting: The Americas, 26-27 June 2019

Inter-American Development Bank Headquarters, Washington, D.C.

Discussion Highlights

The fourth meeting of the Roundtable on Financing Water gathered over 100 participants including private investors and financiers, development finance institutions, government officials, philanthropies, NGOs and research institutions. The meeting focused on recent developments and new analytical work across five major themes: resilience in water infrastructure investments; blended finance; strategic investment pathways; role of innovation and technology; as well as improving environmental performance of development finance. This was a regional meeting focused on the Americas organised in partnership with the OECD, the Inter-American Development Bank (IDB) and the U.S. Government. Participants shared experience related to financing water in a range of countries in the region, including: Argentina, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Jamaica, Mexico and the U.S.

A brief summary of the highlights is provided below. The agenda and background papers are available on the meeting [webpage](#).

Key messages

1. *Rationale and aims of water-related investment: The case for resilience*

- Resilience aims at improving how systems perform under stress. Whereas conventional approaches to infrastructure design and investment tend to focus on known and quantifiable threats and stressors, they leave systems ill-prepared for scenarios of uncharacterised or unmitigated stress. Therefore efforts to improve resilience are necessary to complement risk management.
- Despite advances in hydro-climatology, predicting variability of water demand and supply precisely will remain a major challenge, particularly given global climate change. “Predict-then-act” approaches to managing water systems can backfire under deeply uncertain conditions. Further, eliminating risk entirely is neither physically possible nor economically feasible. Pursuing an elusive “certitude” through “spurious rigor” is a fallacy, and factoring in resiliency in the design and planning of water systems is a more cost-effective approach to achieving safety in the near-term and for securing investments over the long-term.
- Insight about how best to achieve more resilient outcomes can be found from newly emerging analytical approaches as well as lessons-learned from experience. From a resilience perspective, the quality of system performance is a function of the activities prior to and following disruptive events. In particular, ensuring mechanisms for learning and recovery-oriented thinking can help minimize the impact of disruption, e.g., by planning for agile responses from public authorities and regulators in the wake of disruptive events.

2. *Strategic investment pathways*

- A major challenge related to how governmental authorities and project developers can design strategic project pipelines is to ensure resiliency and water security over the long term.
- Financing needs for water and sanitation services and water security investments remain very high in many countries in the region. When it comes to strategic investment planning, much remains to be done: most countries do not have updated master plans or feasibility studies required for investments, absorptive capacity for implementing projects is lacking, even if increased funds are available; and the enabling environment (e.g. policy frameworks and institutional arrangements) must be improved.

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- The experience of Water Funds in the region demonstrates how stable funding flows to improve catchment management can deliver economic, environmental and social benefits. One of the challenges to attract more financial investment for water resources management is the difficulty related to the quantification of benefits of interventions.
- 3. *Blended finance for water-related investments***
- Blended finance, defined as the strategic use of development finance for the mobilisation of additional commercial finance towards sustainable development in developing countries, offers a promising approach to harness additional resources for water-related investments and strengthen the financing systems on which such investments rely. Recent OECD analysis shows that blended finance is emerging in the sector, but has not yet reached scale.
 - In order to scale up blended finance for water-related investment, several lines of action can be helpful: first, mobilising local commercial actors; second, addressing unfavourable project attributes; and third, increasing further co-operation and co-ordination among development finance actors.
 - Several examples from the LAC region provide lessons on how blended finance can work for water and sanitation. These include: the Azure model in El Salvador and the Jamaica Credit Enhancement Facility used to mobilise local commercial finance for water supply, sanitation and wastewater treatment.
 - In the U.S., the Environmental Protection Agency (EPA) water infrastructure finance models are designed to leverage non-public sources of capital (operating with blended finance attributes) and “crowd-in” private investment. These models have been designed to provide access to capital at minimal market or below market rates for high priority projects which address national public health and water quality goals.
- 4. *Improving environmental performance of development finance***
- Pressures on water resources have been exacerbated in some cases by development decisions that did not take environmental concerns into account and that have resulted in contamination of ground and surface waters, overuse of water resources beyond recharge rates, deforestation of catchment areas and paving over of permeable surfaces, including construction on flood plains. Such decisions impair future prospects for sustainable and inclusive development.
 - Shifting the way of thinking from simply focusing on building water infrastructure towards delivering water services where nature-based solutions are systematically considered can contribute to improving the environmental performance of development finance and minimise investment needs. Facilitating such shifts require a strong evidence base and the engagement of both public and private leadership.
- 5. *Seizing opportunities generated by innovation and technology***
- Cities around the world are facing major challenges that exacerbate the urban sanitation challenge, including rapid urbanisation and population growth in informal settlements, water scarcity and climate change. Rethinking the technology and service models is necessary in order to meet the needs of urban poor with safe, affordable sanitation.
 - From the investor’s perspective, investing in disruptive clean technologies requires capital with a significant risk tolerance. Several major criteria that investors find attractive in investing include: technologies that are proven, proprietary and patented, with a clear path to positive cash flow.

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Global statistics indicate that around 2.1 billion people lack access to safely managed drinking water services and 4.5 billion people lack access to basic sanitation.¹ Even though there are massive investment needs for water as these data indicate, funding falls well short of investment needs required to reach Sustainable Development Goal (SDG) 6, which aims to ensure sustainable management of water and sanitation for all by 2030. The Roundtable meeting explored recent developments and concrete options to bridge the financing gap by i) making the best use of existing assets, ii) crowding in new sources of finance, and iii) enhancing the effectiveness of investments.

Session 1. Rationale and aims of water-related investment: the case for resilience

To set the scene, keynote speeches highlighting the importance of using investment to improve the resilience of water infrastructure were delivered from the policymakers and investors' perspectives. [Dr. Igor Linkov](#), Research Physical Scientist, Risk and Decision Science Team, U.S. Army Corps of Engineers (USACE), emphasised that risk-based approaches to infrastructure planning are not sufficient to ensure water system service delivery and that complementary resilience-based investments are needed to achieve best outcomes under scenarios of stress. Conventional approaches to infrastructure design and investment tend to focus on known and quantifiable threats, which can inadvertently exacerbate vulnerability to the growing range of unknown and unpredicted residual risks. There is an opportunity to divert investment from purely risk-focused to recovery-focused strategies and other resilience enhancements to improve the performance of water systems when they come under stress.

Resilience is the ability to prepare for, withstand, respond, adapt to changing conditions and recover rapidly from disruptions.² Incorporating resilience into infrastructure design and investment needs to include strategies to achieve prioritised development objectives, as well as the capacities to recover from disruption and be adaptive to new realities after a disaster. In that sense, the resilience of critical functions that are delivered by water infrastructure systems must be considered, rather than simply the hardiness of their constituent parts.³ Notably, system resilience and (short term) efficiency do not correlate and optimising for one or the other will result in distinct system designs.⁴ Trade-offs between efficiency and resilience are of crucial importance in deciding the best investment strategy. Financiers' focus on investing in water infrastructure efficiency may result in significant losses once unpredictable interruptions occur (e.g., natural disaster, financial instability, political changes, etc). Dr. Linkov presented two approaches to quantify resilience that are especially useful for development and finance: metrics-based approaches driven by multi-criteria decision analysis and consideration of economic and financial systems as interconnected networks, with network science being a scientific foundation for quantification.

[Dr. Roger Pulwarty](#), Chief Scientist, Physical Sciences Division, National Oceanic and Atmospheric Administration (NOAA), emphasised that incorporating resilience in water infrastructure investments is the safest approach to anticipate the impacts of hydro-climatic changes of the future and to develop networks that buffer potential system surprises. He noted current water management and planning principles typically do not address risk that changes over time, leaving society exposed to more risk than is being anticipated.

In particular, "predict-then-act" methods of building resilience can backfire under deeply uncertain conditions, because many critical uncertainties are difficult or impossible to predict, and thus the complexities of adaptation are often underestimated. Despite advances in techniques to project and downscale impacts of climate change and other drivers, predicting future hydro-climate variables is expected to remain a major challenge. To avoid the trap of pursuing an illusion of "certitude" through "spurious rigor" (the application of models of increasing complexity with multiple and sometime undocumented sources of uncertainty), factoring in resiliency in the design and planning of water resources

¹ WHO-UNICEF (2017). Progress on drinking water, sanitation and hygiene: 2017 update and SDG baselines, www.unicef.org/publications/files/Progress_on_Drinking_Water_Sanitation_and_Hygiene_2017.pdf

² National Research Council (2012). Disaster resilience: A national imperative

³ [Linkov and Trump \(2019\). The Science and Practice of resilience, Springer, 2019](#)

⁴ [Kott and Linkov \(2019\). "Resilience and efficiency in interconnected networks" Springer, 2019](#)

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systems is the safest approach.⁵ A long-term, sustained observation and collaborative research programme on water infrastructure, which includes the resilience in water infrastructure design and planning is thus crucial. Reducing disruptive consequences by investing in resilience for enhancement of recovery and adaptation is the next step for continuous improvement in the water related investments.

[Dr. Rui de Britto Álvared Affonso](#), Chief Financial Officer of SABESP, shared his experience on financing water security in the Latin America and the Caribbean (LAC) region. As a leading water and sewage service provider in the region, SABESP is owned primarily by the State of São Paulo (49.7%) with significant private ownership (via shares listed on public stock markets). It has one of the largest number of customers in the world by providing water and sewage services to 28 million and 22.8 million people, respectively, which covers around 65% of São Paulo State's urban population.

From 2011 to 2017, SABESP has invested R\$25.4 billion, 35% of the investment in water and sewage in Brasil, without significant contribution of fiscal funds. These R\$25.4 billion have been financed basically by tariffs (almost 70%) and by debt (around 29%). The company's investment has been increased by 36% in real terms between 2008 and 2018, despite the crisis in the Brazilian economy.

One of the greatest challenges related to water security and resilience in Brasil occurred during the historic drought in São Paulo in 2014-15. This led to a drop of 20% in SABESP's revenues and a decrease of 72% in net income. To overcome this challenge, SABESP shifted its planned investments from sewage towards expanding water supply by increasing reservoir capacity and cut down the amount of time to realise investments. This consequently increased SABESP's reservoir's capacity by 14% and transfers by 168%, which led to increasing the total water treatment capacity by 12%. A key lesson from SABESP's experience with responding to drought is the importance of planning for investments that improve the system's resilience and allowing for their inclusion in the regulated asset base.

Interventions from the floor highlighted recent experience with financing arrangements that crowd in (domestic) commercial finance for resilient water management.

In contrast to abundant water resources and improvements in water supply services, there has also been lack of services in the sewage, water treatment and sanitation in Brasil. According to statistics, over 4.1 million Brazilians do not have access to bathrooms and 100 million do not have access to sewerage and wastewater treatment.⁶ BRK Ambiental has strived to increase access to improved sanitation for Brazilians and recognises that private capital has an important role to play to fill in the financing gap due to insufficient public funding.

Many developing countries often have large pools of capital that can potentially be harnessed for local currency financing of water-related investments. Past experience shows that the use of guarantees on debt through structured financing approaches can mobilise local commercial finance. Examples include the Tamil Nadu Water and Sanitation Pooled Fund and the Philippines Water Revolving Fund. To date, these models have not been effectively replicated and scaled. More can be done by development finance providers to draw lessons from these experiences to adapt proven models for new situations.

The importance of private financing for water-related investments has also been growing in the U.S. For example, the private investment firm Ecosystem Investment Partners (EIP), has been playing a key role in undertaking private equity investments in large-scale ecosystem restoration and conservation. EIP makes these investments with committed capital from institutional investors, such as pension funds and insurance companies. Focusing on delivering risk-adjusted returns, EIP has been handling a management portfolio of USD 500 million operating in 17 U.S. states. The variety of investments that EIP deals with today includes flood protection, improving water systems operations, mitigating algae blooms and dust emissions due to shrinking inland seas, which can potentially lead to asthma. Restoration investments generate credits that can be sold to entities required to offset negative environmental impacts in order to comply with

⁵ [Linkov, Kurth, Trump and Pulwarty \(2019\). The Business Case for Resilience in Water Infrastructure Investment](#)

⁶ Vernaglia, T. (2019). *Uruguiana - State of Rio Grande Do Sul*. Video presented at the 4th Roundtable for Financing Water, Washington, D.C.

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environmental legislation. To be effective, investments must provide permanent protection of land delivering improved ecosystems services that meet government-determined standards and are scientifically measurable. These developments illustrate how investments in large-scale ecological restoration can be financially viable for private investors and deliver environmental improvements.

Closing remarks from [Professor Jesse Kennan](#), Harvard University, highlighted the rapidly changing landscape of financing that contributes to resilience. Generally, the value of resilience and adaptive capacity needs to be visible through life-cycle assessment and environmental cost accounting, which can then be translated into the yield of bespoke investment products. One illustration of recent developments is the Blue Forest Resilience Bond, which channels private finance towards forest restoration in the western US to decrease the risk of severe wildfire while protecting water supply and biodiversity. Payments on the bond are made based on the benefits derived from restoration activities.

Session 2. Blended finance for water-related investments

Water-related investments have traditionally been financed by the public sector, with concessional donor finance playing an important role in developing countries. Blended finance, defined as the strategic use of development finance for the mobilisation of additional commercial finance towards sustainable development in developing countries, offers a promising approach to harnessing additional resources for water-related investments.⁷

OECD analysis of blended finance for water-related investments shows that blended finance is emerging in the sector, but has not yet reached scale. Research focuses on the three sub-sectors: (1) water and sanitation utilities; (2) small-scale off-grid sanitation; and (3) multi-purpose water infrastructure (MPWI), which includes emerging landscape based approaches. Recent OECD data on private finance mobilised by blended finance shows that for the water and sanitation sector, guarantees account for 60% of private finance mobilised, followed by syndicated loans mobilising 28% of finance mobilised.⁸

Addressing operational bottlenecks can bolster further investment in water and stimulate blended finance instruments and mechanisms. In order to scale up blended finance for water-related investment, several lines of action can be helpful: first, mobilising local commercial actors; second, addressing unfavourable project attributes; and third, increasing further co-operation and co-ordination among development finance actors.⁹

Water supply and sanitation services are locally provided with public good characteristics. These features emphasise the need to work closely with local actors and public authorities in order to align with local development priorities. Moreover, a lack of co-operation among the various stakeholders in blended finance transactions and programmes may constitute a barrier for the broader uptake of blended finance, in effect crowding out commercial finance. This could be improved by a better co-ordination (1) across development and commercial players in blended finance transactions, but also (2) more structural co-ordination among development finance actors to enhance co-operation on their engagements, especially when a concessional element is involved in order to make space for commercial finance to emerge in the sector.

Several examples of blended finance from the Americas provide useful lessons on how blended finance can work for water and sanitation.

⁷ OECD (2019). *Blended finance for water-related investments*. Presentation delivered at the 4th Roundtable for Financing Water, Washington, D.C.

⁸ OECD (2019). Amounts mobilised from the Private Sector for Development, <http://www.oecd.org/development/stats/mobilisation.htm>

⁹ [OECD \(2019\). Blended Finance for Water-related Investments](#)

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El Salvador

In seeking to fulfil the urgent needs for water-related investments, El Salvador has brought the financial sector and service providers together to mobilise private finance capital through blended finance. The Azure financing model has been developed in partnership with the Catholic Relief Services (CRS), IDB's Multilateral Investment Funds (MIF), Overseas Private Investment Corporation (OPIC) and impact investors, Azure Source Capital LLC, which has deployed debt capital to upgrade and expand water and sanitation infrastructure.

The Azure financing model is comprised of two parts: Azure Technical Services (ATS) and Azure Source Capital (ASC). ATS provides technical support to water service providers to: (1) improve water service delivery; and (2) access loans to expand and repair water systems. They provide services including design and engineering, system diagnostics, market and financial due diligence studies, loan application and management support. Led by a local company, Azure S.A. de C.V (and supported by CRS technical staff), ATS works with financial institutions to better understand the risks associated with lending to water service providers as well as the opportunity. To date, Azure has extended 22 loans financing more than USD 500 000 in infrastructure improvement without any late payments.

Jamaica

In Jamaica, following 3-4 years after economic depression in 2011, the National Water Commission (NWC) engaged with the IDB and Global Environment Facility (GEF) in a technical cooperation agreement under the Caribbean Regional Fund for Wastewater Management (CReW) Project.¹⁰¹¹ The initiative has provided an opportunity to utilise a USD 3 million grant for use as collateral to advance financing for implementing initiatives to improve the sustainable management of wastewater in the local landscape.

The NWC established the Jamaica Credit Enhancement Facility (JCEF) to support local commercial financing of wastewater projects. The USD 3 million grant was used to establish a guaranteed fund to mobilise commercial bank financing equivalent to approximately USD 12 million for the implementation of initial wastewater projects. The source of payment and collateral for the commercial bank loans would be a specific charge on customer bills to cover part of CAPEX investments. This financing approach allowed NWC in Jamaica to address pressing capital investment needs in the near-term, while advancing more systematic long-term reforms. Lessons learned from the JCEF experience is that future opportunities are improved for the financing of water and wastewater projects, as Jamaica's local capital markets and lending institutions gain a track record in lending to the sector.

The U.S.

Public interventions have also successfully mobilised private finance for water-related investments in the U.S. The Environmental Protection Agency currently manages two major water infrastructure finance models: the State Revolving Fund Model which is used for two programmes – the Clean Water and Drinking Water State Revolving Funds (SRFs) and the WIFIA model, which is a direct federal credit programme authorised under the 2014 Water Infrastructure Finance and Innovation Act (WIFIA). Each of these models have been made to encourage new investment in water-infrastructure projects, by providing access to capital at minimal market or below market rates for high priority projects which address national public health and water quality goals. These are designed to leverage non-public sources of capital (i.e., they operate with blended finance attributes) and “crowd-in” private investment.

¹⁰ [IDB \(2019\). Blended finance: Jamaica credit enhancement facility.](#)

¹¹ The CReW Project was a four-year project focusing on piloting revolving financing mechanisms and wastewater management reforms in the wider Caribbean region. See: [Caribbean Regional Fund for Wastewater Management \(CReW\)](#).

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In particular, the WIFIA seeks to help reduce and eliminate infrastructure backlog in the U.S. and plans to spend USD 740 billion for investment in the next coming years. The unique aspect of WIFIA programme is that with 49 % eligible cost of investments, it offers loans with low, fixed interest rates and flexible financial terms, with long repayment period. An official launch of WIFIA programme was made at the end of 2016, which included the city of Baltimore, Maryland with 600 000 residents with a median household income of USD 46 000 per year. Calculating the affordability of water and sewerage bills for the city's residents has been one of challenges, given the need to account for residents who cannot pay and also those who can pay, but do not want to pay. The WIFIA's USD 202 million loan plans to help finance water infrastructure upgrades that will modernise wastewater infrastructure, better protect public health and water quality for 1.8 million Baltimore residents. The low cost of capital helps keep tariffs low. Having selected the 12 projects to focus on, the WIFIA is currently working on these projects. In two years, USD 7 billion for private financing will be further utilised.

Session 3. Strategic investment pathways

Beyond efforts to scale up funding, a major challenge related to how governmental authorities and project developers can design strategic project pipelines is to ensure resiliency and water security over the long term. Financing water-related investments is different from "project finance" in that it is not based on the credit support of the cash flow from the individual project, such as a highway or airport where cash flow derives from tolls or user fees. A water project is a part of a larger water system, such as a reservoir, aqueduct or water treatment facility, which may not be associated with ring-fenced revenue streams.

Each of the parties involved in the development, approval and financing of sustainable water projects have different perceptions of their requirements both at the policy level and the technical level. For example, institutional investors, such as pension funds and insurance companies, are limited by the credit standing of any loans made because it is their legal responsibility to protect their pension fund participants' assets. Although they may pay attention to increasing social impact, economic justice and sustainability issues, they are limited in their decision making by their fiduciary duties. Development agencies also bring their perspective to investment decisions, and so are the water service providers who have strong incentives to keep tariffs artificially low and defer maintenance, often because of political considerations.

The investment needs of the Water, Sanitation and Hygiene (WASH) to achieve universal access require higher investment from most of the LAC countries: Ecuador needs USD 730 million per year, Bolivia needs USD 450 million per year and Paraguay needs around USD 500 million per year to satisfy the investment needs.¹² Three challenges need to be addressed to ensure available finance will flow where it maximises impact: first, most countries do not have updated master plans or feasibility studies required for investments; second, there is lack of absorptive capacity for implementing projects, even if increased funds are available; and third, improving the enabling environment to allow for more Public-Private Partnerships (PPPs) could improve service delivery. Some of the constitutions of countries in the region expressly prohibit private participation in the provision of water and sanitation services. Most LAC countries have limited knowledge in issuing bonds or accessing capital markets for financing.

Project preparation

To address these challenges, the Development Bank of Latin America (CAF) has launched a Project Preparation Water Facility (PPWF) with USD 5 million, which aims to improve the quality of final design studies, shorten the implementation period of investments and develop more bankable projects. CAF is encouraging water operators to reduce losses and gain efficiencies to become creditworthy for further project investments. In this regard, CAF is exploring the use of technical assistance to improve services of water operators through the use of performance-based contracts.

¹² WHO & UNICEF Joint Monitoring Programme (JMP) Database (2019).

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From project preparation towards a landscape approach

In Ecuador, the Fund for Water Protection (FONAG) has been working on water sustainability by tackling challenges in high mountain water-sheds, which comes from the high altitude of city, Quito.¹³ Restoring high elevation wetlands is one of FONAG's main interventions. Through its interventions, the Fund has shown that the legal mechanisms to support stable funding for water resources management can work and that this requires a multi-stakeholder approach. FONAG has been a mediator between water utility, hydropower plants and other relevant stakeholders to protect water resource management, and in particular, source-water protection. In collaboration with the Green Climate Fund, FONAG has been implementing a project that could potentially generate USD 2-2.5 billion in terms of economic benefits from watershed protection – the potential benefits include not just water quantity but also improved water quality, through lower sediment yields.

According to the Fund's perspective, one of the challenges to attract more financial investment for water resources management is quantifying the benefits of interventions. The return on investment (ROI) measures the performance of one or more investments, which determines the relationship between perceived net profit and the required investment in order to achieve those benefits. Calculating economic benefits and providing concrete evidence of positive returns have been key challenges for the Fund to appeal to investors and generate trust through documented financial performance. FONAG expects to spend 15 to 20 % of its funds to monitor hydrological benefits in order to provide this data to investors. A pilot study in 2016 in the Cinto River catchment shows that a positive ROI can be achieved; preliminary results indicate that the return on investment is in the order of USD 2.15.¹⁴

FONAG's experience with funding improvements in water resources management through catchment protection has been replicated throughout LAC, notably through the Water Fund model, promoted by IDB, The Nature Conservancy and other partners, such as the FEMSA Foundation. Creating an enabling environment for investments is a priority and the elements to foster such an environment include: first, strengthening the policy framework and institutional arrangements; second, transforming information into intelligence for decision makers; and third, establishing financial mechanisms to develop projects.

The case for interagency collaboration

From a political economy stand point, where to spend and how to spend are characterized by important trade-offs that shape the incentives faced by decision makers. From the institutional set up all the way to the perceptions and attitudes of the population, these factors are key to understanding the challenges and the opportunities for water financing.¹⁵

Water security is a collective interest that requires co-operation and collaborative effort of public authorities, the private sector, academia, NGOs and civil society to achieve the 2030 Agenda. In this regard, Chile's Sanitary Services Regulator has worked to engage its communities on climatic issues through active citizen empowerment and increasing awareness about climate change issues. Overall, large cities in Chile are performing well, while rural areas still require some work to improve in Sanitary Services Regulator's projects.

Session 4. Seizing opportunities generated by innovation and technology

Innovative technologies can improve the efficiency of water use and lower the costs of improving water security. From investors' perspectives, promoting the use of innovative water technologies and services can create attractive investment opportunities, thereby increasing further financing for water. The regional examples from the Water and Sanitation of Argentina (AySA), Bill and Melinda Gates Foundation and Seamans Capital illustrate the role innovation

¹³ It is the second-highest capital city in the world, after La Paz with an altitude of around 3 000m

¹⁴ [FONAG \(2019\). *The Path of Water – FONAG: work and lessons*](#)

¹⁵ [IDB \(2019\). *Reflections on the Political Economy of Water Investment*](#).

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can play in water and sanitation infrastructure to deliver benefits for society as well as financiers. In addition, government can facilitate innovation to promote cost-effective investments and ensure finance flows to where it is most needed from a water security perspective.

With the goal of positioning water as a key resource for a sustainable development, Argentina has developed an ambitious National Water Plan, which includes: (1) clean water supply and sanitation; (2) large scale multi-purpose water infrastructure and biomass; (3) use of water for production; and (4) adaptable water management and policies to deal with climate change and variability. The National Water Plan seeks to achieve 100 % of safe water supply and 75 % sanitation coverage in Argentina by 2030. Today, close to 6 million people have no access to sanitation and 4.5 million people have no access to water in Argentina. The Plan also aims to increase the smart use of Public-Private Partnerships to expand the agricultural frontier, allowing clean industrial development and promoting further tourism. To achieve this national objective, Argentina would require over USD 40 billion, which could potentially create over 300 thousand jobs.¹⁶

Accelerating the development and diffusion of water-related innovative technologies is a major challenge that requires working with end users to identify and adopt tailored solutions. In the experience of Isle Utilities – a technology and innovation consultancy specialising in cleantech – out of 7 000 water-related innovative technologies, only around 3 % meet the needs of the market, are commercially ready, and have a disruptive value proposition. By benchmarking and learning from the experience of others, stakeholders can address operational challenges, including the non-revenue water or water quality. They can also progress towards longer term objectives, such as advanced metering or smart water networks and solids management.

In the area of innovative urban sanitation, the Bill and Melinda Gates Foundation has been working to bring solutions to the 4.5 billion people using unsafe sanitation facilities and services. Globally, around 57 % of sewerage is not contained, transported or treated in a way that safely contains harmful pathogens from human waste. Rethinking the technology and service delivery models is necessary in order to meet the needs of urban poor with safe, affordable sanitation. This requires thinking beyond traditional sewage infrastructure investments and looking at innovation in two dimensions: first, the technology and production innovation; and second, service delivery model and institutional innovation.

Changing the perspective from viewing on-site sanitation as only a household responsibility to a model where cities or municipalities can deliver safe and inclusive sanitation services to the entire population is a must. This enables utilities to move from discounting an entire segment of potential customers to realising that the households are willing to pay for better services and can add to revenue base. A city-wide inclusive sanitation approach recognizes that different technologies (e.g. combinations of on-grid & off-grid), as well as a range of funding and business models, are needed to reach different populations. The Gates Foundation has partnered with various cities and municipalities in the world to engage in holistic planning to meet the needs of all their residents with sanitation services. These case studies are helping to challenge traditional assumptions about how sanitation service delivery should be structured and financed. Some examples of innovative models include Lusaka, Zambia, where the Lusaka Water and Sewerage Company has experimented with utility-led financing packages to support regular desludging and upgrade high-risk households to safe containment. A number of cities in Bangladesh and India that are exploring the idea of approving a sanitation tax or fee on monthly bills to fund professionally scheduled desludging for the population.

In the U.S., Seamans Capital, a private investment firm, has gained significant experience with investing in disruptive clean technologies. Recently the firm has also focused on technologies to address water scarcity, which has been a leading issue for the agriculture industry. These investments require capital with a significant risk tolerance. In terms of selection criteria that make such investments attractive, the firms seeks technologies that are proven, proprietary and patented, with a clear path to cash flow positive in 18 months or a viable exit strategy via IPO or sale.

¹⁶ [Bereciartua, Pablo \(2019\). Plan Nacional del Agua. Secretaria de Infraestructura y Política Hídrica.](#)

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These examples illustrate how innovation and technology can improve water security and the delivery of water and sanitation services and provide investment opportunities to financiers while delivering social and developmental benefits, while reducing adverse environmental impact.

Session 5. Improving environmental performance of development finance

Economic growth in developing countries has brought development benefits, but often accompanies the degradation of natural resources and negative environmental impacts. Donor governments, as shareholders of multilateral and bilateral development banks and development finance institutions (DFIs), hold a specific role in improving environmental performance of development finance in water-related investments, as they need to co-ordinate efforts across ministries and institutions to promote the integration of environmental considerations into financing decisions at the project and policy level.¹⁷ Similar responsibility applies to the multilateral development banks (MDBs) who support emerging economies in financing, designing and implementing development strategies and projects.

Ensuring the environmental performance of development finance and strategic selection of development-related projects – both water and non-water-related infrastructure - is a key challenge. Some pressures on water resources have been exacerbated by development decisions that did not take environmental concerns into account and have resulted in contamination of ground and surface waters, overuse of water resources beyond recharge rates, deforestation of catchment areas or paving over permeable surfaces, including construction on flood plains. This, combined with climate change and increasing population, means that more people may increasingly live on edge of water insecurity.

To manage the potential environmental and social impacts of their activities, MDBs and DFIs routinely revise their environmental standards and risk management frameworks. For example, the World Bank launched the latest version of its environmental and social safeguards framework in 2018. Using the lessons of countries' experience implementing previous frameworks and consulting with over 8 000 stakeholders, the Bank reviewed and strengthened the framework, which now consists of 10 standards encompassing the labour and working condition, biodiversity conservation, cultural heritage and financial intermediaries.

Addressing water resources challenges requires a shift in environmental analysis of relevant investments, going beyond safeguards. Potential changes may include: first, looking at the water system as a whole and not only individual projects or investments to understand impacts on water resources upstream and downstream. Second, moving analyses to broader and strategic levels, such as the river basin or catchment area to manage competing demands between sectors and decrease intensity of water consumption. Third, investing more in science and data to better understand the water resource dynamics at varying geographical levels from local to global, but also incorporating science to decision-making. This includes setting ecological flow rates based on the unique attributes of a river, rather than using a standard percentage. Fourth, it is critical that the development assistance community considers sector-level alternatives before project selection takes place; for example, alternatives to hydropower dams should not be limited to location along the river channel or size of turbines, but rather, what are the best energy projects and alternatives for a given region, including solar, wind, hydro, etc. Lastly, shifting the way of thinking from simply focussing on building water infrastructure towards delivering water services where nature-based solutions are systematically considered can contribute to improving the environmental performance of development finance and minimise investment needs.

Several excellent examples in Latin America include restoration of 4 000 hectares of natural forests in the Cantareira water system, Sao Paulo's primary water source, which significantly has reduced sediment management costs, increased dry season water flow and helped increase annual water supply. Additionally in Brazil, Rio de Janeiro's water utility, CEDAE, through its ongoing "Replanting Life" program, has been testing the restoration of riverside areas and protection of springs to provide cleaner water. A recent study by World Resources Institute determined that restoring 3 000 hectares of native forest in targeted locations in Rio would avoid costs of USD 79 million over 30 years, or USD 2.6 million per year, as well as avoid an estimated 4 million tons of chemical products and 260MWh of energy in water

¹⁷ [OECD \(2019\). Improving the environmental performance of development finance](#)

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treatment over the next 30 years.¹⁸ Lastly, Colombia has worked with The Nature Conservancy (TNC) to develop ecosystem-based adaptation in the Magdalena River Basin to address risks of flooding and drought.

Further, TNC has been working on a project with IDB in Panama to develop flood mitigation project, which protects 100 000s of people who have been affected by floods for over 50 years. As most water and aggregation of flooding occurs from upstream, simply looking at downstream would overlook important factors. This indicates how analysing the system as a whole is more important than just focusing only on the projects. Although some financial and economic elements may be sufficient, there still are some gaps which include: knowledge gaps; co-ordination challenges (e.g. among ministries, utilities companies, different layers of government); issue of implementation; valuation and trustworthiness gap; lack of data and monitoring impact of intervention.

Improving the environmental performance of development finance efforts that impact on water resources and related natural capital can help to minimise overall investment needs to deliver water security and resilience. It may be supported through strategic investment (as described above) and better co-ordination among ministries (including environment and development) and across shareholder governments, multilateral and bilateral development banks, DFIs and other funds. Shifting from a focus on minimising harm towards improving environmental performance of development finance at large is critically important and would be a radical change. A critical first step could be to track metrics on development finance efforts to better account for trade-offs among SDGs, as some development projects may advance some goals, at the expense of others.

For more information, please visit:

<http://www.oecd.org/water/roundtable-on-financing-water.htm>

¹⁸ Ozment, S. and Feltran-Barbieri, Rafael (2018). "Restoring Rio de Janeiro's Forests could save 79 million water treatment costs" <https://www.wri.org/blog/2018/12/restoring-rio-de-janeiro-s-forests-could-save-79-million-water-treatment-costs>