Technical Working paper

Harnessing the potential of National Public Development Banks (NPDBs) to increase financing in water and sanitation

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DEVELOPMENT BANK OF LATIN AMERICA AND THE CARIBBEAN

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Executive summary

Context and objective

This study investigates the role of National Public Development Banks (NPDBs) in financing water and sanitation and how it can be enhanced. It was commissioned by the Water Finance Coalition (WFC), a platform for sharing knowledge and experience in water sector financing, to increase PDBs' capacity and contribution to financing Sustainable Development Goal 6 (SDG 6), the water-related goals of the Paris Agreement, and the protection of biodiversity.

The main objective of this study is to extract lessons and recommendations for WFC members and the wider NPDB community on how to increase their participation in financing water and sanitation. Using a case study approach, it takes a deep dive into selected NPDBs' role in financing wider domestic public services and water and sanitation services specifically. The study highlights how international, multilateral, and regional PDBs can encourage and support NPDBs in developing their water and sanitation portfolios. In total, this study builds on the experience of 14 NPDBs, some of which communicated detailed data on their operations related to domestic public services, including water and sanitation.

Key findings

1. The extent and nature of NPDBs' role in developing water and sanitation services vary significantly, with some NPDBs playing a leading role in sector financing.

All NPDBs operate in contexts where water sector financing needs are vast and pressing. Within the Latin American and the Caribbean (LAC) region, for example, more than 50% of the population does not have access to safely managed sanitation services. Some countries, such as Bolivia, face challenges in extending basic water services. High-income countries are also confronted with water challenges, especially regarding the renewal of ageing infrastructure. Sanitation is, by far, the greatest challenge facing all countries in the region.

These needs call for stepping up investments. The World Bank estimates that the water and sanitation sector globally faces an annual spending gap of around USD 131.4 billion to USD 140.8 billion. In the Latin America and Caribbean region, CAF estimates that at least USD 253 billion is required by 2030 in capital expenditure, which means investments need to triple compared with current levels.

However, whilst most NPDBs play a key role in financing domestic public services, not all of them finance water and sanitation, including in countries with water and sanitation financing needs. Of the 14 NPDBs included in the study, only 11 play an active role in financing water and sanitation (Table E-1). Most NPDBs that finance water and sanitation also provide financial services for other domestic public services, such as energy and solid waste. Across NPDBs, the energy sector appears to draw the most investments in domestic public services.

Table E-1: Selected NPDBs' involvement in water and sanitation financing

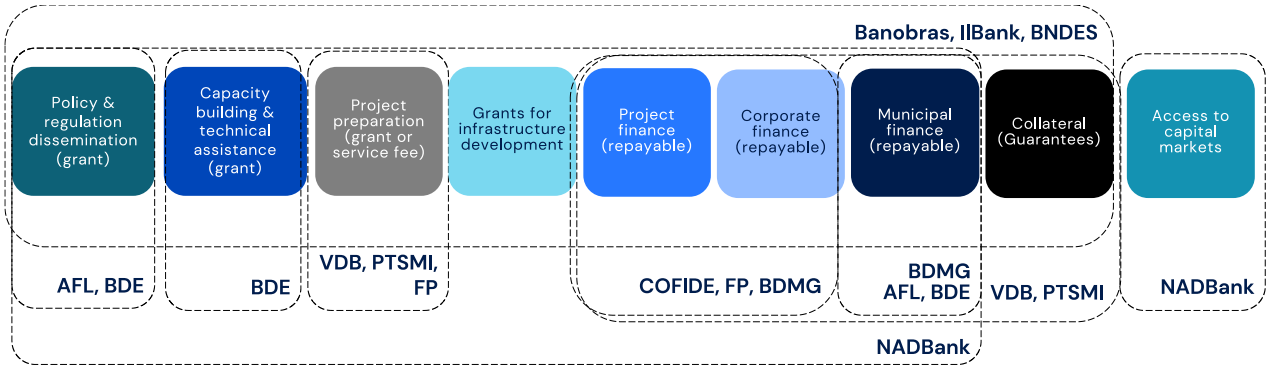
	Energy	Solid waste	Telecoms	Water & sanitation
Banobras (Mexico)	Yes	Yes	No	Yes
BNDES (Brazil)	Yes	Yes	Yes	Yes
NADBank (Mexico/USA)	Yes	Yes	No	Yes
BDP (Bolivia)	Yes	Yes	No	No
Fondo MIVIVIENDA (Peru)*	No	No	No	No
BDMG (Brazil)	Yes	Yes	Yes	Yes
Fomento Paraná (Brazil)	Yes	No	No	Yes
NAFIN (Mexico)	Yes	No	No	No
Ilbank (Turkey)	Yes	Yes	No	Yes
AFL (France)	Yes	Yes	Yes	Yes
VDB (Vietnam)	Yes	Yes	Yes	Yes
PT SMI (Indonesia)	Yes	Yes	Yes	Yes
BDE (Ecuador)	Yes	Yes	Yes	Yes
COFIDE (Peru)	Yes	No	No	Yes

**MIVIVIENDA provides financial products for housing and could indirectly finance water and sanitation service improvements*

Some NPDBs involved in water sector financing only make a marginal contribution, compared with overall sector financing flows. VDB in Vietnam, PT SMI in Indonesia, and COFIDE in Peru belong to this category. For example, COFIDE has only one active project in water and sanitation (wastewater project) as of 2024.

On the other hand, several NPDBs play a major role in water and sanitation financing. Among the study sample, BDE (Ecuador), BNDES (Brazil), and NADBank (US-Mexico) stand out for the scale of their commitment to water sector finance. In the case of BDE, ongoing commitments to the sector represent 95% of their ongoing commitments to domestic public services.

Figure E-1: Range and extent of functions performed by NPDBs



Note: FP= Fomento Paraná (Brazil)

For those involved in water and sanitation financing, NPDBs perform a wide range of functions (Figure E-1). This range encompasses all functions related to the project cycle, project financing, and corporate and municipal finance. BNDES in Brazil is an NPDB performing most of these tasks.

Some NPDBs also play a significant role in project preparation or structuring, which may be combined with financing. In recent years, BNDES supported the state of Rio de Janeiro to launch and allocate some of the most significant concession contracts for water and sanitation.

Loans are the main financing instrument deployed by NPDBs, typically offered at below-market interest rates. Among the NPDBs studied, loan maturities generally range from 10 to 30 years. Equity finance is used by only a few NPDBs for water and sanitation projects. Some NPDBs, like Banobras (via FONADIN) and NADBank, also provide grant funding to support service development—either as a strategic approach to attract further financing or as part of special programmes targeting underserved communities.

2. NPDB funding sources are a major determinant of the nature and extent of their participation in water and sanitation financing.

NPDBs mobilise multiple funding sources for water and sanitation. These range from own funds (revenues from operations), central government transfers (grants or loans), and International Finance Institutions (IFIs) to bond issuance. However, some NPDBs have access to a limited range of funding sources, limiting their capacity to provide broad support to the water sector. In particular, NPDBs that solely source capital in financial markets (on commercial terms) are less likely to provide grants or concessional finance and have less appetite for risk. Such NPDBs may also have a limited focus, which does not include public services. Green and sustainability bonds are increasingly used to mobilise capital, which can be allocated to water and sanitation, although water sector financing remains small compared to the energy sector.

Where government funding or IFI financing is accessible, NPDBs can deliver a range of services and target a broad client basis. Government funding, for example, can be used for special programmes targeting specific communities.

Most NPDBs in the study rely on funding from IFIs to finance water and sanitation projects, which expands their opportunities to grow their portfolio in this sector. Strong relationships between IFIs and NPDBs play a crucial role, with IFIs providing access to finance, sharing knowledge and networks, building capacity, and facilitating access to financial markets. For larger NPDBs (such as Banobras and BNDES), collaboration with IFIs often focuses on technical cooperation and piloting innovative financing structures.

For IFIs and regional PDBs, NPBDs' capacity to target smaller municipalities is a key benefit. NPDBs can play a critical role in closing the access gap, especially in contexts of decentralisation and rural and small-town areas, where capacity building is required, and project preparation is more resource-intensive due to service fragmentation.

Limited access to capital and co-financing opportunities that could de-risk investments are constraints. Meeting the water sector's financial needs requires substantial funding, which most NPDBs may struggle to provide on their own due to competing priorities and seemingly more attractive investment opportunities, such as in the energy sector.

3. External sector-related factors, including policies and regulations, can act as either drivers or constraints on NPDBs' participation in water sector financing.

Policies and regulations set service delivery targets and standards, often calling for additional finance to upgrade services or provide services for the under-served. In such contexts, where NPDBs have a strong mandate for infrastructure development, they play or can have an important role in channelling concessional finance, building local capacities, and disseminating national policies.

However, many NPDBs' primary borrowers and funding recipients are local authorities, who may not prioritise water and sanitation investments, limiting NPDBs' financing opportunities. Municipal creditworthiness remains an issue, especially in lower-middle-income economies. The lack of creditworthiness among water operators, particularly state-owned enterprises (SEOs), further exacerbates this challenge. This limitation stems from several factors, including tariffs, often set below cost-recovery levels and poor operational performance. In decentralised contexts, where municipalities are in charge of service provision, water and sanitation services are often fragmented, compounded by limited technical capacity at the municipal level. This fragmentation not only increases the cost of project appraisal but also reduces NPDBs' appetite for such projects due to the sizeable resources required for project preparation.

Finally, in many lower and middle-income countries, NPDBs are not included in the water and sanitation financing landscape. In these countries, government agencies other than the NPDBs manage investments secured from central government funding or IFIs.

Recommendations

Recommendations for NPDBs

1. Continue to **identify opportunities to influence policies and regulations**, making the case for reforms, where needed, based on evidence of investment requirements and existing opportunities (international experience, investors' appetite, etc.).

2. Actively **disseminate knowledge products on policies and regulations** to build demand and generate projects.

3. **Use the WFC platform** to share and disseminate experience and seek peer-to-peer technical cooperation on designing viable projects.

4. Actively work towards **developing and financing bankable projects closer to water distribution and sewerage collection**, which are relatively untapped and hold revenue potential.

5. Develop **green and sustainable bond frameworks** that can help attract capital investment for the water and sanitation sector.

Recommendations for IFIs and multilateral PDBs

1. Work towards **showcasing the added value of NPDBs** in contributing to sector finance, such as gradually strengthening utilities' performance: This implies working at the country level to develop sector financing strategies based on needs assessment, identifying the potential role of NPDBs within that landscape for meeting sector targets and improving efficiencies, and engaging in dialogues with governments on NPDBs' role.

2. Dialogue with governments, including regulators, to **improve the policy and regulatory environment** for water and sanitation and increase the financial viability of services.

3. **Identify co-funding opportunities with NPDBs**, including project finance, using attractive terms (such as grants or concessional finance).

4. Contribute to building the water sector's profile as an investable opportunity, including via **blended finance**, to gradually bring the sector to maturity.

5. **Support NPDBs to develop holistic programmes** that address water sector performance and gradually increase the creditworthiness of utilities and municipalities: This may imply embedding technical assistance programmes into utilities (performance-based programmes or water operator partnerships).

6. **Develop financing mechanisms (e.g., guarantees) that allow lending to NPDBs** or investors/operators in local currency to increase projects' financial viability.

7. **Draw lessons from the energy sector** on how the role of NPDBs' involvement in the water sector can be enhanced.

8. Develop active **technical cooperation platforms** and initiatives with NPDBs to support the generation of water and sanitation projects.

9. **Use the WFC platform to generate better and more comprehensive data** on the NPDBs' participation in financing the water sector to track this involvement over time.

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List of Acronyms

AFD	Agence Française de Développement
AFL	Agence France Locale
Banobras	Banco Nacional de Obras y Servicios Públicos
BDMG	Banco de Desenvolvimento de Minas Gerais
BDP	Banco de Desarrollo Productivo
BEIF	Border Environment Infrastructure Fund
BNDES	Brazilian Development Bank
CAF	Development Bank of Latin America and the Caribbean
COFIDE	Development Bank of Peru
DFI	Development Finance Institutions
EPA	Environmental Protection Agency
EU	European Union
FONADIN	National Infrastructure Fund
FUNCAFÉ	Coffee Economy Defense Fund
GCF	Green Climate Fund
HDI	Human Development Index
IDB	Inter-American Development Bank
IFC	International Finance Corporation
IFI	International Finance Institution
ILbank	İller Bankası
JICA	Japan International Cooperation Agency
LAC	Latin America and the Caribbean
NADBank	North American Development Bank
NPDB	National Public Development Bank
NAFIN	Nacional Financiera (Mexico)
PDA	Project Development Assistance
PDB	Public Development Bank
PPP	Public Private Partnerships
PROMAGUA	Programme for the Modernization of Water Utilities, (Programa para la Modernización de Organismos Operadores de Agua)
PT SMI	PT Sarana Multi Infrastruktur (Indonesia)

RPJMN	Rencana Pembangunan Jangka Menengah Nasional
SDG	Sustainable Development Goals
SFM	Sistema de Financiamento de Ações nos Municípios do Estado do Paraná
TAP	Technical Assistance Programme
UNDP	United Nations Development Programme
VDB	Vietnam Development Bank
WFC	Water Finance Coalition

Introduction

1.1 Context and objectives

This study investigates the role of National Public Development Banks (NPDBs) in financing water and sanitation and explores how that role can be strengthened. It was commissioned by the Water Finance Coalition (WFC) with funding from CAF- Development Bank of Latin America and the Caribbean. The WFC shares knowledge and experiences related to water sector financing, with the aim of enhancing the capacity of public development banks (PDBs) and their contribution to Sustainable Development Goal 6 (SDG 6), the water-related goals of the Paris Agreement, and the protection of biodiversity.

The main rationale for this study is that the current level of funding allocated to water and sanitation is insufficient to meet global objectives. A study by CAF – Development Bank of Latin America and the Caribbean estimates that investments exclusively for drinking water and sanitation in Latin America and the Caribbean (LAC) must reach USD 250 billion by 2030 (CAF, 2023). This goal requires at least tripling current capital expenditure compared with recent years.

NPDBs, defined as state-owned financial institutions with a development mandate, have historically been involved in financing water infrastructure in many countries (Box 1). A 2020 scoping study conducted by the WFC found that some NPDBs have been instrumental in the development of water and sanitation infrastructure in countries such as France, Italy, and the Netherlands. In some developing countries, including those in LAC, NPDBs have also been mobilised to finance water and sanitation services (Fonseca, Mansour, Smits, & Rodriguez, 2021).

However, the study highlights significant opportunities to increase NPDBs' participation in the water sector. Whilst some NPDBs with infrastructure-focused mandates have integrated water and sanitation in their portfolio, many either do not invest in water and sanitation at all or only have a limited scope of interventions, playing a marginal role compared with other actors funding the sector.

Box 1: Terminology

This report uses terms and expressions, which are defined below.

National Public Development Banks (NPDBs): These are state-owned institutions (either totally or in majority), whose function is to finance sectors contributing to local development. As such, in principle, NPDBs' primary goal is not profit or financial gains, but the social and environmental impacts their activities generate. In practice, NPDBs are driven by both financial and societal gains. NPDBs can be owned by central government agencies (e.g., Ministry of Finance, Ministry of Trade), a subnational government (e.g., a state in Brazil) or multiple local governments (municipalities).

Water and sanitation: In this report, it refers to drinking water and sanitation services destined for end users (households and industrial customers).

Water sector: In this text, the term refers, for simplicity, exclusively to drinking water and sanitation services.
Domestic public services: These are services provided to users, in households or in places intended for productive activities, to meet basic needs, such as water, wastewater, solid waste, and energy access. National or local governments are usually mandated to ensure the provision of such services.
Financing instruments: This report uses the term to describe the methods NPDBs employ to fund or finance water initiatives, including grants (non-repayable finance) as well as loans and equity (repayable finance).

The main objective of this study is to extract lessons and recommendations for WFC members and the broader NPDB community on how to increase their participation in financing water and sanitation. These recommendations address different target audiences, including:

- NPDBs that may be investing in domestic public services, but not in water and sanitation;
- NPDBs already investing in the water sector, but seeking to diversify and strengthen their approach and portfolio; and
- Multilateral PDBs, who can offer support to increase and improve NPDBs' allocation to water sector-related investments.

To extract these lessons and recommendations, the study takes a deep dive into the role of selected NPDBs in financing water and sanitation, as well as other domestic public services. The case studies explore whether and how NPDBs finance water and sanitation services, the types of water and sanitation projects they fund, their clients, the range of services they provide, and the type of funding and financing they mobilise for water and sanitation. In addition, the study analyses factors that incentivise or hinder NPDBs' allocation of funding to the water sector. Case studies shed light on both internal factors (such as the NDPBs' missions) and external factors, such as policy environments and country-specific regulations. The findings aim to inform the WFC and the broader NPDB community on potential avenues of action for increasing their participation in financing the sector.

A key focus is the role of international, multilateral, and regional PDBs in encouraging and supporting NPDBs in developing their water portfolios. Using evidence from the case studies, the report showcases examples where multilateral PDBs actively support NPDBs' portfolios in water and sanitation. The study assesses the extent of the partnership between national and international PDBs in the provision of lending capital, capacity building, technical assistance, de-risking investments, and mobilising innovative financial instruments, such as sustainability bonds, to attract investors and channel capital into the water sector.

1.2 Report structure

The report is divided into sections as follows:

- **Section 2** provides an overview of the methodology, including the rationale for NPDBs' selection;
- **Section 3** provides an overview of water sector challenges in countries where selected NPDBs operate;

- **Section 4** presents the key findings from the case studies on the extent of PDBs' involvement, the nature of their participation, the services they fund, sources of finance as well as their relationship with international PDBs; and
- **Section 5** extracts lessons and recommendations to improve and increase NPDBs' financing for water and sanitation.

In addition, Annex 1 contains the bibliography.

2 Methodology

This section outlines the approach adopted for selecting the case studies, data collection method and the analytical framework.

2.1 NPDBs' selection

This study adopted a case study approach to extract lessons and recommendations on how to harness the potential of NDPBs for water and sanitation financing. In selecting NPDBs for the case studies, the aim was to include both NPDBs that fund water and sanitation and some that do not so as to better understand the constraints NPDBs face in relation to funding the water sector.

The selection process started with the PDB database prepared by Peking University and Agence Française de Développement (AFD). This database is a global repository of over 533 national and international PDBs, classifying organisations based on their mandates, size, location and geographies of operation.

Based on this database, an initial analysis was carried out to identify national development banks (NDBs) involved in domestic public services, particularly those related to water and sanitation. The database classifies PDBs based on broad mandates, which include, among others:

- General development (FLEX);
- Small and Medium-Sized Enterprises (MSME);
- Promoting exports (EXIM);
- Infrastructure (INFRA);
- Local government (LOCAL);
- Housing (HOUS);
- Agriculture (AGRI); and
- International financing of private sector development (INTL).

Considering the range of service providers involved in water and sanitation, any NPDB classified under FLEX, MSME, INFRA and LOCAL can provide finance for water and sanitation. The selection was narrowed down using additional criteria: ownership (to retain only national and sub-national PDBs) and geography of operations (exclusion of PDBs operating internationally). Based on these criteria, an initial list of 25 PDBs was compiled.

The final list of case studies contains 14 NPDBs, as shown in Table 1 below. The initial list was refined using WFC's internal knowledge of NPDBs involved in domestic public services, as well as geographical criteria to ensure some level of representativeness and diversity from the 2022 WFC study. For instance, this list does not include major players like Banque Populaire in France, which figured prominently in the WFC study published in 2021. The scope was further limited because not all NPDBs that were contacted for the study responded or provided data on their operations. Among selected NPDBs, NADBank is an outlier as it is bi-national, jointly owned by the US and Mexico. AFL

in France also has a different shareholding structure, being solely owned by member local governments.

Table 1: Final NPBDs included as case studies

PDB full name	Abbreviation	Country
Banco Nacional de Obras y Servicios Públicos	**Banobras**	Mexico
Banco Nacional de Desenvolvimento Econômico e Social	**BNDES**	Brazil
North American Development Bank	**NADBank**	Mexico-US
Banco de Desarrollo Productivo	**BDP**	Bolivia
Fondo MIVIVIENDA S.A	**Fondo MIVIVIENDA**	Peru
Banco de Desenvolvimento de Minas Gerais	**BDMG**	Brazil
Fomento Paraná	**Fomento Paraná**	Brazil
Nacional Financiera	**NAFIN**	Mexico
İller Bankası Anonim Şirketi	**Ilbank**	Turkey
Agence France Locale	**AFL**	France
Viet Nam Development Bank	**VDB**	Viet Nam
PT Sarana Multi Infrastruktur	**PT SMI**	Indonesia
Banco de Desarrollo de Ecuador B.P.	**BDE**	Ecuador
Corporación Financiera de Desarrollo	**COFIDE**	Peru

2.2 Analysis framework and data sources

The analysis framework combined general data on NPDBs to understand their profiles and development mission and more specific data on their services and financing for domestic public services. The study collected data on the following:

- Total assets allocated to domestic public services;
- Finance allocated to specific services, particularly electricity, solid waste and telecoms;
- Finance allocated to water and sanitation; and
- Other services offered by the NPDBs in relation to public services, and water in particular.

In addition to this data, the study collected insights into some of the constraints or challenges NPDBs face in financing water and sanitation. Such constraints relate to internal constraints (e.g., lack of priority to financing water and sanitation) or external constraints—for example, water sector performance, which may limit the profitability and bankability of water and sanitation projects.

Data sources combined interviews with NPDB representatives and documentation review. These included PDBs' annual reports and sector-specific documents. A data sheet was prepared and shared with selected NPDBs for their input. In some cases, the study also drew information on NPDBs' role in financing water and sanitation from the previous WFC report.

Finally, it is important to note that the study comes with limitations. First, as the report adopts a case study approach based on a sample of 14 organisations, it cannot be representative of all NPDBs globally. As such, there may be additional experiences and types of involvement and financing of NPDBs in the water sector that are not captured in this report. Second, not all NPDBs selected for this study provided the same level of data, while available documentation on their activities, especially in the water sector, is limited. As a result, the study may also not be fully representative of the 14 NPDBs finally selected and the extent of their operations in water and sanitation and other domestic public services.

3 The water and sanitation context in NPDBs' countries

3.1 The persisting gap in water services provision

All NPDBs operate in contexts where water sector financing needs are vast and pressing (Figure 1). Some countries, including Bolivia, Indonesia, and Peru, face challenges in extending access to basic water services. In Bolivia, for example, 14% of the rural population still relies on surface water for drinking. In Indonesia, at least 10% of the rural population does not have access to basic water services.

Figure 1: Key figures on access to water services in selected countries (domestic level, 2022)

Source: WHO-UNICEF (2022)

In some countries, such as Brazil, Mexico, and Vietnam, the challenge for water service providers is to step up the service levels to ensure that all have access to safely managed services, as per SDG 6. In Mexico, 56% of the population uses only basic drinking water services, meaning they do not guarantee water is free from contamination and accessible on-premises. In Brazil, 12% of the total population falls into this category.

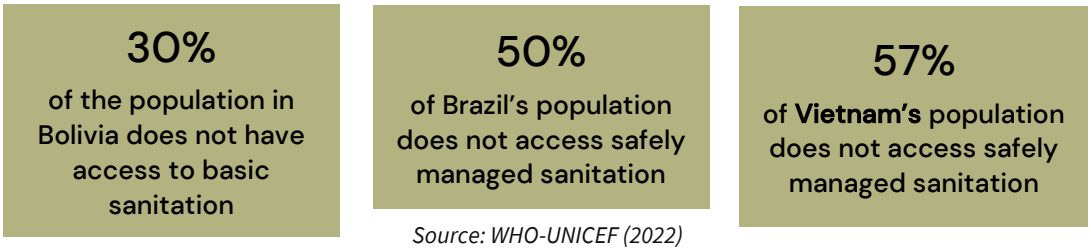
High-income countries are also confronted with water challenges, especially with renewing ageing infrastructure, but also water conservation. In France, for example, the diminishing availability of water resources is a growing issue. Average annual river flows are decreasing by up to 40% in some country regions. Like other southern European countries, Southern France suffers from prolonged droughts. At the same time, available water sources are increasingly polluted by new contaminants (from chemical industries and agriculture). These factors contribute to re-thinking water preservation, including through services' efficiency (i.e., limitation of physical losses) and water treatment and reuse as central to sustainable water services.

3.2 The sanitation crisis

Sanitation is one of the greatest challenges on the social agenda faced by countries, posing risks to populations' health and a serious hazard to the environment. Poor sanitation threatens the environment from various sources, including industrial and domestic polluters who lack access to adequate services.

In Bolivia, Brazil, Indonesia, Peru, and Vietnam, the problem with sanitation starts with the lack of basic sanitation facilities in some areas (Figure 2). In Bolivia, around 30% of the population does not have access to basic sanitation. In many countries included in this study—except France and Turkey—the majority of the population lacks adequate wastewater and faecal sludge treatment services. Within Latin American and the Caribbean, for example, more than 50% of the population does not have access to safely managed sanitation services (which include adequate treatment). This means that most of the wastewater produced is discharged into the environment untreated.

Figure 2: Key figures on access to sanitation services in selected countries (domestic level, 2022)



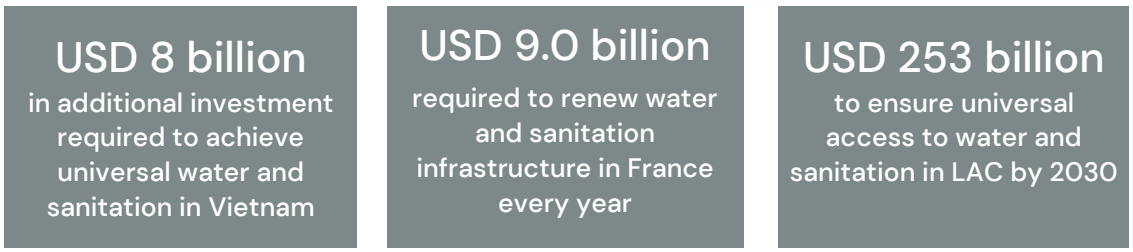
Source: WHO-UNICEF (2022)

3.3 Water and sanitation investments unmet

Water and sanitation gaps call for a significant increase in investments in the sector. Globally, the World Bank estimates that the water and sanitation sector faces an annual spending gap of between USD 131.4 billion and USD 140.8 billion to achieve SDG targets 6.1 and 6.2 (Joseph, Rong Hoo, Wang, Aroha , & Andres, 2024). At the regional level, in Latin America and the Caribbean, CAF estimates that at least USD 253 billion is required in capital expenditure to ensure universal access to water and sanitation by 2030 (CAF, 2023). This represents a required tripling of current capital expenditure compared to investments made in recent years. Country programmes and plans are also clear about investment requirements. In Indonesia, the national development programme (RPJMN 2020–2024) identifies a need for over USD 470 billion in infrastructure investment.

Similarly, a recent study in Vietnam estimates that achieving universal water and sanitation coverage by 2030 will cost a minimum of USD 8 billion, with the majority allocated to wastewater and sanitation investments (Mansour, Nguyen, Nguyen, & Oksana Tkachenko, 2022).

Figure 3: Estimated water sector investment requirements in selected countries



Source: Mansour, Nguyen, Nguyen, & OksanaTkachenko (2022); AFL (2024); CAF (2023)

In France, investment requirements for the water sector are forecast at up to EUR 9 billion annually, according to AFL. A recent study conducted by the French NPDB highlights that 50% of the country's water and sewerage networks are over 50 years old, nearing the end of their 50–80 year life expectancy. This suggests that much of France's water infrastructure will require significant renewal investments in the short to medium term. In total, AFL estimates an annual financing gap of EUR 4 billion, affecting the water sector in France (Agence france Locale, 2024).

4 NPDBs' responses to water sector challenges

4.1 Are NPDBs key actors in financing domestic public services?

Nearly all NPDBs included in the study are key actors in financing domestic public services (Table 2). Of the 14 NPDBs analysed, only Fondo MIVIVIENDA does not fund domestic public services, mainly due to its focused mission on housing finance. Among the domestic public services—such as energy, solid waste, and telecoms—NPDBs were found to be less involved in the development of telecom services. An exception is BDP in Bolivia, which finances public services such as energy and solid waste but does not finance water and sanitation projects.

Table 2: Overview of NPDBs' involvement in domestic public services, including water and sanitation

	Energy	Solid waste	Telecoms	Water & sanitation
Banobras (Mexico)	Yes	Yes	No	Yes
BNDES (Brazil)	Yes	Yes	Yes	Yes
NADBank (Mexico/USA)	Yes	Yes	No	Yes
BDP (Bolivia)	Yes	Yes	No	No
Fondo MIVIVIENDA (Peru)	No	No	No	No
BDMG (Brazil)	Yes	Yes	Yes	Yes
Fomento Paraná (Brazil)	Yes	No	No	Yes
NAFIN (Mexico)	Yes	No	No	No
Ilbank (Turkey)	Yes	Yes	No	Yes
AFL (France)	No	Yes	No	Yes
VDB (Viet Nam)	Yes	Yes	Yes	Yes
PT SMI (Indonesia)	Yes	Yes	Yes	Yes
BDE (Ecuador)	Yes	Yes	Yes	Yes
COFIDE (Peru)	Yes	No	No	Yes

The energy sector is the most prominent across most NPDB portfolios, while the share of water financing relative to other domestic public services varies significantly (Table 3). Among the NPDBs under review, BDE (Ecuador) stands out as a major contributor to water and sanitation financing, with nearly 95% of its domestic public services portfolio dedicated to the sector. NADBank also demonstrates a relatively significant contribution to water and sanitation financing, allocating up to 42% of its ongoing commitments to the sector. Its contribution to the energy sector is nearly as high.

In contrast, for some NPDBs, water and sanitation financing represents a much smaller proportion of their investments. For example, at BDMG, only 2% of domestic public services financing is allocated to water and sanitation, while the energy sector constitutes a much larger

share of investments. All three Brazilian NPDBs are active in water and sanitation financing, with BNDES leading in terms of absolute funding allocation (USD 5.6 billion of ongoing commitments).

Table 3: Commitments to selected public services and share of water and sanitation allocation vs. selected services (USD million)

	Banobras	BNDES	NADBank	BDMG	Fomento Paraná	IlBank	BDE	COFIDE
Energy	3,872	43,322	1,860	183	8.9	9	40.8	246
Solid waste	24	69	23	2.5	0	83.5	41.2	0
Telecoms	0	346	0	4.7	0	0	0	0
Water & sanitation	525	5,662	1,390	3	3.1	48	1,442	32.6
Water and sanitation (%)	12%	11%	42%	2%	26%	34%	95%	12%

Note: All commitments are ongoing or active projects, except for Banobras (all projects since FONADIN inception) and Ilbank (2022 Annual report); AFL does not track allocation by sector (except funds allocated within their sustainability framework, but these are not representatives of their overall portfolio); VDB and PT SMI data was not available at the time of the writing of this report.
Data was collected during the first quarter of 2024.

Three NPDBs in the sample do not provide finance for water and sanitation. These are Fondo MIVIVIENDA in Peru, BDP (Bolivia) and NAFIN (Mexico). In the case of NAFIN in Mexico, its mandate is to finance and promote growth for SMEs, whilst Banobras (the other NPDB) has the mandate to finance basic service infrastructure, including water. As NAFIN increases its focus on sustainability within SME finance; its investments are likely to evolve to target the value chains of water-intensive SMEs. In the case of Fondo MIVIVIENDA, the organisation is focused on housing finance and does not provide separate financial products for water and sanitation, although some of its investments could benefit water and sanitation services indirectly. Finally, according to BPD (Bolivia), their mandate concerns only "individuals and legal entities engaged in economic activities related to the production of raw materials and/or their transformation" and water and sanitation is not interpreted as falling under the productive category, unlike energy.

It is important to note that some NPDBs have only made marginal contributions to water sector financing to date (Fonseca, Mansour, Smits, & Rodriguez, 2021). VDB in Vietnam and PT SMI in Indonesia fall into this category. Factors influencing NPDBs' involvement in the water sector are discussed in section 4.4.

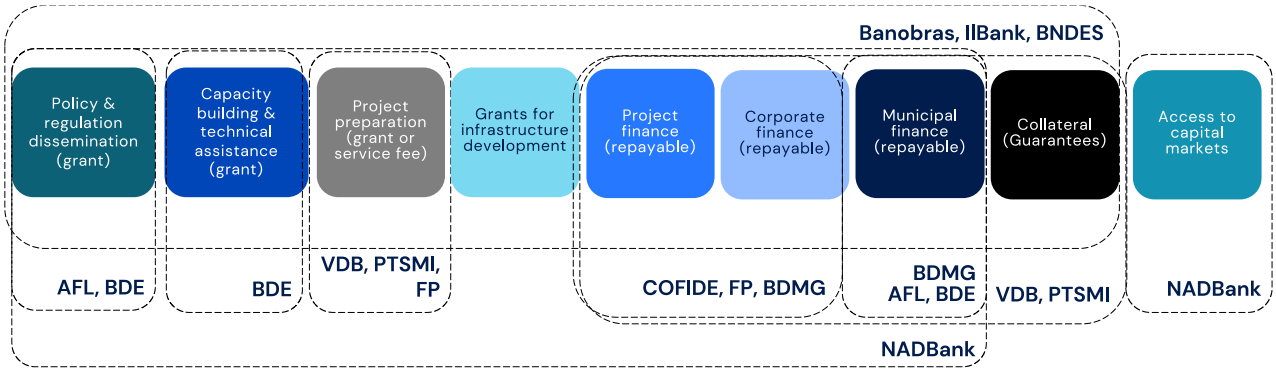
Some NPDBs are taking important steps towards increasing their participation in water and sanitation financing. In recent months, VDB has secured technical assistance from the WFC to boost its water and sanitation financing capacities. PT SMI has been developing a lending product for local governments and utilities to finance water and sanitation infrastructure projects. Lending and creditworthiness criteria were established for the "Surabaya water" utility loan application, which, as of 2023, was awaiting approval from the national government (Tkachenko, 2023).

4.2 How do NPDBs finance water and sanitation?

4.2.1 Key functions

NPDBs perform a range of functions related to water and sanitation financing (Figure 4). The extent of these functions depends on NPDBs' mandate and corporate strategies, the role they play within the water financing ecosystem and their funding sources. This range can be broad, encompassing all functions related to the project cycle, project financing, and corporate and municipal finance. For example, this is the case for Banobras, BNDES, NADBank, and Ilbank. These NPDBs are involved in policy dissemination (to generate demand and secure the participation of private investors) and provide a range of financial services, including grants and loans. Other NPDBs support their clients' access to capital markets, via the provision of technical assistance and guarantees. This is the case, for example, of NADBank.

Figure 4: Range and extent of NPBD's functions and services to their clients



Note: FP= Fomento Paraná (Brazil)

Some NPDBs, such as Banobras (through FONADIN) and NADBank, provide grant funding for services development. Grants can also be part of special programmes or funds, as in the case of NADBank and BNDES. BNDES has a dedicated "Socio-environmental Fund" to finance projects for remote and underserved areas. In 2022, BNDES funded the "Sanitation in Schools" initiative, providing BRL 20 million (USD 3.8 million) towards solutions for access to water and sewerage to around 460 schools on Marajó Island (BNDES, 2023).

Grant funding can represent a significant proportion of overall sector funding for an NPDB and serve multiple purposes. Grants are used to close viability gaps and leverage private finance (Banobras/FONADIN, Mexico) or to directly finance infrastructure in selected communities and municipalities that fall under eligibility criteria. In the case of NADBank, grants represent 65% of total sector funding since 2018 (Table 4).

Figure 5: Multiple purposes of PDBs' grant financing

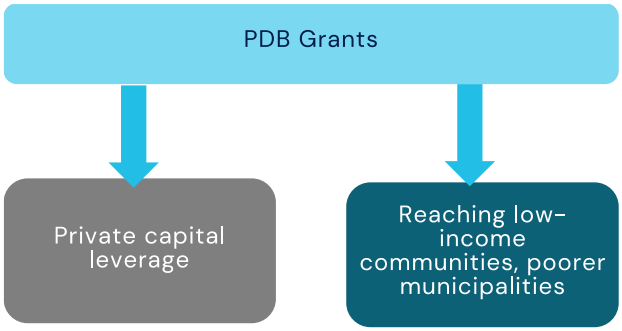


Table 4: NADBank disbursement to water by type of funding (USD thousand)

	2018	2019	2020	2021	2022	Total	Share
Loans			11,867	27,804		39,671	34%
NADBank grants	834	405	2,342	352		3,933	3%
Third-party grants	25,656	11,983	9,329	11,646	13,629	72,243	62%

Source: NADBank Annual Report (2022)

NPDBs also play a significant role in project preparation or structuring, which may be combined with financing. This is the case of Banobras and BNDES, among others. Through project structuring services, NPDBs assist local governments in the procedure for tendering projects and services. In recent years, BNDES supported seven Brazilian states (Rio de Janeiro, Ceará, Amapá, Alagoas, Rio Grande do Sul, Espírito Santo and Sergipe) to structure concessions that will bring water and sewage to a combined population of 30 million people. Currently, BNDES's project structuring portfolio has expanded to include seven additional Brazilian states (Paraíba, Rondônia, Pernambuco, Pará, Maranhão, Goiás, and Rio Grande do Norte), expected to tender their concessions in 2025 and 2026.

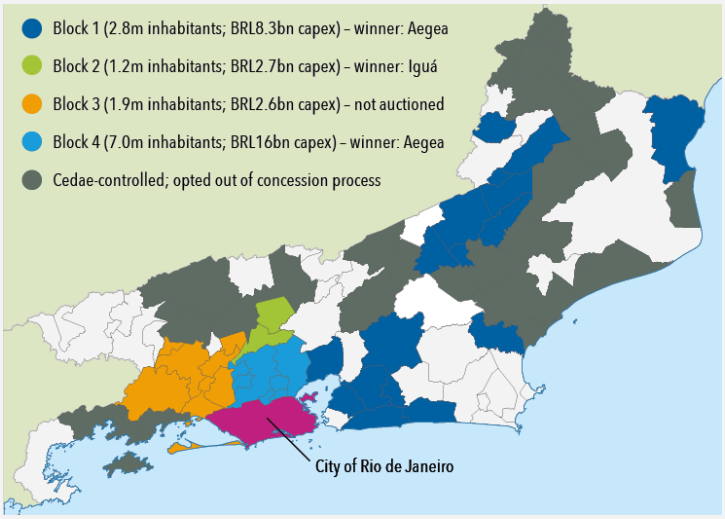
In this context, this report highlights the case of Rio de Janeiro's water and sanitation concessions contracts, representing projects structured by BNDES. Later, BNDES structured these projects' funding, providing most of the repayable finance to investors at concessional rates, and coordinating investors. These included IDB Invest (IDB) and PROPARCO (AFD), which provided local currency loans. These concessions are designed to benefit both high-income and low-income areas without resulting in tariff increases above the inflation rate (Box).

Box 2: Rio de Janeiro's water and sanitation concessions facilitated by BNDES

In 2020–21, BNDES supported the tender for the concession of four blocks of water and sanitation services in 35 municipalities in the state of Rio de Janeiro. Three consortiums were allocated the four 35-year concessions, following an auction process televised live. The auction is the largest concession project in the sector ever undertaken in Brazil. In total, the concessions will serve more than 13 million people. The aim is

to universalise access to water services and provide access to the sewage network for 90% of the people in the region by the 12th year of the contract (compared with 50% at the time of the signing). The investments estimated for these concessions exceed BRL 30 billion.

Figure 6: Concessions' areas

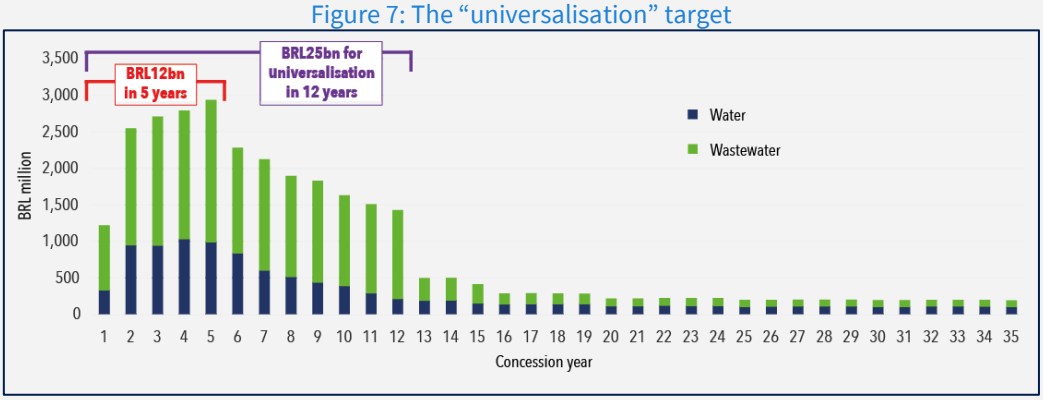


Source: Global Water Intelligence (including capex values)
Block 3 - winner: Águas do Brasil

BNDES has played a key role in both structuring and financing the transaction. Although many commercial banks showed interest, the participation of BNDES was seen as important since the opening up to the private sector is relatively new. As sanitation is still seeking maturity (as an investment opportunity), BNDES' role is perceived as crucial and a catalyst for solutions.

The scope of each 35-year concession involves the storage and distribution of drinking water and the collection and treatment of wastewater, with the investment programme heavily front-loaded so as to reach universalisation targets within the first 12 years, by 2033. Contractors will also have to meet several performance, quality, and efficiency indicators in the provision of services, in addition to reducing water losses to a maximum of 25% (compared with 40% at the time of the signing). The project will invest BRL 1.8 billion in interventions in underprivileged communities. BNDES's skill in structuring the concessions to include both affluent areas and favelas (slums) was specifically designed so that rich and poor alike would benefit from improved levels of service. The number of people eligible for social tariffs will increase tenfold. Tariffs are also influenced by the concessionaries' performances, measured by the above indicators.

Figure 7: The "universalisation" target



Source: Global Water Intelligence

The concessions' total investments of BRL 22.7 billion (USD 4.3 billion) will be funded through a combination of concessional and commercial finance. BNDES provides up to 55% of the amount expected to be invested in the concession. Aegea Saneamento, who won two of the auctioned blocks (Block 1 and 4) also secured financing from IDB Invest, which is providing a long-term local currency loan package for up to BRL 1.5 billion (USD 300 million). Part of the facility is mobilised from PROPARCO, which will provide a BRL 500 million (USD 100 million) in guarantees to IDB Invest, essential to secure long-term funds in local currency from other development financial institutions (DFIs). IDB Invest will provide local currency solutions in Brazilian reais and PROPARCO will bear part of the risk of the project. This solution is expected to unlock DFIs' potential by mobilising available resources in U.S. dollars and euros to local currency projects in Latin America. Each project (Block 1 and 4) also includes performance-based incentives for a total amount of up to USD 15 million from the United Kingdom Sustainable Infrastructure Programme (UK SIP) to support greenhouse gas (GHG) mitigation outcomes through a set of investment and operational milestones. Águas do Rio is also expected to have a positive impact on the environment, by depolluting the Guanabara Bay, the Guandú River spring and the Rodrigo de Freitas lagoon, which are directly affected by irregular sewage disposal.

Source: Global Water Intelligence, BNDES & IDB Invest.

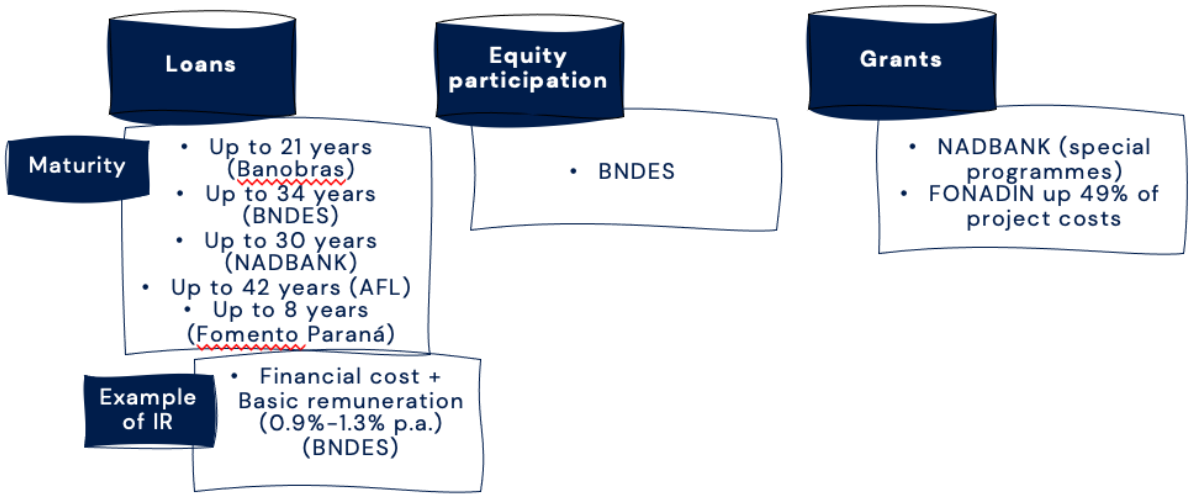
A few NPDBs play a significant role in policy and regulation dissemination, which paves the way for increased demand for investments and helps attract private sector participation. This role is reflected in the organisation of learning and networking events or the publication of thematic papers on water and sanitation. AFL, for example, recently documented the latest challenges with water resources management and services, highlighting financing requirements and the role of municipalities (and associations of municipalities). BNDES has contributed to the implementation of legal reforms in Brazil's water and sanitation sector, which have incentivised water service concessions (see Box 3). BNDES has also organised numerous sector dialogues and panels on sanitation in Brazil to promote these changes.

Conversely, some NPDBs have a more limited scope of functions, often linked to a narrower water and sanitation financing mandate. For example, VDB (Vietnam) and PT SMI (Indonesia) play a more restricted role in financing the sector or generating demand for these services. In both these countries, the national government, through ministries, continues to play a significant role in providing finance for the sector, primarily through grants and sovereign loans with IFIs. In Vietnam, this landscape is gradually evolving, as restrictions on sovereign lending for water supply projects may contribute to opening opportunities for VDB.

4.2.2 Financing instruments and terms

Loans are the main financing instrument NPDBs deploy. They are usually provided at interest rates below market rates. For example, BNDES's sanitation loan starts from Taxa de Longo Prazo (TLP) + 1.3% annual interest rate and can increase depending on the project risks and the collateral structure. Brazil has introduced the TLP (or Long-term interest rate) to finance long-term investments and projects in infrastructure and other key sectors. The TLP, which is a concessional rate linked to the consumer price index, is mainly used by BNDES. In terms of maturity, among the NPDBs under study, most loans range between 10 and 30 years.

Figure 8: Financing instruments



Source: Authors, based on communication from NPDB's representatives

Few NPDBs use equity finance for water and sanitation projects. Only BNDES may have provided equity finance among the PDBs selected in the study. Still, no data is available on the specific water and sanitation projects that benefited from BNDES' equity finance.

4.2.3 Who and what do PDBs finance in water and sanitation?

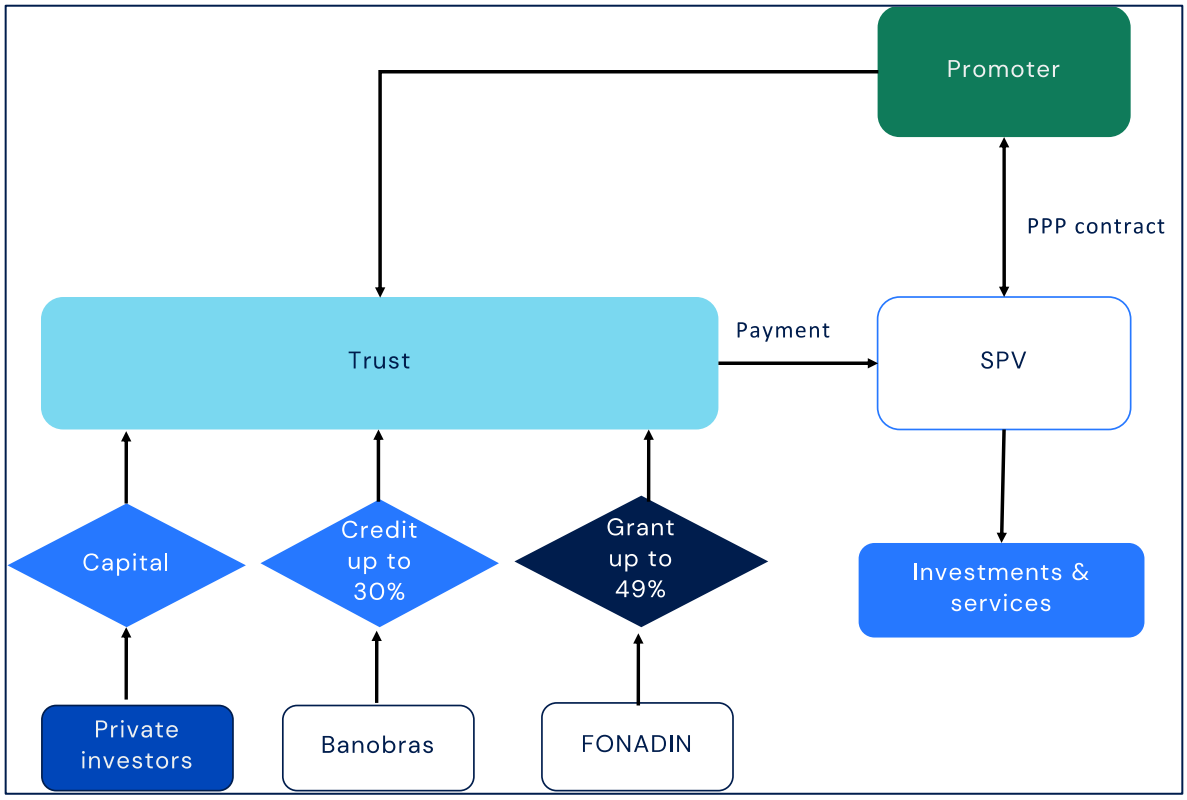
NPDBs mainly finance water and sanitation through local authorities (municipalities, associations of cities and regions) and projects (project finance). Municipal finance is provided mostly against municipalities' balance sheets. The risk assessment also looks into the projects' financial viability in some cases, but this is not systematic. In the case of AFL, as a matter of principle, there are no conditionalities related to using funds.

Several NPBDs included in the study finance small-scale municipal water and sanitation infrastructure. This is the case, among others, of BDE (Ecuador) and BDMG (Brazil). Recent BDMG projects include the financing of a USD 190,000 sanitation project in the municipality of Guaranésia (Minas Gerais) benefiting 3,000 people. In Peçanha (Minas Gerais), BDMG provided USD 347,000 to finance a sanitation project benefiting 5,000 people.[1]

NPDBs also finance private operators, sometimes with municipal or project finance. This is the case of Banobras and FONADIN in Mexico, which provides credit to investors (via Banobras) and non-repayable finance from FONADIN (Figure 9). The setting up of a Trust in the financing structure increases transparency and confidence in the project. All funds, including initial capital, are deposited in the Trust, which then pays the contract based on services performed, starting with construction. The Banobras/FONADIN model is also suitable for IFI financing, which can be allocated to the Trust.

[1] Data communicated by BDMG.

Figure 9: Simplified Banobras-FONADIN project structure



Within the spectrum of PDBs involved in the study, projects resulting from PDB financing encompass water and sanitation and range from water production to distribution and treatment. The most significant transactions related to water distribution and sewerage services are the BNDES-financed Rio de Janeiro concessions. For NPDBs that are less experienced and involved in water and sanitation, the main water and sanitation services they fund or facilitate via project structuring relate to bulk water supply (PT SMI, for example) or the construction of desalination plants and wastewater treatment plants under BOT with opex funded by government entities (off-takers) rather than directly through tariff. Banobras/FONADIN projects fall into this category of projects with limited exposure to demand-side risks.

4.2.4 Source of NPDBs' capital for water and sanitation finance

NPDBs' sources of capital are a key determinant of the nature of their involvement in water and sanitation financing. Broadly speaking, NPDBs mobilise multiple funding sources for water and sanitation, ranging from own funds (revenues from operations), central government transfers (grants or loans), and IFI financing to bond issuance. However, some NPDBs have access to a limited range of funding sources, limiting their capacity to provide broad support to the water sector. In particular, NPDBs that source capital in financial markets (on commercial terms) only are less likely to provide grants or concessional finance and have less appetite for risk.

On the other hand, where government funding or IFI financing is accessible, NPDBs can deliver a range of services and target a broad client basis. Government funding, for example, can be used for special programmes. NADBank, for instance, administers some programmes funded by the US

Environmental Protection Agency (EPA). One of these programmes is the Border Environment Infrastructure Fund (BEIF), which has contributed to funding 122 water and wastewater projects, representing a total investment close to USD 2 billion with an average BEIF grant contribution of one-third of project costs.

Green and sustainability bonds are increasingly used to mobilise capital, which can be allocated to water and sanitation, although sector financing remains small compared to the energy sector (Table 5**)**. For example, NADBank has allocated 10% of green bonds' proceeds to water and sanitation, compared with 90% for renewable energy. In the case of AFL, proceeds of sustainability bonds allocated to water and sanitation are more comparable to energy (5% and 7%, respectively). Green and sustainable bonds' frameworks are particularly interesting for the water sector, as water and sanitation can be identified as eligible categories.

Table 5: NADBank green bond allocation by eligible sectors (USD million)

Green Bond Issue	Renewable Energy	Energy Efficiency	Sustainable Water & Wastewater Management	Pollution Prevention & Control	Total Allocation
CHF 125M maturing 2026	$ 126	$ -	$ -	$ -	$ 126
CHF 180M maturing 2028	175	-	11	-	186
CHF 160M maturing 2033	100	34	29	3	166
Total	**$ 401**	**$ 34**	**$ 40**	**$ 3**	**$ 478**

4.2.5 The role of IFIs in developing NPDBs' water and sanitation portfolio

Strong relationships exist between IFIs and NPDBs, with IFIs supporting access to finance and sharing knowledge and networks, building capacity, and facilitating access to financial markets. Most NPDBs in the study rely on IFI funding to finance water and sanitation. In some cases, IFI funding constitutes the largest source of funds for sector finance (Ilbank, for example); in other cases, IFI funding plays a marginal role due to the availability of alternative financing opportunities (own resources, for example).

For larger NPDBs (such as Banobras and BNDES), key areas of collaboration with IFIs include technical cooperation and piloting innovative financing structures. A notable example is the partnership between the IDB and BNDES for water and sanitation. This collaboration has also resulted in the creation of an information portal—the "LATAM Projects Hub"—designed for investors. It showcases a pipeline of infrastructure projects—including at least 16 water and sanitation projects.

Box 3: The IDB and BNDES partnership for investments in water and sanitation for vulnerable groups

In 2022, IDB and BNDES signed a technical cooperation agreement to create models for performing preliminary viability assessments of PPP projects and service concessions for water and sanitation in Brazil. The IDB donated USD 350,000 to build innovative tools to support BNDES's work to structure these projects,

especially in remote areas where projects have less financial viability. The goal is to channel more investments to these areas, reducing associated risks and increasing the chances of success for all stakeholders.

One of the tools will set parameters for assessing the technical, financial, economic and legal viability of projects to provide universal water and sanitation in a single municipality, a group of municipalities or a region. This pre-assessment will streamline processes and enable BNDES to use resources more efficiently to structure PPPs.

Source: iadb.org

On the IFI side, NPBDs' capacity to target smaller municipalities and provide them with the assistance required to absorb finance is one key benefit of collaborating with NPDBs. Among selected NPDBs, Ilbank (Turkey) and BDE (Ecuador) are two organisations with experience managing IFI-funded projects targeted at smaller municipalities. BDE, for example, since 2004 has been implementing the national programme PROMADEC (*Programa de Saneamiento Ambiental para el Desarrollo Comunitario*), funded with support from CAF. It has four phases, with CAF financing accounting for USD 875 million. Nowadays, it is running phase 4 (see Box 4).

Box 4: CAF and BDE's collaboration in the context of PROMADEC IV

PROMADEC was initiated in 2004 by the government of Ecuador to accelerate access to water and sanitation in rural areas and small towns of the country. CAF is a key financier of the programme. Phase 4 of PROMADEC (PROMADEC IV) is financed by CAF with USD 100 million to enhance water and sanitation services for over 250,000 beneficiaries.

BDE serves as the program implementer under an agreement with the Ministry of Finance (borrower), tasked with project appraisal, on-lending to municipalities, and overseeing project monitoring. In addition to feasibility studies and investment components, the programme also includes a capacity-building activity to enable municipalities to manage projects and deliver sustainable services. BDE has a specific division that provides technical assistance to municipalities through its branches, including water and sanitation systems' management. In total, PROMADEC IV was expected to fund approximately 80 projects across several decentralized autonomous governments by June 2024.

As such, NPDBs can play a critical role in closing the access gap, especially in contexts of decentralisation and rural and small-town areas.

4.3 Drivers of PDBs' contribution to water and sanitation financing

NPDBs' mandates, mission and vision are the main drivers of their involvement in water and sanitation financing. All NPDBs selected, except for BDP and Fondo MIVIVIENDA, which do not provide water and sanitation finance, have a specific mission to support infrastructure development

and basic services. In some cases, infrastructure and basic services are core business areas for NPDBs—this is the case of Banobras (Mexico), NADBank (Mexico-US), BNDES (Brazil) and Fomento Paraná (Brazil). This mission is sometimes blended with other business areas, such as boosting local industries (VDB in Vietnam and BDP in Bolivia fall in this category). On the other hand, some NPDBs have a mandate strictly focused on private sector development, which limits their financing opportunities in the water sector considering the state of water and sanitation and limited private sector participation.

NPDBs with strong commitments to the water sector also have dedicated performance indicators related to water and sanitation financing. In the case of BNDES, for example, water and sanitation appear in at least three performance indicators (in two performance areas for the NPDBs) (Table 6).

Table 6: BNDES' performance areas and indicators related to water and sanitation

Area	Indicator
Area 1: Services associated with project structuring	Project structuring to allow underserved to access to services
Area 2: Financing or guarantees	Number of people who will have access to sewage network + number of people who will benefit from the expansion of sewage treatment (thousands)
	Number of people who will have access to water network + number of people who will benefit from the expansion of water treatment (thousands)

Source: BNDES 2022 annual report

National sector policies and regulations are important drivers of NPDBs' engagement in the sector. Policies and regulations set service delivery targets and standards, often calling for additional finance to upgrade services or provide services for the under-served. In such contexts, where NPDBs have a strong mandate for infrastructure development, they play an important role in channelling concessional finance, building local capacities and disseminating national policies. The case of Ilbank in Turkey illustrates this policy-oriented mission very well. Ilbank provides loans to sub-national governments, mainly using sovereign loans contracted with international finance institutions via the Ministry of Finance. Ilbank's function is to roll out these projects with municipalities, communicate, disseminate, and advocate central government policy, and accompany municipalities in building the required infrastructure.

Brazil offers another strong example of the role of policy in boosting NPDBs' financing for the sector. The government of Brazil approved a new regulation, which seeks to attract USD 128 billion in investments in water and sanitation through increased private sector participation. For Brazilian NPDBs, this regulation represents an opportunity to support public and private companies with project and contract structuring and meeting the investment requirements, either through direct financing or through the provision of guarantees. Some state-owned companies are already

structuring private sector participation with the assistance of BNDES, one of Brazil's main financing agents for infrastructure development. BNDES sees the water and sanitation sector as a priority on the Bank's agenda for the coming years.

Box 5: Brazil's concession regulation introduced in 2020

The law was promulgated to introduce competition in the tendering of water and sanitation systems' management and open opportunities for private investments, with the end goal of enabling 99% of the population to access drinking water, and 90% of the population to sewage collection and treatment services by 2033. Until 2020, the concession for the supply of services was carried out through so-called programme agreements (*contratos de programa*), which are contracts entered into between the holders of such services (cities and states) and concessionaries (public or semi-public companies), without a competition and bidding process. The new legal framework prohibits the provision of water and sanitation services through programme agreements and establishes that the concession of the services must be carried out through public bidding, in which both public and private companies can participate. The expectation is that the regulation will open opportunities for private sector participation and pave the way for increased private investments in the sector.

Access to financing opportunities can also boost NPDBs' contributions to water and sanitation services development. Financing opportunities can take the form of:

- Access to lending capital from the central or federal government (which can be dedicated to water and sanitation), as for BNDES (Brazil);
- Access to lending capital from international finance institutions (IFIs), as is the case with Ilbank;
- Sustainable bond issuance, which can drive investments in water and sanitation (the case of AFL is an example; and
- Co-financing opportunities that arise when NPDBs provide project finance, for example, with private investors, as is the case in Banobras-funded projects.

4.4 Constraints to NPDBs' water and sanitation financing

Constraints or limitations that affect PDBs' position to contribute to water and sanitation financing are both **internal**, referring to their mission, strategy and capacity, and **external**, i.e., linked to the situation of the water and sanitation sector itself. External constraints may be stronger factors, and more difficult to address, as presented below.

4.4.1 Internal constraints: Lack of dedicated mission, vision and strategy for water and sanitation

NPBDs' mission and operational strategy can be limitations to their involvement in water and sanitation. Where NPDBs' mission and strategy do not directly or indirectly embed the watersector, it is less likely they will invest in generating demand or supporting public policy dissemination. Within this study's PDBs, Fondo MIVIVIENDA in Peru, BDP in Bolivia and to some extent, COFIDE in Peru fall in this category.

Internal regulations and financial performance targets may also constrain NPDBs' ability to allocate funds to a sector perceived as risky and less profitable. The water sector remains a small fraction of the overall portfolios of several NPDBs. Other sectors, such as energy and transport, with clearer revenue streams and also perceived as less risky, take up the bulk of NPDBs' finance.

4.4.2 External constraints: Limited demand, sector bankability and sector financing strategy

Many NPDBs' primary borrowers and funding recipients are local authorities, who may not prioritise water and sanitation investments, restraining PDB finance opportunities. This is the case of PT SMI in Indonesia or VDB in Vietnam, where demand from local governments for water and sanitation financing is low – primarily due to the historical role of central government-led funding for the sector, including IFI financing. However, even in France, the water sectormay not be prioritised, leading PDBs to actively pursue policy dissemination to generate demand and present financial solutions.

Municipal creditworthiness remains a significant challenge, especially in lower-middle-income economies. NPDBs can provide balance-sheet loans, but these are not always feasible in contexts where local governments have insufficient revenue bases to attract repayable finance. For such municipalities, grant funding emerges as the most relevant financing instrument. However, grant funding is limited and often reliant on government or external sources. Both Banobras and NADBank highlight this challenge, emphasizing the need for greater federal and state support for municipalities.

Similarly, the lack of creditworthiness among water operators, particularly state-owned companies, poses another constraint. This limitation is linked to multiple factors, including tariffs, often set below cost-recovery levels, which leads to a vicious circle: Insufficient budgets lead to poor maintenance, which, in turn, increases inefficiencies and exacerbates financial pressures on utilities. Additionally, in decentralised systems, where municipalities are responsible for service provision, water and sanitation services are often fragmented, further hindered by limited technical capacity at the municipal level. This fragmentation also drives up the costs of project appraisal, reducing the willingness of NPDBs to engage, given the substantial resources required for project preparation.

Related to the above, limited access to capital and co-financing opportunities that could de-risk investments act as constraints. Meeting the water sector's financial needs requires substantial funding, which most NPDBs may struggle to provide on their own due to competing priorities and seemingly more attractive investment opportunities, such as the energy sector.

Finally, in many lower and middle-income countries, NPDBs are not included in water and sanitation financing and do not contribute to sector dialogue. In these countries, government agencies other than the NPDB manage investments secured from central government funding or/ IFIs. In Peru, for example, the recent water strategy does not seem to involve the national development bank. This is the case in many countries that face significant water and sanitation

challenges globally. In Sub-Saharan Africa, except for the Development Bank of South Africa (DBSA), most countries are yet to involve their NPDBs in water sector finance. Multiple factors account for this absence of NPDBs in the water financing landscape:

- The historical lead of other national agencies in charge of sector (public) finance management: These can be the ministries or specific sector agencies who provide funding to municipalities or water companies directly (often in the form of grants);
- Water market structure, which does not justify or facilitate the involvement of NPDBs:
    - The monopoly of urban water services by one national operator (e.g., Ghana Water Limited), which has access to central government funding for investment;
    - Severe fragmentation of sanitation markets – with many small-scale suppliers involved, which increases transaction costs for financiers;
    - Financial and performance maturity of service providers: The sector may generally not be ripe for repayable finance, constraining NPDBs' ability to play a significant role in sector financing and
- Limited knowledge of the potential of NPDBs for addressing some of the above challenges and the role they could play in bringing the sector to maturity.

5 Conclusions and recommendations

5.1 Conclusions

The main conclusions that can be drawn from this scoping study are as follows:

1. **The state of water and sanitation services calls for increasing NPDBs' participation in sector financing.**

All countries face huge unmet water sector financing needs, with a significant proportion of the population lacking services (sanitation in particular) and ageing infrastructure causing inefficiencies. Yet, NPDBs' involvement in meeting water and sanitation financing needs varies significantly across countries, ranging from practically nil to being an investment powerhouse. In some countries facing significant water sector challenges, NPDBs play no significant role in financing the sector. This contrasts with NPDBs' involvement in other public services' development, especially in the energy sector.

2. **Within domestic public services, the energy sector appears to draw a large proportion of NPDBs' investments.**

Whilst most NPDBs that finance domestic public services, finance both the water and the energy sectors, the size of investments in the energy sectors appears more significant. This indicates that the energy sector may have reached a level of maturity, which the water sector has yet to reach in several countries.

3. **Both internal factors, including mission and sources of funds, and external factors (sector regulations) can be constraints to NPDBs' participation in water sector financing.**

NPDBs need to have a clear orientationtoward infrastructure development and the mandate to support both public and private stakeholders to be able to be actively involved in the water sector. How NPDBs source capital also dictates whether they can be involved in a sector which is not sufficiently bankable on commercial terms in many countries due to the large investments required and local governments' limited creditworthiness.

Regulations that shape the nature and structure of the water and sanitation sector can act as a major barrier, not only due to the insufficiency of sustainable tariff regulations but also in terms of sector fragmentation and the transaction costs associated with project preparation.

4. **Yet, some NPDBs demonstrate they can play a major role in water and sanitation financing, not only in channelling investment but mobilising *additional* finance.**

The nature of NPDBs' involvement encompasses the project cycle (from origination to structuring and financing), with a significant role in structuring projects for attracting private investments. NPDBs that are very active in water and sanitation financing are also active in policy and regulation dissemination and sector dialogue to generate demand and secure investors' interest. Whilst regulations and tariffs are constraints to financing water and sanitation, including from NPDBs, transaction structure (including the size, contract timeframe, and geographic location) can offset the regulatory risks as demonstrated by BNDES-supported concessions in Rio de Janeiro.

5. NPDBs can play a crucial role in closing the access gap, particularly by financing medium- and small-scale municipal projects, but they must be adequately resourced.

NPDBs have demonstrated their value in expanding water and sanitation services in rural areas and small towns, effectively financing medium- to small-scale projects. In some contexts, they are directly involved in building the capacity of local service providers. To fulfil this role, NPDBs must have access to sufficient resources, whether through grants or the ability to reinvest proceeds from loans and other operations into essential services. Several NPDBs are well-positioned to manage special programmes and oversee grant funding on behalf of governments, leveraging their technical expertise to appraise projects and support project implementation.

6. NPDBs also provide the opportunity to diversify the sources of funds for the water sector.

Several NPDBs are tapping into multiple funding sources for financing water and sanitation, with the more recent use of green and sustainable bonds providing additional opportunities for the sector.

5.2 Recommendations

The following recommendations are formulated for NPDBs, members of the WFC, IFIs, and multilaterals, who are well-placed to strengthen the participation of NPDBs in financing water and sanitation.

Recommendations for NPDBs

1. Continue to identify opportunities to influence policies and regulations, making the case for reforms, where needed, based on evidence of investment requirements and existing opportunities (international experience, investors' appetite, etc.).

2. Actively disseminate knowledge products on policies and regulations to build demand and generate projects.

3. Use the WFC platform to share and disseminate experience and seek peer-to-peer technical cooperation on designing viable projects.

4. Actively work towards developing and financing bankable projects closer to water distribution and sewerage collection, which are relatively untapped and hold revenue potential.

5. Develop enabling frameworks for thematic bonds (social, green and sustainability bonds) that can help attract water and sanitation capital.

Recommendations for IFIs and multilateral PDBs

1. Work towards showcasing the added value of NPDBs in contributing to sector finance, such as for gradually strengthening utilities' performance: This implies working at the country level to develop sector financing strategies based on needs assessment, identifying the potential role of NPDBs within that landscape for meeting sector targets and improving efficiencies, and engage in dialogues with governments on the role of NPDBs.

2. Dialogue with governments, including regulators, to improve the policy and regulatory environment for water and sanitation and increase the financial viability of services.

3. Identify co-funding opportunities with NPDBs, including project finance, leveraging attractive terms (such as grants or concessional finance).

4. Contribute to building the water sector's profile as a viable investable opportunity, including via blended finance, to gradually bring the sector to maturity.

5. Support NPDBs to develop holistic programmes that address water sector performance and gradually increase utilities and municipalities' creditworthiness: This may imply embedding technical assistance programmes to utilities (performance-based programmes or water operator partnerships).

6. Develop financing mechanisms (e.g., guarantees, insurance) that allow lending to NPDBs or investors/operators in local currency to increase projects' financial viability.

7. Develop active technical cooperation platforms and initiatives with NPDBs to support the generation of water and sanitation projects.

8. Considering the size of energy investments, compared with water, draw lessons from the energy sector on how the role of NPDBs' involvement in the water sector can be enhanced.

9. Use the WFC platform to generate better and more comprehensive data on the NPDBs' participation in financing the water sector so as to track this involvement over time.

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