Public development banks in the water sector

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Résumé
Ce rapport présente une analyse du rôle joué par les banques publiques de développement (PdBs) dans le financement du secteur de l'eau en Amérique latine. Il se base sur huit cas d'études qui concernent des banques publiques nationales, régionales et bilatérales. L'hypothèse de travail, autour de laquelle ce rapport s'articule, établit que les banques publiques nationales de développement ont un rôle majeur à jouer pour améliorer le financement de l'ODD 6 et des objectifs de l'accord de Paris relatifs au secteur de l'eau, mais qu'elles sont actuellement sous-utilisées dans ce domaine.

Les résultats montrent que les banques publiques étudiées ont toutes financé des investissements dans le secteur de l'eau depuis longtemps. Néanmoins, l'étendue de leur engagement dans le financement de ce secteur est souvent limitée par des facteurs liés à la demande. L'étude conclut qu'il existe trois limitations principales pour que ces PDBs arrivent à jouer pleinement leur rôle potentiel. Des recommandations sont identifiées pour trois groupes d'acteurs (1- les banques elles-mêmes, 2- les gouvernements et les agences gouvernementales y compris les régulateurs et 3- les institutions financières internationales) pour atténuer les contraintes qui s'exercent sur la demande et pour augmenter leur implication dans le secteur de l'eau.

Mots-clés :
banques publiques de développement, eau potable et assainissement, gestion des ressources en eau.

Géographies :
Amérique latine

Abstract
This report presents an assessment of public development banks (PDBs)' involvement in the water sector in Latin America. On the basis of a review of 8 case studies of national, regional and bilateral PDBs, it seeks to assess the hypothesis that national public development have a high potential in raising finance for achieving both the SDG 6 and the water-related Paris agreement goals, but that this potential is underused.

The findings show that the reviewed PDBs have all been providing finance for water-related investments over a long period of time. But, the extent of their involvement is often constrained by particularly demand-side factors. The study concludes that there are three inherent main limitations for PDBs to reach their full potential. It identifies recommendations for three groups of actors (PDBs themselves, government agencies including regulators, and international finance institucions) to remove demand-side constraints and enhancing positive drivers for their involvement in the water sector.

Keywords :
public development banks, water supply and sanitation, water resources management

Areas :
Latin America

Executive Summary

Introduction

This report is an assessment of cases of national public development banks (PDBs)' involvement in the water sector in Latin America. It forms part of a larger study commissioned by the *Agence Française de Développement* (AFD) in the context of the Water Finance Coalition launched within the Finance in Common Initiative, which seeks to enhance PDBs' role in financing countries commitments to the Sustainable Development Goals (SDG) and the Paris Agreement.

Historically, national PDBs have played a significant role in water sector development in high income countries, and are playing a similar role in middle income countries. PDBs are banks with any sphere of public engagement, either in terms of mandate, ownership or governance. PDBs have a specific mandate to deliver on public policy objectives that support the economic and social development of a country or region, including for investments in water. They have been playing that role in high income countries in Europe, and – as will be shown in this report – also in middle income countries.

The main hypothesis of the study is that national public development banks are underused and that there is potential for them to raise finance for achieving both the SDG 6 and the water-related Paris agreement goals. In order to assess this hypothesis, this research assessed: 1) the nature and extent of PDB involvement in financing water-related investments, and 2) the drivers and constraints for PDB involvement in the water sector. Finally, the research sought to define recommendations for enhancing PDB's role in water-related investments, in case the hypothesis were to be confirmed.

The study is particularly focused on national PDBs (operating at national and local level), but also considers regional PDBs (operating at multi-country level) in Latin America. It also interrogates the role of international finance institutions (IFIs) in financing the water sector through national and regional PDBs.

It is based on a compilation of 8 case studies of 5 national PDBs from 4 countries, as well as two sub-regional PDBs and 1 bilateral PDB. These case studies were identified based on a review of the Finance in Common database of PDBs, in combination with a website research. The case studies were done on the basis of interviews with senior technical and financial staff and complemented with documentation review, particularly PDBs' annual and strategic reports.

The study focused on PDBs that were active in financing water-related investments and excluded cases of PDBs that were not active at all in the sector. This means that the research cannot draw conclusions on the reasons why in some countries PDBs are not involved at all.

Overview of PDBs in the water sector in Latin America and the Caribbean

At least 30% and possibly up to 42% of the PDBs in the region appear to be making water-related investments. Out of a total of 78 national PDBs, 25 appear be providing financial services related to water. For an additional 6 national PDBs, there are indications that they may provide water-related financial services, but insufficient details were found to affirm that. Out of the 7 (sub)regional development banks, 6 were confirmed to be providing financial services related to water.

However, the activities of national PDBs in the water sector are concentrated in a few countries. But regional PDBs cover regions where there are no national PDBs. Out of the 25 national PDBs active in the water sector, 12 are in Brazil. The two other big countries in the region (Colombia and Mexico) also have PDBs that are well-known for providing water-related financing. National PDB involvement in the water sector has been notably absent in the Central American countries, though some first experiences are being developed. (Sub)-regional PDBs are active in the water sector in countries where there are no national PDBs in Central America and the Caribbean.

Nature and extent PDB involvement in the water sector

PDB involvement in the water sector typically derives from their broad mission or mandate to finance development projects, focusing on

public infrastructure or public services. This also implies that PDBs' provide the finance to the entities responsible for public infrastructure and services, typically local governments and public utilities. In some cases, they also provide finance to private entities, typically special purpose vehicles (or the shareholder companies of those) for large-scale infrastructure, such as wastewater treatment plants.

As most of the PDBs reviewed are multi-sectorial PDBs, water is just one out of several sectors financed, representing typically between 5 and 15% of PDB's overall loan portfolio. The relative size of the water portfolio compared to other sectors is not based on prior target setting, though some PDBs have indicative budget envelopes per sub-sector. Rather the size of the portfolio is based on the demand of borrowers. Other factors affecting the relative size of PDB's loan portfolio for water include country strategy papers (for IFIs) and historical sectoral mandates some PDBs have.

Within the water portfolio, the PDBs don't have an explicit priority setting, but there has been a shift towards loans for sewerage and wastewater treatment, and less so for water supply. This is in part explained by the fact that access to water supply services in the region is already very high, and expansions are mostly gradual, financed out of utilities' tariffs. For sewerage and wastewater treatment still large step-wise investments need to be made, requiring loans and technical assistance to public entities from PDBs. This is probably due to the fact that for water supply, gradual expansion is the norm, with lesser need for step-wise increases. Moreover, sanitation and wastewater have historically lagged behind, and now need these large investments. For the future this may change as water supply infrastructure are ageing. Two sub-sectors that are receiving less finance are urban (stormwater) drainage and basic water resources management measures. This is probably due to the fact that there is a less clear revenue model behind these services.

Adaptation to climate change and biodiversity are not yet specific targets in themselves, nor drivers for investments. Adaptation to climate change is seen as a factor of consideration, also as some of the PDBs are in the process of being accredited to manage finance from the Green Climate Fund. But so far, most projects are not formulated primarily as adaptation projects. Similarly, biodiversity is not a driver for investment, but seen as a positive side-effect of investments in sanitation.

Even though there are few consolidated and comparable figures available on the relative size of finance from PDBs compared to other financial flows in the case study countries, these do indicate that PDB finance plays a small but significant role in the water sector. Percentages of 8-12% of overall water sector investments are mentioned in various sector financial analyses.

The study found that PDBs provide the following products and services in the water sector in the countries in the region:

- Providing direct credit lines for infrastructure investments to sub-national governments, mostly municipalities, but also provinces and States, as well as utilities. This is for most of the PDBs the core function they fulfil.

- Providing project finance for infrastructure investments, but usually provided to private parties, often through Special Purpose Vehicles. It is based on the expected revenue stream of a particular investment project, and usually focused on only one step in the (waste) water cycle, such as desalination, potabilization or wastewater treatment.

- Financing project preparation, including (pre)feasibility studies, technical studies and designs, and project formulation. Such finance may be provided as grants or as loans, in case the project formulation is successful.

- Financing performance improvement projects, so as to improve the build the capacity and improve technical and financial performance of prospective borrowers – both utilities and sub-national governments, such as municipalities. This is usually non-repayable finance.

- Channelling grant funding. This consist of receiving non-repayable finance from the Treasury or Ministry of Finance, including from sovereign loans, and channelling that

for investments in infrastructure development to local governments and utilities. This tends to target smaller and rural local governments and providers.

- Technical support in structuring finance and establishing co-finance mechanisms. This includes also establishing PPP arrangements necessary for the co-finance. The technical support may become part of the loan, if successful.

- Administrating trust funds. This may refer to trust funds into which the PDB itself also puts parts of its own profits, as well as ones that are replenished by others.

- Funding sector studies and research. This includes broad sector assessments, or studies that serve as input into subsequent policy development. These are usually grant-funded; we have not come across loans for such sector support work.

Not all the PDBs fulfil all these roles. Whereas providing repayable finance – with the corresponding technical support - for infrastructural investments is the core business of all, they differ in the extent to which they can also provide non-repayable finance for project preparation, performance improvement, or even grant funding for infrastructure development.

Most of the PDBs indicate that their main clients for loans are the mid-sized utilities and local governments. The smaller utilities and local governments are often not credit-worthy, because of their size and generally lower levels of performance and corporate governance. Large utilities are able to obtain loans at more favourable conditions from commercial banks and IFIs. The mid-sized utilities and local governments are therefore the segment that best fits the PDBs.

Drivers and constraints

The main drivers and constraints for PDB involvement in the sector in Latin America, are demands-side factors, including:

- Performance of utilities in their service provision roles, and subsequent financial sustainability. The extent to which PDBs can provide loans directly depends on the performance of utilities in obtaining a stable and sufficient revenue flow from their service provision roles.

- Fiscal discipline legislation. The extent to which the water sector takes on debt is not only limited by the financial performance of utilities, but also by the laws on fiscal discipline that local governments need to follow.

- Water sector performance regulations. The extent to which utilities perform in their service provision roles also depends on the extent to which their performance is regulated at sector level.

- Project preparation. Most PDBs indicate that the limited capacity of borrowers in project preparation affects the low demand for PDB loans.

- Capacity for project execution. Likewise, the extent of PDB involvement in the water sector depends on project execution capacity of the borrowers.

- Competition and coordination among flows and sources of finance. The water sector is funded often through a complex set of flows of public finance, tariffs, and repayable finance going via both local governments and utilities. This may create competition amongst PDBs, or between PDBs (as providers of loans) and providers of non-repayable finance, including sovereign loans. This constraint is offset by the fact that finance needs are often so high that there is ample space for several PDBs and other financiers to co-finance certain investments, combining both repayable and non-repayable finance.

- Shifting demands. The various PDBs indicate that demands for loans within the broad water sector are continually shifting, but that there are always segments of the sector in need of finance. For example, current demand may be more for larger investments in sewerage and treatment, but PDBs anticipate demands for investment to address ageing water supply infrastructure in the years to come. This drives further investments.

The PDBs are aware of these drivers and constraints and may undertake specific actions to address them. They may have dedicated (grant) funding for project preparation and utility performance improvement. Moreover, they provide technical support in project execution, and be actively involved in creating co-financing mechanisms.

Conclusions

The research confirms the hypothesis that there is potential for PDBs to raise finance for achieving both the SDG 6 targets and the water-related Paris Agreement goals, in the Latin American region. The PDBs that were reviewed as part of this study have all been providing finance for water-related investments over a long period of time. The extent of their involvement changes over time, mainly as a result of the demand-side factors. Where the demand-side factors are constraining, PDBs have undertaken actions to addressing them. These include for example, the provision of grant funding for project preparation, utility performance improvement and technical support in project execution. The extent to which more needs to be done to address these demand-side factors differs from one country to another.

Whilst there is thus some potential to further expand the role of PDBs in financing water-related investments, the study concludes that there are three inherent main limitations for PDBs to reach their full potential:

PDB finance is most relevant only for some segments of the water sector. Particularly the segment of middle-sized utilities and local governments is most relevant for PDB financing, and mainly for the larger infrastructure developments. This doesn't mean that PDBs cannot expand to other segments. However, it is not likely that this can happen easily.

The type of contribution to SDG6 targets. Most types of infrastructure investments financed by PDBs include step-wise improvements in infrastructure (like desalination and wastewater treatment) or larger expansions in towns and cities. It is likely that these imply a shift from 'basic services' to 'safely managed services', i.e. a step-wise improvement of service levels for people who already had access to services. These are the types of investments most needed in the region, to move up the service ladder. But it also means that in the region, PDBs are not likely to make significant contributions to providing first time access.

Contribution of PDBs to the water-related goals of the Paris Agreements. The PDBs reviewed as part of this study are in process or have just completed process to be certified to manage green climate funds, and are developing compliance protocols. They indicate that they are still needing technical support particularly on how to do adaptation in the sector. Whereas the financing to the water-related goals of the Paris Agreements may thus become available, it is likely that it will still take time before that translates into contributions to the water-related goals of the Paris Agreements.

Recommendations

In view of these findings, the main need is on removing the demand-side constraints and enhancing those drivers. This requires actions from different types of actors. Specifically, this research recommends the following:

For water sector government entities, including regulators:

- To further develop and enforce water sector regulations to enhance (financial) performance of utilities. In that, particular emphasis needs to be placed on the segment of middle-sized utilities, and gradually also the smaller ones.

- To further develop and enforce water sector regulations to incentivize and enforce investments in expansion, in both water supply and sanitation and wastewater treatment.

- To provide public finance for: 1) project preparation, and 2) utility performance improvement. Such public investments are important steps, so that utilities can subsequently prepare finance proposals, and have the financial capacity to take on loans.

- To provide clarity on financial flows in the sector, which ones are to be used for what purposes, and which ones can be used to leverage what. This should help PDBs and their prospective borrowers the complexity of financing sources that may be present in the sector.

For national PDBs:

- To establish dedicated windows or programmes for 1) project preparation, 2) utility performance improvement, and 3) technical support in project execution, in case they don't have such windows or programmes yet.

- To contribute to policy dialogues in the water sector, particularly providing suggestions around the constraints and drivers they identify.

- To clearly articulate the specific contributions they make to the SDGs and climate-related targets through their investments.

- To intensify knowledge and actions on water adaptation measures to leverage financial resources from climate funds.

For AFD and IFIs

- To ensure that grants and concessional finance is provided to overcome the constraints in project preparation, utility performance and technical support, so that fully repayable finance can be geared towards infrastructure investments.

- To support and promote dialogue between PDBs to learn from experiences for financing the sector.

Introduction

Reaching the Sustainable Development Goal (SDG) on water and any water-related goal of the Paris agreement requires significant investments and optimising public funding allocations. Studies estimate that achieving universal coverage for water and sanitation, not including the need to repair and replace ageing infrastructure or the costs related to projected population growth, urbanization and climate change will require at least US$114 billion additional finance up to 2030 (Hutton and Varughese, 2016; UNESC, 2019; Biswas and Seetharam, 2008). New estimates from the World Bank suggest that achieving SDG targets 6.1 and 6.2 will cost low- and middle-income countries US$ 198 billion a year, with a further US$ 103 billion required for flood protection (World Bank, 2019). With regards to water-related ecosystem protection, a recent report recommends an increase in financial flows to watershed protection programs from US$ 27 billion to US$ 104- 138 billion annually by 2030 (Deutz et al., 2020).

Historically, national Public Development Banks have played a significant role in water sector development in high income countries. There is also growing understanding of the role PDBs play in the water sector in several (upper)-middle income countries, including ones that are part of this review.

This role has also been highlighted in the Addis Ababa Agenda for Action on financing sustainable development (UN, 2015). In its roadmap for the financing the SDG, the UN made it a priority area to strengthen its engagement with national public development banks so as to enhance their role in SDG and climate finance. This means supporting them in identifying SDG-investment opportunities, strengthen their capacity to issue SDG bonds and similar financial products and promote the implementation of Environment, Social and Governance standards (UNESC, 2019).

Specifically, as financial institutions with a public mandate, PDBs can play a role in increasing and improving financial allocations to the water sector. PDBs can fulfil this role in multiple ways, including by:

- Channelling finance to sectors that bring social, environmental and economic returns that are not attractive to commercial banks;
- Act as catalyst in policy dialogue and policy reform for SDG goals achievement
- Tailoring financial products suited for the water sector, which often requires long-term capital with favourable terms and tailor-made arrangements;
- Channelling funds and expertise for project preparation in order to bring water projects to bankability stage;
- Designing financial products able to attract third parties, particularly private sector investors and commercial banks.

Recognising that potential, the Agence française de développement (AFD) commissioned a study on the role of Public Development Banks in financing the Sustainable Development Goal 6, the water-related goals of the Paris agreement and biodiversity protection. The study is commissioned in the context of the Water Finance Coalition[1] launched within the Finance in Common Initiative[2], which seeks to enhance PDBs' role in financing countries commitments to the Sustainable Development Goals and the Paris Agreement.

This report is an assessment of public development banks involvement in the water sector in Latin America. The study consists of both a global study and a regional study in Latin America. The global study (Fonseca et al., 2021) reviews the broader literature on the role of PDBs in the water sector, and draws a synthesis of cases from national PDBs from across the globe, as well as of International Financial Institutions. Given the fact that some of the best-known cases of PDBs in the water sector are in Latin America, this separate report has been prepared, which zooms into those specific examples. It is thus complementary to the global report.

[1] https://www.waterfinancecoalition.org/

[2] https://financeincommon.org/

Purpose

The main hypothesis of the study is that national public development banks are underused and there is a lot of potential for them to raise finance for achieving both the SDG 6 targets and the water-related Paris Agreement goals. In order to confirm this hypothesis, the study seeks to understand:

- The extent and nature of national PDBs' operations in the water sector and confirm whether they fulfil the roles mentioned above;
- The drivers and constraints of their involvement, including mandates, water sector needs and the structure of water sector markets; and
- If the hypothesis is confirmed, then what can be done for national PDBs to fulfil their potential and enhance their operations in the water sector.

The results of the study will help inform a future course of actions for the AFD, other IFIs, PDBs, national governments and other development partners seeking to support PDBs in the water sector. As such the study seeks to generate recommendations on:

- Actions to address water sector constraints that limit PDBs' involvement;
- Actions to enhance PDBs' capacity to deliver financial products for water; and
- Other technical assistance needed to mobilise water sector finance via PDBs.

Scope and definitions

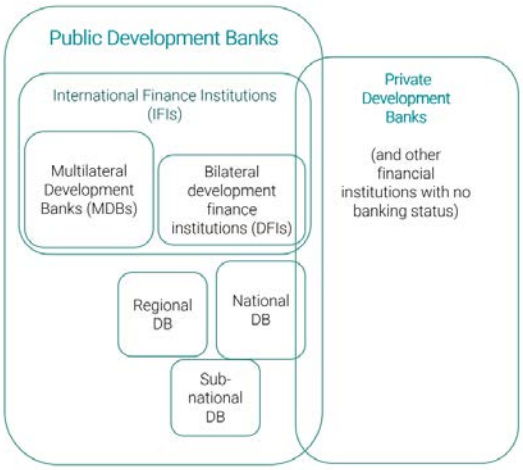
- PDBs are banks with any sphere of public engagement, either in terms of mandate, ownership or governance. This dynamic definition focuses on what public banks do, how they operate and why (World Bank, 2018, FDC 2020, McDonald et al., 2021). PDBs can be international, regional, national or sub-national. –

Figure 1 provides a classification of the nomenclature of different types of PDBs:

More specifically, the following types of PDBs are identified.

- National, regional or sub-national public development banks are government-owned financial institutions that provide financing for economic development. In some literature they are also called domestic development banks.
- Public development banks also include International financial institutions (IFIs) conducting development-oriented finance on a bilateral or multilateral basis, whereby
- Bilateral development finance institutions (also called Development Finance Institutions or DFIs) either independent institutions, such as the Netherlands Development Finance Company (FMO), or part of larger bilateral development banks (i.e. AFD, kfW).
- Multilateral development banks (MDBs) are public or private sector arms of international financial institutions (IFIs) that have been established by more than one country, and hence are subject to international law. –

Figure 1: different types of PDBs



Source: Fonseca et al., 2021

This report focuses on the role of national, regional and sub-national PDBs in the water sector in Latin America, but refer to them as national PDBs for simplicity sake. Moreover, we focus on the role of IFIs funding the sector through them in Latin America.

Unlike other kinds of state-owned financial institutions, such as state-owned commercial banks or insurance companies, PDBs have a specific mandate to deliver on public policy objectives that support the economic development of a country or region. In some (limited) cases, PDBs may also engage in commercial lending and lend to individuals.

PDBs main difference when compared with commercial banks is usually the target beneficiaries (e.g. local governments) which are not covered by commercial banks and the ability to provide longer tenor loans, non-reimbursable finance and lower interest rates.

This study considers the water sector at large, i.e. water and sanitation infrastructure (production, distribution) and services, multipurpose infrastructure (irrigation canals, agriculture, and flood protection) and water resources management, including nature-based solutions as well as water-related ecosystem protection, which contribute to achieving SDG 6 and the Paris Agreement. It also takes into account investments contributing to biodiversity protection, where this is achieved through water-related investment, such as, for example, for the development of wastewater treatment facilities.

Approach, methodology and limitations to the study

This study starts with an identification of PDBs based on a database commissioned by AFD (2020a and 2020b). The databases provide a quantitative insight into the number and nature of existing PDBs in the region and the size of their assets. Based on that, a complementary website search was undertaken to get an indication if they are involved in water-related financing.

From that analysis, a selection of case studies is made of national and sub-regional PDBs and IFIs that were identified as being active in financing water-related investments in Latin America. In total, 8 case studies were prepared on 5 national PDBs from 4 countries. In addition, cases were prepared on two sub-regional PDBs and 1 bilateral PDB. Details on case identification and selection are presented in chapter 2. It should be noted that the two biggest IFI in the region, the Interamerican Development Bank (IDB) and CAF – Development Bank of Latin America (CAF) are not included as detailed cases in this report. Their experiences in the water sector were reviewed as part of the global study, and the insights from that are also reflected here, but not in the form of detailed cases.

The case studies are based on a combination of documentation review and interviews. The documentation review consisted particularly of PDBs' annual and strategic reports, as well as documents about the overall structure and financing of the water sector in those countries. The latter focused on understanding challenges and opportunities of national water sector, and how those influence the needs and potential for financing the sector. The interviews were conducted with senior staff of the PDBs, particularly those in charge of water-related investments, as well as sustainability officers (see list of interviewees in Annex 2). The full write-up of the case studies is presented in Annex 1.

The study comes with a number of limitations. The study took a perspective of the PDBs, and assesses them in relation to the broader context of financing the water sector in various countries in the region. However, this excludes an in-depth assessment of the financial context of the sector. Also, the broader performance of the PDBs, in terms of financial regulations, debt servicing, liquidity and competition fell outside their scope.

The study is skewed to PDBs that work in the water sector, and thus by definition excludes contexts in which PDBs are not at all active in that sector. For example, some countries have PDBs, which – for various reasons – are not financing investments in the water sector. And other countries do not have PDBs at all. Therefore, the research can answer why PDBs are working in the water sector, and what the opportunities and limitations are in that. It is not possible to answer why certain PDBs are not working in the water sector.

For whom is this document?

Public policy and financial stakeholders are the main audience for this study. They include staff of PDBs as well as other non-water experts,

particularly ministries of finance and treasury. The study provides suggestions on how to advance PDB support, including support to the enabling environment of the water sector, by supporting the institutions and the regulatory and policy environment in which PDBs operate.

The study also targets water-specialised institutions such as water sector regulators, public water operators, municipal water managers, ministries responsible for water, to raise awareness of the potential role of national PDBs and bring them up to date on how to raise domestic resources via PDBs. The study provides recommendations on how their role can be more impactful on PDBs and help to shape their agenda for the future.

Findings are also relevant for PDBs themselves. As the study highlights PDBs activities in the water sector, it also describes enabling operational modalities, the role of central government and IFIs and therefore holds lessons for PDBs seeking to increase their operations in water.

Report structure

After this introductory chapter, chapter 1 presents the regional landscape of PDBs and their involvement in water. It also presents the details of case study identification that was followed for this study. Chapter 2 presents the findings from across the case study, describing their overall involvement in the water sector, the types of products and services they offer, the approach to risk assessment, including specifically environmental risks, and ending with the overall trends in opportunities and limitations for PDB involvement in water. Chapter 3 presents the conclusions and recommendations.

1. Overview of PDBs in the water sector in Latin America and the Caribbean

This section presents an overview of PDBs in the Latin America and Caribbean (LAC) [3] region, and an assessment of the extent to which they are active in the water sector. Based on that assessment, the case studies are identified and selected.

1.1. PDBs appearing to provide water-related financial services in the LAC region

According to the Finance in Commons database of PDBs prepared by AFD (2020a;), there are in total 78 national PDBs, spread over 24 countries in the LAC region. In addition, there are 7 (sub)regional development banks.

A rapid review was done of the websites of each of those 85 PDBs, consisting of a search of the websites for keywords related to water, as well as a review of the types of financial products and services the PDBs provide. This yielded a total of 25 national PDBs, and 6 sub-regional PDBs, whose websites made explicit reference to the provision of financial services related to water. For an additional 6 national PDBs, the website search yielded indications that they may provide water-related financial services, but insufficient details were found to affirm that. Finally, there may be PDBs that do provide investments in water, but whose websites did not make any references to that; those are not listed here. **Table 1** below contains the list of all PDBs whose websites indicate they provide services, or for which the search was inconclusive.

Table 1: PDBs in the LAC region appearing to provide water-related financial services, identified from the Finance in Common database (AFD, 2020a)

Country/ (sub)region	Name of bank	Providing water-related financial services	Total assets (million US$)
(Sub)-national PDBs			
Antigua	Antigua and Barbuda Development Bank	Inconclusive	300
Bahamas	Bahamas Development Bank	Inconclusive	38
Belize	Development Finance Corporation	Confirmed	59
Brazil	Agência Estadual de Fomento do Rio de Janeiro	Confirmed	144
	Agência de Fomento do Rio Grande do Norte	Inconclusive	10
	Agência de Fomento do Estado de Santa Catarina S.A.	Confirmed	254
	BADESUL Desenvolvimento - Agência de Fomento/RS	Confirmed	813
	Banco Nacional de Desenvolvimento Econômico e Social	Confirmed	206,787
	Banco de Desenvolvimento de Minas Gerais S.A.	Confirmed	1,718
	Banco do Nordeste do Brasil	Confirmed	15,107

[3] This study uses the World Bank regional of Latin America and the Caribbean regional classification of the World Bank, i.e. all countries on the American continents, except Canada and the USA. All autonomous Caribbean islands fall under this definition.

Country/ (sub)region	Name of bank	Providing water-related financial services	Total assets (million US$)
	Banco Regional de Desenvolvimento do Extremo Sul	Confirmed	4,470
	Caixa Econômica Federal	Confirmed	325,863
	Agência de Fomento do Estado da Bahia	Confirmed	314
	Desenvolve SP – Agência de Fomento do Estado de São Paulo S.A	Confirmed	480
	Agencia de Desenvolvimento de Roraima	Inconclusive	2
Colombia	Financiera de Desarrollo Territorial	Confirmed	3,142
	Instituto para el Desarrollo de Antioquia	Inconclusive	648
Ecuador	Banco de Desarrollo del Ecuador	Confirmed	2,371
El Salvador	Banco de Desarrollo de El Salvador	Confirmed	531
Honduras	Banco Hondureño para la Producción y la Vivienda	Inconclusive	431
Jamaica	Development Bank of Jamaica	Confirmed	230
Mexico	Banco Nacional de Obras y Servicios Públicos	Confirmed	42,918
Peru	Corporación Financiera de Desarrollo	Confirmed	3,289
	Fondo Mivienda	Inconclusive	3,037
Saint Lucia	Saint Lucia Development Bank	Confirmed	36
Regional PDBs and IFIs			
Central America	Banco Centroamericano de Integración Económica	Confirmed	10,850
Latin America and Caribbean	Banco de Desarrollo de América Latina	Confirmed	40,014
Caribbean	Caribbean Development Bank	Confirmed	1748
Countries of the La Plata catchment	Fondo Financiero para el Desarrollo de la Cuenca del Plata	Confirmed	1043
Latin America and Caribbean	Inter-American Development Bank	Confirmed	129,459
Mexico – USA border region	North American Development Bank	Confirmed	1,959

At least 30% and possibly up to 42% of the PDBs in the region appear to be making water-related investments. A closer look reveals the following on the geographical spread and coverage of these PDBs:

- Out of the 24 national PDBs, 12 are in Brazil. Brazil has a total of 19 State-level PDBs, some 10 of which provide loans to local governments for investments in public infrastructure, including water and sanitation. In addition, there are two national level PDB providing such financing.

- The two other big countries in the region (Colombia and Mexico) also have PDBs that are well-known for providing water-related financing (*Financiera de Desarrollo Territorial* or FINDETER, and *Banco Nacional de Obras y Servicios Públicos*, or BANOBRAS) respectively.

- The mid-sized countries represent a mixed picture with some having PDBs that provide financing for public infrastructure, including water (Ecuador and Peru), whereas such PDBs are notably

absent among the most developed mid-sized countries such as Argentina and Chile. It fell outside the scope of this research why PDBs are absent in those countries.

- National PDB involvement in the water sector is also notably absent in the Central American countries**.** One PDB was identified in El Salvador (*Banco de Desarrollo de El Salvador*, or BANDESAL), but as will be shown in chapter 3, its role is limited to administrating a dedicated trust fund for water. The website search of the PDB in Honduras (*Banco Hondureño para la Producción y la Vivienda*, or BANHPROVI) was inconclusive, but based on the research team's experience, it is known that BANHPROVI has so far not been engaged in financing the water sector, though it is making first exploratory steps, seeking to set up a similar trust fund as in El Salvador. There is however an active IFI in this sub-region: the *Banco Centroamericano de Integración Económica* (BCIE). Though the research did not validate this, the presence of BCIE may be one of the factors that explains why national PDBs have so far been absent from the water sector in the Central American countries.

- Some of the smaller Caribbean nations have national PDB which are confirmed or appear to include water-related finance in their portfolio including: Antigua and Barbuda, Bahamas, Belize, Jamaica and Saint Lucia. In addition, there is a dedicated IFI for this sub-region: the Caribbean Development Bank.

- Out of the 7(sub)regional IFIs, 6 very explicitly include financing for water related investments in their portfolio. Together, these cover all countries in LAC, apart from Cuba.

The assets of these banks are highly concentrated in a few PDBs. Two of the banks (*Banco Nacional de Desenvolvimento Econômico e Social*, BNDES, from Brazil and *Caixa Econômica Federal*), hold almost seven times the volume of assets as all the other national PDBs combined. The next biggest bank is BANOBRAS (Mexico), and some of the State-level banks in Brazil. Of the (sub)regional banks, the Inter-American Development Bank (IDB) is by far the largest, followed by CAF and BCIE. The other (sub)regional PDBs are all small in terms of assets they hold.

1.2. Selection of case studies

Based on the above, we have selected the case studies presented in Table 2.

Table 2: Case studies included in this review

Type of geographic coverage	Geographic coverage	Name of bank	Acronym
Sub-national	States in the Northeast of Brazil	Banco do Nordeste do Brasil	BNB
National	Brazil	Banco Nacional de Desenvolvimento Econômico e Social	BNDES
National	Ecuador	Banco de Desarrollo del Ecuador	BDE
National	El Salvador	Banco de Desarrollo de El Salvador	BANDESAL
National	Mexico	Banco Nacional de Obras y Servicios Públicos	BANOBRAS
Bi-national	Mexico – USA border region	North American Development Bank	NADB
Sub-regional	Central America	Banco Centroamericano de Integración Económica	BCIE
Sub-regional	The 5 countries of the La Plata catchment	Fondo Financiero para el Desarrollo de la Cuenca del Plata	FONPLATA
Regional	Latin America and the Caribbean	Inter-American Development Bank	IADB
Regional	Latin America and the Caribbean	Banco de Desarrollo de América Latina	CAF

The case study selection focused primarily on the larger national PDBs, which are also referred to widely as in the examples of PDBs involved in the water sector: BNDES in Brazil, BDE in Ecuador and BANOBRAS in Mexico. The fourth PDB that is widely referred to, FINDETER in Colombia, is not included as a case study, as no interview could be set to complement the document review. However, the document review on FINDETER revealed that the way it functions and the products and services it provides, is similar to BNDES, BDE and BANOBRAS.

In order to get additional perspectives, the research decided to include:

- At least one case of a State-level PDBs in Brazil, as an example of a sub-national PDB. This would be thought to be representative of the various other State-levels PDBs. The case selected is of the largest State-level PDB: BNB.

- At least one case from the smaller countries in Central America. The case selected of El Salvador is slightly different as it takes the perspective of a trust fund, called FIDEAGUA, which is administered by the PDB, BANDESAL. As BANDESAL has a relatively small role in that (only administering the fund), we take the wider perspective of the trust fund, including various other partners in that.

- All relevant (sub)regional banks; BCIE, FONPLATA and NADB, recognizing that CAF and IDB were already covered by the global report of this research. We consider that BCIE provides a similar perspective to the IFIs, such as CAF and IDB, as it has a broad thematic focus (i.e. providing finance across a range of sectors), covering a larger number of countries. FONPLATA and NADB are more targeted on a limited geographical area (La Plata river basin and the Mexico-USA border region respectively), and even having a specific content focus (regional infrastructure and environmental infrastructure respectively).

It should also be noted that the research initiated a review into three additional cases, but which were left out of the review for different reasons:

- Costa Rica. In Costa Rica, there is one PDB (*Banco Nacional de Costa Rica* – BNCR), and two other financial institutions, called *Banco Popular y Desarrollo Communal* (BPDC) and *Instituto Nacional de Fomento Cooperativo* (INFOCOOP), which not fully comply the definitions of PDB. BPDC and INFOCOOP do provide some finance and technical support to water association and cooperatives, but it is very limited. BNCR was confirmed not be active in water-related. Given that they are not full PDBs and have limited involvement, it was decided not to include Costa Rica in the full analysis.

- Bolivia. In Bolivia, there is no PDB active in water-related investments, but there are two Funds, which fulfil a similar role of providing repayable finance to local governments, without having a banking status. Though potentially interesting, it was not possible to interview the *Fondo Nacional De Desarrollo Regional*, the main such Fund.

- Both the national PDBs from the Caribbean and the IFI from that sub-region (Caribank) were also excluded from the research, given that it is a lesser priority region for AFD.

Taken together, we consider that these cases provide the insights from PDBs that for a longer time have been active in financing investments in the water sector. However, the caveat needs to be made that the cases of the national PDBs are all from upper middle income countries, with relatively mature water and financial sectors. These are complemented by the experience of El Salvador, but also of the BCIE in Central America, which operate in the lower middle income countries, and those also being countries with less mature water sectors.

2. Findings from across the case studies

This chapter provides the findings from across the case studies. It first presents some general trends in the water sector in the countries in the region. These provide the context in which the PDBs operate. It then continues by characterising the involvement the PDBs have in the water sector. This is followed by the products and services – both financial and technical – that PDBs provide in the water sector. Then, we look into the way in which PDBs assess, and deal, with risks. Finally, the opportunities and limitations for PDB involvement in the sector are presented, based on the perspectives of the PDBs, including their senior staff.

2.1. Characteristics of the water sector in the region

According to WHO/UNICEF (2021), there is a very high level of access (97%) to at least basic drinking water supply services in Latin America and the Caribbean. In urban areas, this is even near-universal (more than 99%), whereas in rural areas it is 90%. Moreover, 75% of the population even has access to safely managed drinking water services (i.e. services that are accessible or premise, are available when needed, and meet water quality standards), this being 81% in urban areas and 53% in rural areas. The region as a whole is expected to achieve universal coverage by 2030, and close to 80% access to safely managed drinking water services.

The same data indicate, that access to at least basic sanitation is a bit lower at 89% (93% in urban areas and 73% in rural areas). Access to safely managed sanitation is much lower than access to safely managed water supplies, as it stands at only 34%. If current rates of growth in access are maintained, the region will just fall short of the target of universal access, but reach some 97% access by 2030. Levels of access to safely managed sanitation services would just be below 50% by 2030 if current levels of growth are maintained.

These statistics indicate that there is still a gap to be filled in terms of access to basic services, particularly in rural areas. Moreover, both in urban and especially in rural areas, there is a need to further accelerate access to safely managed services, mainly in sanitation. In practice, this means above improvements in water quality and continuity of supply, and to sewers and wastewater treatment.

The general regional situation in terms of access is also reflected in the countries covered in this study. The countries have similar levels of access to basic and safely managed services as the region as a whole. And as such their general needs are the same: to fill the final gaps in access to basic services, particularly in rural areas, and make much more significant improvements towards safely managed water and sanitation services.

In terms of the organisation and financing of the water sector, some of the common characteristics include:

- The service authority role, i.e. the responsibility for ensuring that services are delivered and that service providers are in place, generally lies with local governments. They need to identify and contract service providers, and ensure oversight over them. In some cases, groups of municipalities may exercise that role jointly, or delegate it upwards to the level of State government (in the case of Federal States).

- The actual day-to-day service provision role is usually exercised by dedicated utilities. These may be public, private or mixed in terms of ownership, but are usually corporatized, i.e. being legally separate entities, with their own revenue and expenditure. The latter is particularly relevant where it concerns municipal-owned utilities. In some countries, e.g. Ecuador, there may not be such corporatized utilities, but services sometimes are provided by dedicated municipal departments.

- Varying degrees of independence in water regulation and oversight. Ecuador has an independent water sector regulator, which sets the regulations that utilities need to comply with, and provides oversight and compliance. Such independent regulators do not exist in the other case study countries. In Brazil, some States have regulatory bodies, whereas in Mexico oversight lies mainly with State and municipal governments.

- The responsibility for doing investments in water and sanitation is usually shared between local governments, utilities and national/State governments. From the tariffs that utilities levy, they are supposed to cover their operational costs. Moreover, ideally part of the tariff revenue is to be used for investments in expansion and improvement of services. This means that the primary responsibility for investments in infrastructure development lies with the utilities themselves. However, in all the countries reviewed, also municipalities and State/national governments could and should complement such investments.

2.2. PDBs involvement in the water sector

This section reviews 1) the role that the PDBs fulfil in the water sector, 2) the relative importance that water-related investments play in the overall portfolio of the PDBs, and 3) the relative importance of PDB-finance in the overall financial framework of the sector.

2.2.1. Role of the national and regional PDBs in the water sector

All the reviewed PDBs have the broad mission or mandate to finance development projects, mostly focusing on public infrastructure or public services. Some have even more specific water mandates. As water-related investments usually fall under public infrastructure or public services, these fall within the mission or mandate of the PDBs. The NADB for example has a mandate to focus on environmental infrastructure, whereas FONPLATA focuses on infrastructure that is of regional relevance.

PDBs' invest in the water sector through the entities responsible for public infrastructure and services, typically local governments and public utilities. Some finance private sector, but only through Special Purpose Vehicles (SPVs). BNB can finance individual entrepreneurs and farmers, mainly for investments in on-farm irrigation facilities.

2.2.2. Relative importance of water-related investments in the portfolio of the PDB

The data on the relative importance of water-related investments in the loan portfolio (see **Table 3**) are only partially comparable:

- Only 4 PDBs (BNDES, BDE, BCIE and NADB) have precise figures of the relatively importance of water-related investments. And these oscillate from 5% (BNDES), up to 75% (NADB)

- The other PDBs have data on the total size of their various portfolio, but water is split out over several instruments. For example, BNB has a public infrastructure fund, of which water is about 20%. In addition, it has a dedicated water fund, which is largely directed to individual farmers and cooperatives for irrigation investment. It doesn't present all its water data in a consolidated manner. BANOBRAS has a wide number of instruments for the water sector – from direct credit to non-repayable finance for utility performance improvement, and project finance. Given the different types of finance (repayable, non-repayable) and the spread over the various instruments, it is not possible to come to a consolidated figure.

Table 3: relative importance of water-related investments in the portfolio of the PDBs

Bank	Relative size of water in the PDB's loan portfolio
BNDES	5-6%
BNB	Unknown, but 20% of the public infrastructure portfolio
BDE	37% (water and sanitation 6% (environment, including water resources management)
BANDESAL	0%
BANOBRAS	< 1% of direct credit, in addition to non-repayable and project finance
BCIE	10-15%
FONPLATA	A few percent
NADB	75%

In spite of data limitations, it can be noted that for multi-sectorial PDBs (i.e. ones that provide finance across a wide range of sectors), water-related investments represent somewhere between 5 and 15% of their portfolio. The main exception to that is BDE. Even though BDE can finance across many sectors, water and water resources management represent more than a third of the bank portfolio.

The relative size of the water portfolio is not based on prior target setting. All the interviewees indicate that there is not a pre-set target of their portfolio that needs to be spent on certain sectors, though BNB and BNDES indicate they have indicative budget envelopes for different sub-sectors. They do refer to the SDGs as a broad framework for their loans, but that is not translated into specific targets.

The size of the portfolio is based on the demand of borrowers – local governments, utilities and countries. The PDBs all commented that in the end the size of the portfolio depends on specific demands for loans for local governments and utilities. They need to prepare projects and request loans for those. This demand-based approach means that if demand is reducing (for whatever reason), the relatively size of the portfolio may also shrink, as has been happening with BANOBRAS in Mexico.

For the IFIs, the relative size of water-related investments in their portfolio is also defined by country strategy papers that they develop with their borrowing member countries. For example, BCIE and IDB develop such country strategy documents with the governments of its member countries. These articulate the priority sectors that the BCIE and IDB would provide finance for.

A final factor that defines the relative size of the loan portfolio for water is the (historical) sectoral mandate a PDB may have. This is most clearly the case for the non-generalist PDBs, such as NADB, which only finances environmental infrastructure, and as such has a very large share of its portfolio in the water sector. FONPLATA to the contrary has historically focused on transport, as a means of integration across the La Plata countries. It has been growing other portfolios only recently, and as a result water-related investments are relatively small.

Within the water portfolio, the PDBs don't have an explicit priority setting, but there has been a shift towards loans for sewerage and wastewater treatment, and less so for water supply. This is in part explained by the fact that access to water supply services in the region is already very high, and expansions are mostly gradual, financed out of the tariffs that utilities levy. But for sewerage and wastewater treatment the large step-wise investments need to be made, hence requiring loans from PDBs. Moreover, treatment facilities can be financed in the form of discrete projects, whereby there is a specialised operator that would get a concession to operate the treatment plants, and receives revenue from the utility from that. Reflecting on that, the NADB observed how Mexico has made

massive progress in expanding sewerage and wastewater treatment, even in smaller and intermediate local governments. But looking towards the future, it expects that in Mexico – but also on the other side of the border in the USA - there will be an increase demand in loans for water supply. This would be in part for renewal of ageing infrastructure that was developed several decades ago, but also for building in extra capacity and redundancy in the face of droughts and climate change.

Two sub-sectors that have attracted relatively small proportions of loans within the water sector are:

- Stormwater drainage. Some of the PDBs commented that this is a sub-sector that is difficult to finance. Unlike for water supply, sewerage and wastewater treatment, there is no specific ringfenced tariff revenue flow around stormwater drainage. It is usually financed out of general municipal taxes. That means that local governments can only take loans for such works against their overall tax flow, making it more difficult to finance.

- Basic water resources management measures, such as catchment protection. Similarly as for stormwater drainage, there are often no ring-fenced revenue streams for such measures, which make it difficult to come to define loans against. This is observed clearly in the case of BDE, which has a very large proportion of its portfolio directed to water and sanitation, but a small part to environmental management, which includes water resources.

Adaptation to climate change in the water sector is increasingly a factor of consideration, but not yet a target in itself. Some of the PDBs (e.g. BANOBRAS and BDE) indicate that they are in the process of being accredited to manage Green Climate Funds, for investments in climate change mitigation and adaptation. This implies that projects need to make more specific how they contribute to mitigation (e.g. reduced energy use), and adaptation. But so far, most projects are not formulated primarily as adaptation projects – just simply as water projects, which may have given more or less attention to issues of climate change adaptation. This also means that the PDBs are not yet driven by targets that contribute to the Paris Agreements on climate change. As was mentioned in one of the interviews: "*Climate change adaptation is not a driver for investments. In the arid regions where we work, there is anyway a need to invest in dealing with variability of water resources, for example by building in more redundancy in the water sources of a utility*".

Similarly, biodiversity is not a driver for investment, but seen as a positive side-effect of investments in sanitation. As one of the interviewees said "*Biodiversity is also not a driver of investment. Cities want treatment plants to clean up the sewage that is flowing freely into the rivers. That it may eventually have an effect on biodiversity is a positive side effect*". This is also reflected in the taxonomy used by the PDBs to categorize their investments. Water and sanitation may be a category in itself, or a sub-category under (public) infrastructure. They may have a separate category for environmental (including water resources) investments, which may include projects around wetland restoration and catchment management, but also – what is in effect public infrastructure – such as flood management.

2.2.3. Relative importance of PDBs in water sector finance

There are few consolidated and comparable figures available on the relative size of finance from PDBs compared to other financial flows in the sector. These include:

- In Brazil, a detailed review of financial flows in the sector (UN-Water/WHO, 2013) indicated that repayable finance represented some 12% of all financial flows in the sector. Though that report does not provide a detailed break-down of how much comes from PDBs, and what from commercial banks, CAIXA (the main national PDB) is mentioned as being of highest importance.

- In Ecuador, the national water and sanitation strategy (SENAGUA, 2016) indicates that some 733 million USD/year would be needed over the period 2014-2024 to meet the national targets. Of this amount, 52% was foreseen to come from public finance, and 48% through debt, mainly in the form of loans from BDE. Over the past years, the average loan disbursements from BDE on water and

sanitation amounted to some 185 million USD/year (BDE, 2021). It is not known how much public finance actually went into the sector. If the public finance targets were achieved, debt would have represented up to 32% of the investment flows.

- Though this report doesn't include the detailed case of FINDETER in Colombia, some data are available about the relative importance of water-related loans it provides. According to FINDETER (2017), it disbursed USD about USD 96 million/year over the period 2012-2017 to the sector. During the same period, investments from public finance and from tariffs amounted to an average of USD 1,243 million/year. Loans from the national PDB FINDETER thus represented almost 8% of all investment flows in the sector.

In spite of the different ways of expressing the figures (as percentage of all financial flows in the sector, or as percentage of investments), these do indicate that national PDB loans play a significant role in the financing of the sector in these countries. In Ecuador the percentage is very high, but even percentages of 8-12% in Brazil and Colombia are significant.

This doesn't mean that the significance of national PDB finance is spread evenly over the sector. The interviews indicate that national PDB finance is mainly concentrated among the middle-sized utilities. Larger utilities and local governments can typically access finance from commercial banks or even directly from IFIs. Their size and expertise means that they have the capacity to take on such loans and prepare project proposals. The smallest local governments and utilities, or providers in rural areas, often are not credit-worthy. Hard figures are lacking but the interviewees indicate that most of their loans are focused on the middle-sized utilities who have some capacity to take on debt, have some capacity to prepare finance proposals, but don't have the creditworthiness to access commercial finance. The significance of PDB finance thus lies in being able to cater for that segment of the sector.

2.3. Financial and technical products and services provided by the PDBs in the water sector

In order to execute that mission, the PDBs provide a range of financial and technical services, including financial products with sovereign guarantee from the national government and with no sovereign guarantee. The following ones were identified across the case studies.

- Direct credit lines and loans for infrastructure investments
- Project finance
- Loans and grants for performance improvement of utilities and local governments
- Channelling grants
- Technical support in structuring finance, and establishing co-finance mechanisms
- Technical support for project preparation of loans and PPPs
- Administrating trust funds
- Sector studies and research

Below we elaborate each of these in more detail.

2.3.1. Direct credit lines and loans for infrastructure investments

The provision of such loans for water-related investments is the core financial product that all PDBs provide, including loans with sovereign guarantee from the national government and with no sovereign guarantee. As indicated, this is done in a demand-based manner, whereby a prospective

borrower requests a loan from the PDB for a specific water-related investment. The PDB subsequently does the due diligence checks on the technical details of the project, as well as on the risks of the borrowers (see next section). If these checks are positive, the loan may be provided to the borrower.

Most of the PDBs also provide technical support in the execution of the projects, sometimes financed by these loans. This support may include the review of technical studies and designs, support in tendering, procurement and contracting, supervision and quality control. To that effect, most of the interviewed PDBs have dedicated technical units with water experts.

These loans are provided to different types of entities, but mainly local government and/or utilities. Given their public mandate, most of the PDBs can provide loans only to public sector entities, which would usually include local (or State) government entities as well as utilities. In the latter categories, often only publicly-owned utilities – but not private – utilities may be eligible to receive finance from PDBs. Loans to public utilities may need the explicit support from their respective local authorities. For example, in Mexico, municipal or State government will need to give approval for loans taken on by utilities under their authority. FONPLATA, on the other hand, can only provide loans to local governments, but not yet to corporatized utilities.

Conditions for the loans include long tenure periods, with some grace period, and interest rates that are a bit below the commercial interest rate. Typically, the tenure rate for loans to utilities and local governments for water-related investments is 20-25 years, with a few years of grace period for loans with sovereign guarantee. The effective interest rates are a few percentage-points below the commercial interest rate. The PDBs charge that to cover their technical support costs. In fact, most interviewed PDBs indicate that their added value, compared to commercial banks, does not lie only in providing much better financial conditions, but in their ability to provide technical support in project preparation and execution. That also reinforces the trend that the PDBs mainly reach the middle-sized utilities. The large utilities are at times able to negotiate better financial rates with commercial banks – and they don't need the technical support from PDBs.

2.3.2. Project finance

Project finance is the provision of finance, against the earmarked projected revenue stream of a particular project only, and not against all revenues of a utility or local government. This is normally done with no sovereign guarantee for large investments in certain types of infrastructure that cover one specific step in the water- and sanitation process (typically drinking water treatment, wastewater treatment or desalination). For that step a private Special Purpose Vehicle (SPV) is created, which will get a concession to operate the infrastructure component from the utility or local government. The utility will in future pay the SPV the operating costs (out of its overall tariff revenue), which the SPV will then use to pay back the loan. Also, PPP constructions can be set up for project finance.

This type of project finance is provided, amongst others by BANOBRAS and the two PDBs in Brazil. The possibility to provide such project finance is created by the institutional and regulatory set-up of the water sector in both countries. It allows such de-bundling of the water- and sanitation infrastructure into some of the main components, for which it can provide operation concessions.

The conditions for such project finance are tailor-made, based on a number of key criteria. The technical and financial complexities of such projects mean that there are no standard conditions for such project finance. Key criteria in defining these conditions include: 1) the need to have long tenure including some years of grace period, 2) own capital, whereby the SPV brings in own capital, 3) co-financing with other (commercial) banks.

2.3.3. Project preparation

Some of the PDBs have a facility for project preparation, understood to refer to the process of carrying out the pre-feasibility, technical studies and design and the eventual project formulation. However, the size of such a facility differ a lot. FONPLATA has for example a facility for this of only 1 million US$/year,

whereas a similar such facility of BCIE is up to 10 million US$/year. BANOBRAS is the only national PDB which has such a facility, as part of a programme called PROMAGUA. The project preparation may either target projects that either would be financed through a direct credit line, or via a project finance mechanism.

This finance may be partially or fully grant-based, and the facilities therefore all are replenished by profits of the PDB and different donors. The financing for project preparation is in some instances provided in the form of grants (e.g. in the case of NADB). Also BANOBRAS provides those as grants, as part of PROMAGUA, but only finances up to 50% of such project preparation costs. Other PDBs provide it in the form of contingent finance. The latter means that if a project is formulated which will come to successful financial close, and be subsequently financed by the PDB, then the repayment of the costs of project preparation is included in the loan. If the project preparation fails, i.e. does not lead to a bankable project, the costs of project preparation are incurred by the PDB. This type of contingent finance is applied for example by the BCIE as part of its Fund for Technical Assistance, and FONPLATA. Under either modality, there is need to replenish the fund to cover the costs of grants, or costs of project preparations that fail. These funds are therefore replenished from the profits of the PDB, or other sources of funding. For example, PROMAGUA is funded out of the profits from toll roads. Sometimes, these facilities may also get grant funding from IFIs or other donors.

The use of such facilities is closely linked to the direct credit lines and/or grants. As it is in the interest of both the PDBs and the borrowers that such project preparation leads to actual bankable projects, the use of such facilities is closely linked to direct credit lines or loans. For example, NADB's Project Development Assistance Program is directed to those projects that are already prioritized for getting grants.

2.3.4. Loans and grants for performance improvement of utilities and local governments

Similarly to facilities for project preparation, some PDBs provide finance for performance improvement of their prospective borrowers: utilities and local governments. Of the national PDBs, BANOBRAS and BDE have dedicated programmes for that (called PMOOA and PATGES). BNDES and BNB don't have such dedicated programmes, but may include such performance improvement as part of larger infrastructural loans. NADB is an example of an IFI that provides such funding as part of its Technical Assistance Programme. These programmes have all been established from the need to have credit-worthy potential borrowers. By improving the performance of utilities and local governments, for example the non-revenue water would be expected to be reduced, and the overall financial performance of the utility be improved. Also technical and institutional capacity (for example corporate governance) would be improved. Those are all key conditions for potential future loans.

The financing for this may come in the form of loans or grants, or a combination. For example, under PMOOA, the actual technical assistance is provided as a grant. But if as part of the PMOOA process also some infrastructure needs to be developed, then that comes in the form of a loan – part of which in turn may be converted to a grant, if the utility successfully concluded the modernization process. PATGES in Ecuador also combined grant and loan elements.

2.3.5. Channelling grant funding

All the national PDBs have been channelling grant funding to local governments and utilities under special programmes. These are programmes of central government aimed at reaching certain segments of the sector, for whom repayable finance may not be feasible. For example, BNDES in Brazil channels grants as part of the special funds for the Amazon, and for household rainwater harvesting tanks. BANOBRAS provides both concessional and non-repayable finance as part of the PROMAGUA programme, not only for the mentioned project preparation, but also towards infrastructure projects. Also BDE channels grant funding from the central government to local governments. The latter may also include sovereign loans that are passed on as grants to local governments. NABD is the only sub-regional PDB that provides such grant funding, which comes from the United States EPA (Environmental

Protection Agency), and can be used as co-financing to loans, or as dedicated grants for rural communities as part of the Community Assistance Program.

2.3.6. Technical support in structuring finance, and establishing co-finance mechanisms

For the larger more complex projects, the PDBs don't only provide the finance. They also may support in structuring the finance, and establishing co-finance mechanisms. In fact, for some of the loans of some of the PDBs, co-financing is a pre-requisite. For example, BNB can only provide 50% of the finance of a project, and at least 20% own capital from the borrower is required. Likewise, the project finance provided by BANOBRAS, but also PPPs under its PROMAGUA require co-finance. Moreover, the PDBs have limits to the maximum loan sizes they can provide, and in many cases the total costs of a project may be more than the maximum loan size. In such cases, the PDB supports the prospective borrower in identifying potential co-financiers, and structuring the finance.

This requires mostly strong collaboration among PDBs, even though they are sometimes in competition. The cases reviewed show PDBs which operate in the same geographical areas: BANOBRAS and NADB in Mexico; BNDES and BNB (and State-level banks in Brazil); FONPLATA and State-level banks in Brazil; and all, also operating in countries with strong presence of the regional IFIs (IDB and CAF). Though the interviewees indicate that these PDBs may sometimes compete for providing finance to the same project, in practice collaboration is more common. Rarely, can a single PDB provide all the finance, for the reasons mentioned above. So the PDBs then need to come to co-finance agreements with the borrower. Moreover, the PDBs can complement each other in other ways. For example, BNB has a wide spread of offices and agencies throughout the States where they work, so a closer contact with prospective clients than BNDES. Some of the IFIs are able to provide concessional elements, which then complement the technical support that national PDBs can provide.

2.3.7. Administrating trust funds

Next to the internal trust funds closely linked to their operations (such as FONADIN in Mexico), there has been one case, where the role of the PDB is limited to administrating a water-related trust fund. PROMAGUA (as part of the trust fund FONADIN) and FONTEC have been mentioned already as dedicated trust funds managed by the PDBs. In those cases, the PDB administers the trust fund, but also is closely linked to the execution of projects under that. In one case, the role of the PDB is just limited the administration. That is in the case of FIDEAGUA (*Fideicomiso para la Seguridad del Agua*), administered by BANDESAL in EL Salvador.

Box 1: The FIDEAGUA Trust Fund in El Salvador.

FIDEAGUA provides loans to financial intermediaries, which in turn may provide credit to service providers, mostly community-based providers and small municipal operators. It is complemented by grant-based technical assistance by a dedicated technical entity, called AZURE. The grant funding for the technical assistance is provided so far by an INGOs, Catholic Relief Services (CRS).

The specific roles of BANDESAL, the national PDB, around FIDEAGUA include:

- Promotion of FIDEAGUA among local banks and credit cooperatives, so that they get interested in getting accredited as financial intermediaries.
- Certifying financial intermediaries. The certification is mainly based on whether the financial intermediaries comply with financial sector regulations.
- Fund management. This includes monitoring disbursements and repayments.
- Providing a certain discount on the interest rates.

BANDESAL itself has not put any capital into the fund. The seed funding came in part from CRS, in part from social impact investors from the USA. There are efforts to establish a similar set-up with a PDB in Honduras (BANHPROVI), a process in which also the IDB as IFI is involved.

2.3.8. Sector studies and research

Some of the PDBs have small facilities for sector studies and research. Examples include FONPLATA, which have a fund of about 1 million US$/year for such sector studies, NADB (focused on strategic sector studies) and BNB (research into technology options)

2.4. Risk management and sustainability

This section reviews how the PDBs assess and manage risks: both financial and non-financial. It dedicates specific focus on environmental risks and compliance.

2.4.1. Financial risk assessment and management

The loans are provided against the projected revenue stream of the utility or local government as a whole. That can be the projected revenue of tariffs (of the utility) or municipal taxes and intergovernmental transfers that local governments receive from central government. That in turn influences the way in which the financial risk is defined and assessed – and with that the type of guarantee or collateral - depends on the type of borrower:

- In case the borrower is a local government, the risk is defined and managed by the national legislation on fiscal discipline. All countries reviewed have such legislation in place, which defines the level and type of debt that local governments can take on. National financial regulators also categorize local governments on an annual basis on the amount of debt they already have, and what additional debt they may take on, based on projects revenue from municipal taxes and intergovernmental transfers. Local governments may not be able to provide assets as collateral, so other forms of guarantee are put in place. For example, in Ecuador any debt that a local government may have is legally earmarked in its budget. This implies that a local government will first service its debt, before it can spend on other expenses. This is fixed in agreements between the local government, the Central Bank and the PDB.

- In case the borrower is a utility the risk is defined by its financial performance, as well as underlying technical performance. The PDB then assesses financial performance indicators, such as cost-recovery ratio, projected financial statements, debt service coverage ratio, billing and collection efficiency, as well as related technical performance indicators such as non-revenue water. Moreover, it projects future revenue flows from tariffs.

- In case the borrower is private actor, e.g. in the case of SPVs for project finance, the financial risk is assessed at the level of the project. This includes an assessment of the risks that projected revenue and costs flows will materialise, as well as of the public entities involved in the construction, along the lines mentioned above.

- Sovereign guarantees play a role in the risk assessment of the IFIs. FONPLATA provides loans to local governments, but with sovereign guarantee. For that reason, it will follow the process for assessing risks of local government, using the national legislation on fiscal discipline, outlined above.

The PDBs may include other areas of risk, primarily institutional risks. For the PDBs, the main other area of risk is the institutional performance of the borrower, particularly in its role of project execution. For example, BDE assesses whether local governments have dedicated executing units responsible for water and sanitation, and for project implementation, as part of its institutional risk assessment. BCIE indicated that the financial risks they run are relatively low – as they are loans with sovereign guarantee – but it is the institutional capacity which presents the biggest risk. Many of the institutions in the water sector in the Central American region have still limited capacity for executing large scale projects. Also, for FONPLATA, the capacity to actually execute projects is a key factor in institutional risk assessments. One of the reviewed PDBs, NADB, includes the specific criterion of technological risks. For

example, it looks at the efficiency and costs of certain technologies, particularly when they are high-end technologies.

2.4.2. Environmental sustainability and compliance

Environmental factors are less seen as an area of risk assessment, but more as an area of compliance. The PDBs indicate that they all have procedures in place to assess environmental (and social) risks in place, and addressing those as part of their compliance procedures. They thereby follow the regulations and guidelines of national environmental authorities for that.

The need for such compliance has even become stronger as PDBs are getting accredited to manage Green Climate Funds. Both BANOBRAS and BDE are updating their environmental assessments and compliance measures in line with requirements of the Green Climate Funds.

2.5. Opportunities and limitations

This section reviews the opportunities and limitations that the PDBs have identified as affecting their role in financing water-related investments. That may include factors that have brought them to their current level of involvement in the sector, as well as factors that affect a growing (or reducing role). Moreover, this section summarises how the PDBs have been dealing with these opportunities and limitations.

Overall, the PDBs indicate that the extent to which they are involved is more affected by demand-side factors (i.e. demand for loans and other financial products), than by the supply-side. Most indicate that they could mobilize more finance for water-related investments in case the demand for such investments would grow. Or, to put it in other words, the demand is currently lower than potentially available supply.

The demand side factors identified by the PDBs include the following:

- Performance of utilities in their service provision roles, and subsequent financial sustainability. In the end, any water-related investments need to be paid back out of a revenue flow, and those mostly come from tariffs levied by utilities. The extent to which PDBs can provide loans thus directly depends on the performance of utilities in obtaining a stable and sufficient revenue flow from their service provision roles. Where the performance is generally inadequate, loans to the sector may become limited - as BANOBRAS observed in Mexico, and BCIE for several of the Central American countries, are actually increase (as noted in Brazil). In order to improve the performance of utilities generally, some PDBs have dedicated utility performance improvement programmes, such as in Mexico and Ecuador. BCIE has dealt with this situation by shifting away from direct loans to national utilities to sovereign loans to member countries.

- Fiscal discipline legislation. The extent to which the water sector takes on debt is not only limited by the financial performance of utilities, but also by the fiscal discipline that local governments need to follow. Whereas the PDBs indicate that they agree that there is need to have fiscal discipline and that there need to be limits on the levels of debt that local governments can assume, it does mean that there is a limit on the amount of finance they can provide to the water sector – particularly in the context of decentralised service provision.

- Water sector performance regulations. The extent to which utilities perform in their service provision roles also depends on the extent to which their performance is regulated at sector level. In Mexico, there is no independent regulator. Regulation takes place through contracts between the utility and local (or State) government, but this is not always effective. Regulations may also influence the extent to which utilities are incentivised to invest. For example, a recent regulatory change in Brazil means that there is a system for incentives and penalties for utilities to expand their services. This is expected to increase investments in the sector. This is an area that the PDBs

can influence only to a limited extent. Several of the PDBs indicate that they participate in dialogues on water sector regulations, but they have no ultimate decision-making power over that

- Project preparation. Most PDBs indicate that the limited capacity of borrowers in project preparation affects the low demand for PDB loans. The capacity of borrowers in project preparation is not only limited; it also leads to an automatic segmentation in the type of clients. Larger utilities have usually more technical capacity to define projects, and can go with these projects to commercial banks or IFIs. The smaller local governments and utilities will need a lot of support in project preparation, but then still may not be creditworthy. The intermediate ones need support and can effectively use such support to come to bankable projects. For that reason, several of the PDBs have project preparation facilities, either grant-funded, or with contingencial funds. This is arguably the area, where a larger supply of funding is needed, also because still a significant part of project preparations doesn't result in finance.

- Capacity for project execution. Likewise, the extent of PDB involvement in the water sector depends on project execution capacity of the borrower. As one of the interviewees said: "compared to other sectors, those national water utilities have the weakest project management units, leading to long delays and problems in contracting, procurement, etc". For that reason, several of the PDBs focus as much on the institutional risks of the borrower in carrying out the works, as on the financial risks. At the same time, the gap in project execution capacity also gives the PDBs an added value, compared to other (commercial) banks. The PDBs reviewed for this report, all have dedicated technical units, and provide substantial technical support in project execution. That is a service that commercial banks cannot provide.

- Competition and coordination among flows and sources of finance. As the case studies show, the water sector is funded often through a complex set of flows of public finance (directly to local government, via centralised agencies), tariffs (which may be partially subsidised) and repayable finance (via PDBs and other banks) to both local governments and utilities. This may create competition amongst PDBs, or between PDBs (as providers of loans) and providers of non-repayable finance, including sovereign loans. In practice, the finance needs are often so high that there is ample space for several PDBs and other financiers to co-finance certain investments, combining both repayable and non-repayable finance.

- Shifting demands. The various PDBs indicate that the demands are continually shifting. Whereas in the past, demand may have been more for water supply investments, these have now shifted to investments in sewerage and wastewater treatment. This is due to generally higher levels of service that have been achieved, but also by processes such as unbundling certain processes, like treatment and desalination. Future demands may include dealing with ageing infrastructure. Moreover, the clientele may change. Some utilities that have improved performance may now access commercial finance, and smaller ones may now access PDB funds. And there are still very significant part of the sector which remain underfunded. Climate change adaptation may also lead to a change in demand, even for now it is not a driver for investments.

3. Conclusions and recommendations

3.1. Conclusions

This report sought to gain insight in 1) the extent and nature of national PDBs' operations in the water sector and the roles they fulfil in that, and 2) the drivers and constraints of their involvement, thereby focusing specifically on the Latin American region. This would then form the basis to confirm, or reject, the hypothesis that national public development banks are underused and there is a lot of potential for them to raise finance for achieving both the SDG 6 targets and the water-related Paris Agreement goals.

In order to gain that insight, this study looked into cases in which PDBs are already involved in the water sector – albeit to different extents-, but not into cases of PDBs which are not involved in the water sector at all. That means that the study can only draw conclusions and recommendations for PDBs that are already active in the water sector, and could potentially increase that role – but not for PDBs that are not active in the water sector at all. It should also be noted that this is largely a qualitative research, with some quantitative insights in the relative importance of PDB financing in the water sector. It can therefore only provide qualitative insights into the extent to which the PDB's role in water financing can be increased, but no indications on for example the maximum potential market share.

3.1.1. On the extent and nature of PDB involvement in the water sector in Latin America

The study found that PDBs fulfil the following roles in the water sector in the region:

- Providing direct credit lines for infrastructure investments. National PDBs provide this credit directly to local governments and utilities, whereas IFIs provide also sovereign loans, or loans to local governments/utilities with sovereign guarantee. This is for most of the PDBs the core function they fulfil.

- Providing project finance. Though in essence this is a similar role as the first one – the provision of finance for infrastructure investments -, it is qualitatively different for a number of reasons. First of all, it is provided to private parties, usually Special Purpose Vehicles, whereas the direct credit lines are provided to public entities including publicly-owned companies. Secondly, project finance is based on the expected revenue stream of a particular investment project, whereas direct credit is based on the expected cash flow of an entire institution. Thirdly, project finance is usually focused on only one step in the water or wastewater cycle, such as desalination, potabilization or wastewater treatment.

- Financing project preparation. This role consists of the provision of finance (repayable or non-repayable) for preparing investment projects, including (pre)feasibility studies, technical studies and designs and project formulation.

- Financing performance improvement projects. This refers to the provision of finance to improve the technical and financial performance of prospective borrowers (utilities and local governments). This is usually non-repayable finance, though finance for small infrastructural works (for example to reduce leakage) may be repayable.

- Channelling grant funding. This consist of receiving non-repayable finance from the Treasury including from sovereign loans, and channelling that for investments in the water sector to local governments and utilities. Such grant funding is usually focused on smaller and poorer local governments which are not in the capacity to take on loans.

- Technical support in structuring finance and establishing co-finance mechanisms. Many investments projects – particularly larger, more complex ones -, cannot be financed by one single

PDB. They require co-financing from PDBs and possible commercial financiers, as well as own capital contributions from the recipient. PDBs provide technical support in structuring the (co)finance mechanisms.

- Administrating trust funds. This may refer to trust funds into which the PDB itself also puts parts of its own profits, as well as ones that are replenished by others.

- Funding sector studies and research. Sometimes, PDBs have non-repayable finance available for strategic sector studies and research.

Not all the PDBs fulfil all these roles. Whereas providing repayable finance – with the corresponding technical support - for infrastructural investments is the core business of all, they differ in the extent to which they can also provide non-repayable finance for project preparation, performance improvement, or even grant funding for infrastructure development.

Moreover, PDB involvement in the water sector is focused on certain segments:

- Most of the PDBs indicate that their main clients for loans are the mid-sized utilities and local governments. The smaller utilities and local governments are often not credit-worthy, because of their size and generally lower levels of performance. Large utilities are able to obtain loans at more favourable conditions from commercial banks and IFIs. The mid-sized utilities and local governments are therefore the segment that best fits the PDBs.

- The PDBs generally finance the step-wise improvements and expansions in infrastructure, such as treatment plants. The more gradual expansions of networks are expected to be financed directly from tariff revenue of utilities. Moreover, larger infrastructure such as treatment plants are easier to assess and audit than many small distribution projects. This also implies that in the countries reviewed here there has been a shift towards investments in sanitation and wastewater treatment, as that is where there is most need for the step-wise improvements.

- Within the broad water sector, most finance goes to water supply and sanitation, and less to water resources management, (urban) drainage and flood management. Water supply and sanitation are services for which there is usually a clear revenue stream of tariffs, levied by the utility or local government, against which a loan can be taken. That is much less clearly the case for the other types of water-related infrastructure, which are funded typically out of general (municipal taxes).

- Water-related investments represent some 5-15% of the PDB portfolio, and PDB investments represent often less than 10% of financial flows in the sector. Consolidated and comparable figures are lacking. But the few data that were obtained indicate that water-related investments are a small but significant part of the portfolio of generalist PDBs. Likewise, PDB investments are a small but significant part of all financial flows in the sector.

These findings partially confirm the general roles and added value identified in the hypothesis:

Channelling finance to sectors that bring social, environmental and economic returns that are not attractive to commercial banks. This role is fulfilled, but with some qualifications. Whereas PDBs finance investments that are not attractive to commercial banks, prospective borrowers still need to be able to show some expected financial returns. Utilities and local governments that have a poor financial performance are also not attractive to PDBs. In practice this means that PDBs channel repayable finance mainly to the segment of mid-sized utilities and local governments that have a reasonable level of financial performance.

Designing financial products able to attract third parties, particularly private sector investors and commercial banks. This role is also only partially fulfilled, mainly around larger complex projects. By the co-financing that PDBs provide, and the technical support in structuring the finance, they are able to attract third parties into investing in the water sector.

Tailoring financial products suited for the water sector, which often requires long-term capital with favourable terms and tailor-made arrangements. This role is fully fulfilled. The PDBs do provide long tenure rates and grace periods. The interest rates are usually a few percentage-points above the base interest rate. This mark-up is used to cover the costs of the PDB itself, but above all of the technical support they provide. These conditions mean that the products are of particular interest to the same segment of particularly the mid-sized utilities and local governments, as well as larger projects and utilities under the various co-financing arrangements.

Channelling funds and expertise for project preparation in order to bring water projects to bankability stage. This role is clearly fulfilled, as the PDBs can provide both the financing and technical support for project preparation. Some PDBs even have dedicated funding windows or programmes for this. However, the extent to which they can fulfil this role differs between PDBs, as this usually requires grant financing.

Acting catalyst in policy dialogue for SDG goals achievement. This role is fulfilled only to a limited extent. The PDBs indicate that there are often gaps in sector regulations, resulting in utilities not being financially sustainable or not incentivized to invest in expansion. Though PDBs may participate in policy dialogues, they have not been able to influence the policy dialogue to such an extent that those regulations are adjusted.

3.1.2. On drivers and constraints for PDB involvement

The study identified that the main drivers and constraints for PDB involvement in the sector in Latin America, are demands-side factors (i.e. demand for loans and other financial products), including:

- Performance of utilities in their service provision roles, and subsequent financial sustainability. The extent to which PDBs can provide loans directly depends on the performance of utilities in obtaining a stable and sufficient revenue flow from their service provision roles.

- Fiscal discipline legislation. The extent to which the water sector takes on debt is not only limited by the financial performance of utilities, but also by the laws on fiscal discipline that local governments need to follow.

- Water sector performance regulations. The extent to which utilities perform in their service provision roles also depends on the extent to which their performance is regulated at sector level.

- Project preparation. Most PDBs indicate that the limited capacity of borrowers in project preparation affects the low demand for PDB loans.

- Capacity for project execution. Likewise, the extent of PDB involvement in the water sector depends on project execution capacity of the borrower.

- Competition and coordination among flows and sources of finance. The water sector is funded often through a complex set of flows of public finance, tariffs, and repayable finance going via both local governments and utilities. This may create competition amongst PDBs, or between PDBs (as providers of loans) and providers of non-repayable finance, including sovereign loans. In practice, the finance needs are often so high that there is ample space for several PDBs and other financiers to co-finance certain investments, combining both repayable and non-repayable finance.

- Shifting demands. The various PDBs indicate that demands for loans within the broad water sector are continually shifting, but that there are always segments of the sector in need of finance. For example, current demand may be more for larger investments in sewerage and treatment, but PDBs anticipate demands for investment to address ageing water supply infrastructure in the years to come. This drives further investments.

The PDBs are aware of these drivers and constraints and may undertake specific actions to address them. For example, they may have dedicated (grant) funding for project preparation and utility performance improvement. Moreover, they provide technical support in project execution, and be actively involved in creating co-financing constructions.

3.1.3. On the overall hypothesis

Based on this, this research confirms the hypothesis that there is potential for PDBs to raise finance for achieving both the SDG 6 targets and the water-related Paris Agreement goals, in the Latin American region. The research concludes that the PDBs that were reviewed as part of this study have all been providing finance for water-related investments over a long period of time. The extent of their involvement changes over time, mainly as a result of the demand-side factors mentioned above. Where the demand-side factors are constraining, PDBs have undertaken actions to addressing them. These include for example, the provision of grant funding for project preparation, utility performance improvement and technical support in project execution. In a general sense, there may be more scope to address those demand-side factors and hence, but the specifics of that will differ from one country to another.

Whilst there is thus some potential to further expand the role of PDBs in financing water-related investments, this research also concludes that there are three inherent limitations for PDBs to reach their full potential:

The segments within the water sector for which PDB finance is most relevant. The research found that particularly the segment of middle-sized utilities and local governments is most relevant for PDB financing, and mainly for the larger infrastructure developments. The fact that certain segments are currently mostly focused on doesn't mean that PDBs cannot expand to other segments. However, it is not likely that this can happen easily.

The type of contribution that PDBs can make to support SDG6 targets. The research showed that most types of infrastructure investments financed by PDBs include step-wise improvements in infrastructure (like desalination and wastewater treatment) or larger expansions in towns and cities. This is driven by the fact that such investments are easier to put into a discrete project format. For the SDGs, these investments imply a shift from 'basic services' to 'safely managed services', i.e. a step-wise improvement of service levels for people who already had access to services. Knowing coverage levels in the region, it is not likely that many previously unserved people got first-time access via this kind of PDB investments. That in itself is not a problem. It is in fact justifiable to use repayable finance to move up the service ladder, if that 'frees up' other public finance to provide first-time access to others. But it does mean that there is a need to be specific on the type of contribution to SDG6 targets that PDBs can make.

Contribution of PDBs to the water-related goals of the Paris Agreements. The research found that the PDBs all are in process or have just completed process to be certified to manage green climate funds, and are developing compliance protocols. They indicate that they are still needing technical support particularly on getting a better understanding of water adaptation measures can be defined, so as to boost climate financing. Whereas the financing to the water-related goals of the Paris Agreements may thus become available, it is likely that it will still take time before that translates into contributions to the water-related goals of the Paris Agreements.

3.2. Recommendations

The third research question focused on what can be done for national PDBs to fulfil their potential and enhance their operations in the water sector in Latin America. Based on the findings and conclusions identified above, the main need is thus on removing the demand-side constraints and enhancing those drivers. This requires actions from different types of actors. Specifically, this research recommends the following:

For water sector government entities, including regulators:

- To further develop and enforce water sector regulations to enhance (financial) performance of utilities. Many countries in Latin America have independent regulators, with a certain level of success in ensuring gradual performance improvement. This role needs to be continued and further enhanced where possible. In that particular emphasis needs to be placed on the segment of middle-sized utilities, and gradually also the smaller ones.

- To further develop and enforce water sector regulations to incentivize and enforce investments in expansion. Whereas the region has some track record in regulation towards performance enhancement of utilities, it has focused less on having the regulations in place that incentivize and enforce utilities to invest in expansion. As the case from Brazil shows, having such regulations may be crucial to promote further investments.

- To provide public finance for: 1) project preparation, and 2) utility performance improvement. The examples of some of the PDBs in this review have shown that such public investments are important steps, to that utilities can subsequently prepare finance proposals, and have the financial capacity to take on loans.

- To provide clarity on financial flows in the sector, which ones are to be used for what purposes, and which ones can be used to leverage what. This should help PDBs and their prospective borrowers the complexity of financing sources that may be present in the sector. Moreover, it would help in ensuring that public finance is geared towards where it is most needed, and using repayable finance where possible.

For national PDBs:

- To establish dedicated windows or programmes for 1) project preparation, 2) utility performance improvement, and 3) technical support in project execution, in case they don't have such windows or programmes yet. They may need to discuss with the water sector government entities how each window or programme is financed.

- To contribute to policy dialogues in the water sector, particularly providing suggestions around the constraints and drivers they identify.

- To clearly articulate the specific contributions they make to the SDGs and climate-related targets through their investments. Current reports of the PDBs focus often on the loan disbursements, the number of projects executed and to some extent on the number of people served by each project. But it doesn't make clear how that contributes to SDGs or other national targets. Having that clarify may give more weight to the PDB's contributions to policy dialogues.

- To intensify knowledge and actions on water adaptation measures to leverage financial resources from climate funds. This is related to the previous point and may help to make clear how water-related investments can contribute to the climate-related targets, but also what specific form they may need to take. This may require further training and technical support to PDBs on protocols and guidelines to enhance water adaptation measures financing.

For AFD and IFIs

- To ensure that grants and concessional finance is above all provided to overcome the constraints in project preparation, utility performance and technical support, so that fully repayable finance can be geared towards infrastructure investments. The research has shown that the infrastructure component can be financed through loans. But project preparation, utility performance improvement and technical support much less so. That is where grants and concessional finance can thus make the biggest impact.

- To support and promote dialogue between PDBs to learn from experiences for financing the sector. The study made it clear that there are a few national PDBs with ample experience, but also many that have none, or incipient experience. In order to further enhance the role of PDBs, such learning is key.

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List of acronyms and abbreviations

AFD	Agence française de développement
BANDESAL	*Banco de Desarrollo de El Salvador*
BANOBRAS	*Banco Nacional de Obras y Servicios Públicos*
BANHPROVI	*Banco Hondureño para la Producción y la Vivienda*
BCIE	*Banco Centroamericano de Integración Económica*
BDE	*Banco de Desarrollo del Ecuador*
BNB	*Banco do Nordeste do Brasil*
BNCR	*Banco Nacional de Costa Rica*
BNDES	*Banco Nacional de Desenvolvimento Econômico e Social*
BPDC	*Banco Popular y Desarrollo Comunal*
CAF	CAF Development Bank of Latin America
CRS	Catholic Relief Services
EPA	Environmental Protection Agency
FIDEAGUA	*Fideicomiso para la Seguridad del Agua*
FINDETER	*Financiera de Desarrollo Territorial*
FONPLATA	*Fondo Financiero para el Desarrollo de la Cuenca del Plata*
IDB	Inter-American Development Bank
IFI	International Financing Institution
INFOCOOP	*Instituto Nacional de Fomento Cooperativo*
LAC	Latin America and the Caribbean
NADB	North American Development Bank
PATGES	Programa de Asistencia Técnica para la Gestión de Servicios de Agua y Saneamiento
PDB	Public Development Bank
PMOOA	*Programa de Modernización de Organismos Operadores de Agua*
SDG	Sustainable Development Goal
SPV	Special Purpose Vehicle

Annex 1: Case studies

Banco Centroamericano de Integración Económica (BCIE)

About the institution

The Banco Centroamericano de Integración Económica (BCIE) was establised in 1960 as a multilateral financial institution, with the objective of promoting integration and development among its founding members, as well as among other beneficiary countries in Central and South America that joined later[4].

As regional financial institution, BCIE supports both the public and private sector. It specializes in attracting and channelling external resources to promote investments and development opportunities in five areas: 1) productive infrastructure and energy, 2) agriculture and rural development, 3) human development and social infrastructure, 4) industry, urban development and services for competitiveness, and 5) financial intermediation and finance for development.

It provides finance to different types of institutions, including: 1) intermediary banks that are certified by BCIE, 2) local governments, 3) public entities, and 4) private companies.

The role of BCIE in the water sector

This roles is defined by two types of strategies:

- Country strategies. These are strategies that BCIE elaborates with its different national partners, and in which countries define their sectoral priorities. These may change over time. in fact, BCIE considers that one of its strengths is its speed and flexibility to respond to changes in country priorities.

- Sectorial strategies. At the moment, BCIE is developing its water and sanitation strategy. This will define how BCIE intervenes in the sector, how it can better direct its efforts, and support countries.

Whereas these strategies provide the broad framework, BCIE responds to specific demand by governments and public utilities for financing.

This also means that the relative size of the water sector in the loan portfolio of BCIE changes over time, and between countries. But in practice, there is always demand for financing projects in the water sector. Since 2015, water projects have represented between 10 and 15% of the loan portfolio of BCIE. It has financed an amount of 1,500 million US$ through loan.

Even though the BCIE can also invest in water resources management projects, most of its investments go to water and sanitation. Within that sector, finance can go to pre-investment, constructions and reconstructions, installation of equipment and capacity strengthening. It may cover investments in both urban and peri-urban areas.

The financing can be provided to different types of borrowers:

- Public utilities, such as AyA in Costa Rica, ENACAL in Nicaragua and SANAA in Honduras. Depending on their financial situation, the finance can be provided against their operational revenue and financial balance, or with a sovereign guarantee.

[4] Beneficiary countries are: Honduras, Guatemala, Nicaragua, Costa Rica, El Salvador, Belize, Panamá, Dominican Republic, Argentina and Colombia.

- Local governments. Even though most local governments do not comply with the requirements to take on loans, as many are already indebted, loans can be provide when it is with sovereign guarantees.

- National government institutions for rural programmes.

Products and services

BCIE provides the following products and services in the water sector:

Loans. This is the main producto in the water sector, and mostly those of medium to long tenure, for infrastructure investment. It includes direct finance (to the borrowing entity) as well as indirect finance (through an intermediary bank). It is common to provide loans with co-finance, when there are other participants apart from BCIE, such as other multilateral banks or bilateral donors. This category also includes Project Finance schemes.

The size of individual loans differs a lot, as it depends again on the demands from countries and the types of projects, but over the past few years fell in the wide range of 30 to 150 million US$. The tenure is normally between 20 and 25 years.

Contingencial pre-investment finance. BCIE has a fund for technical cooperation (FONTEC). This fund is directed towards pre-investments, including pre-feasibility studies and project formulation. It is a fund that is independent of the assets of BCIE. But it allocates every year part of its profit to this fund, alongside contributions from other donations or external sources. At the moment, it has an annual budget of some 10 million US$.

The finance that is provided is contingencial, implying that BCIE provides resources to do the pre-investment activities for an investment project. If the project is feasible, the costs of the pre-investment works are included in the loan. If it doesn't turn out to be a feasible project, BCIE assumes the loss of the costs of the pre-investment. This mechanism assures a certain degree of revolving in the fund.

Catalyzing additional finance. BCIE plays a rôle in catalyzing finance from other donors, whether that is repayable or non-repayable. In this way, it achieves getting co-finance for larger projects and programmes.

Green funds. BCIE has obtained accreditation from various global entities for financing climate change adaptation and mitigation initiatives. The main ones are:

- The adaptation fund. BCIE was accredited as Regional Implementing Entity for the Climate Change Adaptation Fund.

- Green Climate Fund. BCIE is accredited for this Fund, through the modality of Direct Regional Access.

These accreditations mean that BCIE has the capacity to realize large scale projects and access all types of financial instruments from these funds. Being accredited, BCIE can now support member countries in meeting the commitments and targets around climate change and in implementing national determined contributions. Specifically, BCIE already issues a green bond, whose proceeds were targeted to water, sanitation and renewable energy.

Social bonds. BCIE has created a framework for social bonds, with the aim of promoting social development project. It is currently in discussion of also using this bond for the water and sanitation sector.

Other financial mechanisms. Honduras is in the process of establishing a water trust fund. It would be replenished from loans from the State, multilateral entities and private investors, in other to

guarantee access to water in towns of more than 50,000 inhabitants, as well as for irrigation systems. But this is still work in progress.

Risk assessment and sustainability

Risk assessments mainly focus on the institutional capacity of the borrower to execute the funds in an adequate manner. The financial risk is to a certain extent covered when these are loans with sovereign guarantee – which are the majority of loans in the sector. But it is the institutional capacity to execute the funds which is often the main limiting factor in countries in the region.

During project implementation, a series of requirements needs to be met, in order to guarantee the social and environmental sustainability and reduce such risks. In this, BCIE follows it environmental and social policy and corresponding systems. Moreover, BCIE has a Development Impact Evaluation System, which allows identifying unintended effects and impacts of financial operations.

The role of BCIE with respect to sustainability ends at the moment of project closure. However, for a period of up to two years, follow-up is provided to monitor the status of the utilities, allowing decisions on short-term grace periods. Only when loans are provided against a projected revenue stream, supervision of the borrower continues for the longer term, until the loan is repaid.

Opportunities and challenges

There are several entities active in providing finance to the water sector, including other multilateral development banks and commercial banks. But as regional bank, BCIE has a number of strengths:

- It works closely with country governments, and has offices in all countries, where it can receive loan requests. It can therefore respond relatively quickly and with flexibility to requests. Moreover, the in-country presence allows accompanying the borrower during the project execution.

- Even though it cannot compete on tenure or interest rates with some other multilateral development banks, it is the speed with which it can respond to requests that it gives it an advantage.

- It has the possibility to provide funding for pre-investments.

- It can serve in catalyzing finance from other sources, and with that structure co-finance mechanisms.

Even though it has an important portfolio in water and sanitation, there are limitations in the sector which put a limit to the growth of this portfolio:

- The legal and institutional framework for the sector in countries in the region is very weak. It limits a much better performance of utilities, which limits much higher levels of tariff revenue, which puts a limit to the level of debt that utilities can assume.

- Governments and utilities do not give sufficient priority to pre-investments in the water sector. They depend on pre-investment funds that banks like BCIE can provide. Therefore there is an insufficient pipeline of projects.

- Weaknesses in project execution unit. There is low technical capacity and project execution is often slow.

There are opportunities to respond to this situation, including other measures that BCIE could consider:

- Identify other funders to capitalise FONTEC. Funds like FONTEC allow improving pre-investments and having a more continuous pipeline of projects

- Co-financing with the green climate funds. The first experiences with the green bonds appear to be positive. They provide new opportunities for financing the sector. But they require more work in defining adaptation projects.

- Establish water funds that are more directed towards local governments and communities. The finance that banks like BCIE provide is more directed to large investment by the major utilities. They are not tailored to small local governments and communities. Trust funds like the one under development in Honduras could serve that segment of the sector.

Banco de Desarrollo del Ecuador, B.P. (BDE)

The water sector and its financing in Ecuador

The last years have seen several reforms of the institutional set-up of the water sector. At the moment, the Vice-Ministry of Water is leading the sector, and defining the policies. ARCA (the Agency for the Regulation and Control of Water) is responsible for the regulation and control functions. Empresa Pública del Agua del Ecuador) (EPA-EP - Public Water Company) is responsible for execution of infrastructure development projects and capacity strengthening. These three national-level institutions have a mandate for both water resources management and water, sanitation and irrigation services provision.

The responsibility for the actual service provision lies with the Autonomous Decentralized Municipal Governments (GADM). Some 62% of the GADM provide services directly, through the municipal administration, whereas 36% have a publicly-owned company. In rural areas, service provision is done by Water and Sanitation Boards (JAAPs).

The national water and sanitation strategy (2016) estimates that there is need for investments of 733 million US$/year over the period 2014-2024 in order to reach universal access to water and sanitation services. This amount includes both investments in expansion of services and rehabilitation of existing infrastructure. That strategy also foresees that 38% of the investment would need to come from own sources of the GADM (which they get from own taxes and from intergovernmental transfers), 14% from subsidies and other non-municipal funds and 48% from debt. The last category would include credits that local governments and municipal-owned companies take on to do the investments, and which would then be paid back from revenue from tariffs and taxes. It was foreseen that BDE would be the main entity providing such credit, and that BDE would need to increase its loan portfolio for water and sanitation with some 30%. Finally, the strategy indicates that large and intermediate local governments in the Sierra (mountain) region would also need to explore other sources of finance, including project finance for investments in wastewater treatment.

In order to achieve this increase in loans, the national water and sanitation strategy identifies a number of measures include: development of credit lines with preferential conditions for water and sanitation, the establishment of technical assistance programmes in order to improve performance and efficiency of service providers and strengthening of pre-investment processes.

About the institution and its role in the water sector

The Banco de Desarrollo del Ecuador B.P. (BDE) is a financial institution of the public development bank. It is an autonomous legal entity, falling under private law but with social and public aims. It has administrative, financial and Budget autonomy. It provides financing for: 1) pre-investment, 2) investment in infrastructure and public services, 3) technical assistance and strengthening, 4) public-private partnerships and 5) social housing.

Historically, the sector called 'environmental sanitation' has played an important role in the targets and objectives of BDE, given its role in public health, social equity, economic development and environmental sustainability. Moreover, it is a sector prioritised by the national government. This sector covers: drinking water supplies, sewers and latrine construction and solid waste.

The last 5 years (2016-2020), out of the 2,571 billions of US$ provided in loans by BDE, 37% went to the environmental sanitation sector. This includes 5,429 loans with a value of 926 million US$, or on average 185 million US$/year, with average loan value of 170,000 US$. Within this sector, 53% of the disbursements went into drinking water supplies, 40% to sewers, and the remainder to solid waste, latrines and other minor investments.

There are two other sectors of relevance, but with a smaller size of loans: environment and natural disasters. These include amongst others investments in reduction of deforestation and protection of

recharge areas; and, irrigation and flood control. These two sectors saw disbursements of 139 million US$, or some 6% of all disbursements over this period.

Products and services in the water sector

Within the environmental sanitation sector, BDE provides the following products and services.

CrediBDE. This is a credit line for the GADM, as well as public utilities, for investments in different infrastructure sectors, including water. BDE provides the credit based on demand. GADMs or utilities present requests for credit for the investments that they plan to undertake. BDE then assesses the request, initially from a technical point of view. BDE has a series of guidelines for the formulation and management of projects in different sector, including the information that the GADM need to present, as well as the compliance with all relevant legislation and environmental regulations.

The conditions of the loan depend on the tenure and the risk classification of the GADM, which is based on the level on indebtedness of the GADM. Current interest rates are between 7.11 and 8.95%.

Most demand comes from mid-sized GADM and public utilities. This segment of the sector prefers credit from BDE, as its rates are more favourable than those of commercial banks. Moreover, these generally have a solid institutional set-up, and they are able to prepare projects and hence access credit. The really big utilities prefer to get loans directly from multilateral banks, as they can get even better conditions there. Moreover, such big utilities need larger amounts, of the type of project finance, as identified in the national water and sanitation strategy.

Non-repayable funds. BDE can also provide non-repayable funds to the GADM. These are funds that come from central government budget. These funds are allocated based on a priority setting done by an inter-ministerial committee, using parameters, such as population, unmet basic needs. BDE can provide a maximum of 75% of non-repayable finance to requests. The remaining 25% needs to be provided by the local governments themselves, for which they can take on a loan.

Technical assistance. BDE provides technical assistance through a programme called PATGES (Technical Assistance Programme for Management of Water and Sanitation Services). The technical assistance is provided by a dedicated unit, and in close coordination with its regional branch offices. It is aimed at strengthening the capacity of the GADM and public utilities, so that they achieve a higher performance and sustainability in service provision. It covers administrative, financial, commercial and operational areas. It consists of a performance assessments of the mentioned areas, the development of institutional development plan and its actual implementation. It puts special emphasis on compliance with credit disbursements conditions, and tariff reviews. PATGES is funded out of repayable and non-repayable sources.

There is a similar programme, financed by BDE, AFD, the EU and LAIF (Investment Facility for Latin America). This is not only covering technical assistance, but also pre-investments. It specifically finances pre-investment studies in the most fragile local governments. Moreover, it seeks innovation in management, through a model of associations of municipalities.

Risk assessment

The Risk Department is in charge of administrating the management and use of loans. It is based on a calculation of the level of debt that GDAMs can take on. Local governments send their annual accounts, tariff levels and revenue generation data, and based on that a level of debt is calculated.

As as guaranteee, BDE uses the method of earmarking revenue. This consists of an agreement between the local government, the Central Bank of Ecuador and BDE. The agreement stipulates that within the municipal budget, the amounts needed to repay loans are earmarked first, before any other expense can be incurred. This agreement is needed as public institutions, like local governments cannot provide fixed assets as collateral. However, very few cases have presented themselves of non-compliance with repayments.

Apart from financial risks, also other risk factors are considered;

- Institutional sustainability. This consists of an analysis of whether a public utility has a solid enough structure, with dedicated departments for operations, for example. In the case of GADM, it includes an assessment whether there is a dedicated water department with sufficient personnel to take on tasks of supervision of construction works.

- Environmental sustainability. Even though BDE doesn't have a dedicated environmental policy, it has a system for environmental and social management. This is used to assess the level of social and environmental risks of investments. This includes compliance with certain requirements like environmental permits.

- Climate change adaptation. This is not yet a specific risk that is being considered. But BDE is doing the necessary institutional adjustments in order to cover this issue. It is in process of being certified to manage green climate funds, being the first in the country to do so.

Opportunities and challenges

- BDE has shown to be able to provide a package of products and services in the field of water and sanitation. Its main added value lies in providing technical assistance and supporting local governments in actually accessing the finance. The combination of technical assistance and finance is key.

- The main limitation lies in the performance of service providers. Some are in a vicious cycle of not having adequate infrastructure, not being able to provide a good service and hence not being able to raise tariff revenue. But the tariff is the key to access finance under favourable conditions.

- Hence, there is a great need in having efficient regulation, so as to break these vicious circles.

- The certification for green climate funds is a good opportunity to increase investments in the sector. But it requires a better understanding of what it entails to actually adapt to climate change in the water sector.

- BDE is working closely with IFIs, such as CAF, KfW, AFD, EIB and the WB, which allows us it to channel funds from these IFIs, and create co-financing mechanism.

Banco Nacional de Desenvolvimento Econômico e Social (BNDES) and Banco do Nordeste do Brasil (BNB)

Financing the water sector in Brazil

The responsibility for ensuring water service delivery lies with Municipalities, though they can share it with other municipalities and State government. They are responsible for selecting a service provider for the municipal area, and monitor its performance. They are also responsible for funding the expansion of services, in close coordination with funds coming from Federal and State government programmes. Brazil has a wide array of service provider options, the main ones being: 1) State Water and Sanitation Companies (utilities providing services to the urban areas of all (or most) municipalities in a particular State; 2) private utilities serving either a single or multiple municipalities; 3) public municipal service providers, some of which are professionalised, others not.

The financial needs for investments in water supply and sanitation have been detailed in PLANSAB (National Basic Sanitation[5] Plan). It differentiates between structural (i.e. infrastructure development) and structuring investments (i.e. investments into modernizing, reorganizing and improvement of the management) of service delivery. In its 2018 update, PLANSAB estimates total investment needs to be R$ 30 bn (USD 6 bn) per year until 2033.

The main source of finance in the sector are:

- Tariffs. This is expected to be the main source of finance of the sector, as tariffs are expected to cover operational costs but also part of the investments.

- Public finance. The different types of service providers (empresas estaduais) and the various municipal and community service providers have access to public funding from Federal, State and Municipal governments.

- Repayable finance. Utilities can access loans in order to pre-finance investments, which later on are paid back from their tariff revenue.

Public Development Banks in the water sector in Brazil

The Finance in Commons database has 21 domestic PDBs from Brazil. This includes 2 Federal level ones and 19 ones that serve one or more States. Out of the 21, 11 are identified as appearing to be active in water-related investments. This includes: 1) the Federal-level BNDES, 2) the Federally-owned but locally operating BNB and 3) some 9 State-level ones. This case study illustrates their role, by discussing BNDES and BNB.

[5] Basic sanitation in the Brazilian context refers to water supply, sanitation and wastewater treatment, solid waste and stormwater drainage.

Table A1 : Basic data about BNDES and BNB

	BNDES	BNB
Geographical area	Whole territory of Brazil	North-eastern Region
Ownership structure	Fully owned by Federal Government	Mixed, but 90% owned by Federal Government
Total assets (USD Billion)	206.7	15.1
Rating (Standard and Poors)	BB-	BB-
Main focus	Provides financial products, guarantees, programmes and fund management. Also provides grant funding. And structures concessions in infrastructure.	Credit provision, as well as technical support
Types of clients	All types of business from micro to large; government entities (Federal, State and Municipalities); Infrastructure developers. Works via intermediary financial institutions	Companies, SMEs, government entities

BNDES

Products and services

BNDES can provide financing to 1) service providers, 2) States and municipalities, and 3) financial intermediaries for investments in basic sanitation, prioritizing particularly sewerage and wastewater treatment, but also rainwater harvesting. They also finance water resources management oriented projects, such as wetland recovery.

It uses the following instruments:

Repayable finance. These are the direct loans to utilities, municipalities and States, with only a minor part going via financial intermediaries to smaller clients. The total volume of loan disbursements for basic sanitation has been around 800 million R$/year, which represents some 5-6% of the entire loan portfolio of BNDES. There is no target for number of loans, or loan volume, in the water sector. Rather it is demand-based. However, in hindsight, the loans are linked to the SDGs, so the bank can see how much financing is linked to the various SDG targets.

The conditions for these loans include that projects need to be higher than 20 million R$. The average size of loans is some 137 million R$, but with large differences. Loans for solid waste and small and medium municipalities is 45-50 million R$, whereas loans to State Utilities can go up to 240 million R$.

The loans are to be used primarily for developing physical infrastructure, even though they may contain a component of institutional capacity development. There are no loans for such institutional capacity development alone.

The tenure period is up to 34 years, but typically is around 25 years. They charge the base interest rates, plus a ~1% fee for BNDES.

Grant funding. BNDES also channels non-repayable grant funding for special programmes. Examples of that are the rainwater harvesting programme and the funds for the Amazon. These are social funds, which are fed out of the utilities of the BNDES. However, these funds are being reconsidered. These are projects with high transaction costs, and are not necessarily financially sustainable.

Another example is Funtec, which is a fund for technology development. Its main focus is on developing technologies that are appropriate in rural areas, and focus on reducing water losses and energy efficiency.

Equity funding. This type of funding is applied only to a very minor degree in the basic sanitation sector. So far the strategy has not been to propose this type of instrument in the sector. But in view of recent regulatory changes, it may be applied more widely in the near future.

Co-financing. There are few cases of co-financing with IFIs in the sector, and these happen mainly in the very large loans to the large State Utilities. A challenge in those is to come to agreements on sharing of risks, and guarantees.

Technical assistance. It provides advisory services on structuring finance of complex projects, including PPP constructions.

What is more common is the co-financing with State-level PDBs. As the investment requirements are so high, there is need for complementarity in financing, and above all risk sharing with the State-level PDBs. Mostly, it is the clients themselves who seek that complementarity by approaching both BNDES and the relevant State-level PDBs.

Risks and sustainability

The risk management unit does a sectorial risk assessment, which is reviewed every 2 years. In that, they assess the overall governance of the sector and the risk it entails. Others then translate that then into credit limits.

Then it assesses the specific risks of the borrowers, both in terms of financial and environmental risks. This is done both prospectively and retrospectively. For the environmental part, there is a dedicated environmental impact assessment team that does all the analyses and ensures compliance. On the financial side, borrowers need to provide a guarantee.

Generally speaking, the sector, however, is quite resilient. This was seen also in the Covid-19 pandemic. The utilities depend on a reasonably constant household consumption of water. During the pandemic there were no cases of any utility not serving their loans. BNDES even provided the opportunity to postpone the payment of instalments, but utilities in the water sector did not make use of that facility. In effect, the main financial risk in basic sanitation is more related to major droughts and their effects on revenue of utilities.

BNB

Products and services

The main products and services include:

Credit. BNB has a fund called *Fundo de Financiamento do Nordeste* (Finance Fund of the Northeast), which has a number of credit lines for rural areas. Two of these have a water component:

- FNE Agua. This is geared to companies of all sizes and sector, rural producers, families, cooperativas and associations. It covers a wide range of types of infrastructure: from household level water supply (rainwater harvesting) and on-farm irrigation facilities, to catchment works, but also PPPs for large scale water supply and treatment infrastructure.

- FNE Proinfra. This is geared towards different types kinds of public infrastructure, including energy, but also basic sanitation. For 2020, 7.9 billion R$ are programmed for infrastructure, of which 20% for basic sanitation (i.e. 1580 million R$, or 270 million US$). The limit is really the amount of money in the Fund, which is fed by the returns on the loans. The borrowers are either private entreprises, or public utilities, but only when these are autonomous (corporatized) and financially sustainable.

This means that the BNB provides credits of all kinds of sizes to different clients: from micro-finance to individual farmers to large-scale finance for utilities for major sanitation and treatment works, as well as the middle segment in between.

BNB works demand-based. That is, there is a broad programming of the amounts available for infrastructure within the FNE. Within that, there is an earmark for financing for sanitation. But that is not an upper limit. If there were demand, it could finance more. However, in reality, demand is often below the earmark.

It can reach these clients, amongst others, by its widespread presence in the Northeast region, with over 300 offices and agencies.

The conditions for financing depend on the scale and type of borrower. For the larger-scale finance, tenure periods are up to 34 years, with grace periods up to 8 years. The size of loans is from 20 million up to 1 billion R$.

As BNB does not work with guarantees, the borrowers need to bring in own finance, and possibly co-finance. BNB can only finance up to 50% of a project, and at least 20% of the costs of the project need to be covered by own capital of the borrower. For those reasons, co-financing with others is crucial. In the water sector, that is usually with BNDES, and with IFIs, such as the WB and IDB.

Structuring finance. In the Northeast, there is lots of need to structure the finance for large and complex investment projects, particularly sewerage and wastewater treatment. BNB helps in structuring the finance for these kinds of operations.

Research and development funds. BNB also offers repayable and non-repayable funding for research and development. The amount of funding through this window is between 10-20 million R$/year. This financing is available for research proposals, assessments and studies.

Risks and sustainability

Financial risk assessment for the large-scale loans (e.g. to utilities) is done at two levels: 1) of the clients overall finances, and 2) of the specific project. In addition to the financial risk, the BNB assesses social and environmental risks of projects. These all need to be assessed before the Board of the BNB can approve large projects.

BNB does not run any currency risk. That is only run by IFIs, in case they provide co-financing.

Opportunities and challenges

BNDES and BNB identify similar opportunities and challenges, facing their loan portfolio for water and sanitation relate to the legal, regulatory and institutional framework of the sector. These include:

- Changes in the legal and regulatory framework, requiring utilities to invest. Since last year, there is a change in the legal framework, which obliges utilities to show that they have the investment capacity to expand their services and reach universal coverage. One of the key conditions for that is that projects need to be regionalised, covering more than one municipalities, with the aim of creating more economies of scale and possibilities for cross-subsidies. These kind of regionalised figures exist already in the form of State Utilities and in some metropolitan and urban regions, but may need to be developed elsewhere. If States don't do this voluntarily, the Federal Government may create such structures. This process will take time, as it implies that States (or Federal Government) need to establish the regionalisation structure and municipalities need to join these structure. This association is not an obligation to the municipalities but if a municipality does not do it, it loses the access to federal resources, including the financing by BNDES or BNB. Whereas in the longer term, the regionalisation should lead to more capacity to take on finance, and have financially more sustainable utilities, in the short term this may actually lead to a temporary reduction in investments in regions where this process have obstacles to be completed. This will be a key risk and opportunity for BNDES in the coming years. Many states have already established the regional structure, such as Alagoas, São Paulo, Bahia and Ceará.

- Concessions and contracts between utilities and States and municipalities. The new legal framework also opens up concessions to private enterprises. However, these concession contracts require specifying investment responsibilities of utilities. That is sometimes a bottleneck. For example, in the State of Alagoas, there were no investments at all in basic sanitation. BNDES is therefore now supporting the structuring of the concession contract, so these investment obligations are more explicit.

- Mismatch between demand and availability of budgets. The demand for loans is skewed. Many utilities are financially not sustainable, nor do they have incentives to invest in expansion. This means that demand for financing is not coming forward. That is why the regulatory changes and the structuring of concessions contracts and investment project is key. At the same time, some of the larger players – State utilities – have very high financing needs, and they can structure projects, but the size of the investments is sometimes higher than what the banks have available. Co-financing between development banks is then needed.

- Limitations of fiscal rules. There is a general limit to credit to the public sector as a whole. It can only take on so much debt, and that even gets translated to public utilities.

- Multitude of institutions at different levels, when compared to other sectors like energy. The water sector includes a multitude of institutions at different levels: municipal, State and Federal. This implies major need for coordination, and alignment of responsibilities in financing. That makes it much more difficult to come to financing agreements, at least compared to other sectors.

- Coordination and competition with other development banks. The investment needs for the water and sanitation sector are so high, that there is not really competition between BNDES, State-level banks, and IFIs. Rather, there is often need for co-financing agreements between them, whereby each has its own niche, advantages and disadvantages. For example, IFIs can provide larger amounts of finance, but leave the currency risk entirely with the borrower. BNDES has a very large portfolio and more financing capacity, and State-banks have more coverage on the ground. Together, they can therefore come to co-financing agreements.

- Environmental sustainability compliance. Whereas there is obviously a need to comply with environmental sustainability standards, this is complex. This is amongst others due to gaps in the regulatory framework, in environmental information, and differences in legislation between States.

Banco Nacional de Obras y Servicios Públicos (BANOBRAS)

The water sector and its financing in Mexico

Drinking water, drainage, sewerage, treatment and disposal of wastewater are the responsibility of municipalities. Those generally contract Operators Entities (OOs[6]) to undertake the service provision functions, including operation, maintenance and administration. There are different types of OOs, including State-and Municipally-owned OOs, but also water users association. Municipalities are represented in the governance structure of the OOs, and hence have a strong influence over investment decisions. The OOs charge a user tariff, which has to be approved by local councils. Municipalities may also transfer funds to OOs, so that those can cover part of their costs.

In each State, there is a State Water Commission (CEA), or similar, which has the mandate to provide technical, financial, legal and social support in water-related issues. The CEAs have direct contact with the OOs about that.

At national level there is the National Water Commission (CONAGUA), the entity that administers and protects water resources. It covers a user charge for the water use of water, including for using it was receiving body – essentially a wastewater discharge fee. The OOs, as users of water resources, are also obliged to pay the user charge to CONAGUA, as well as the discharge fee. The revenue from these charges and fees is not necessarily re-invested in the water sector, as these flow into the general treasury. But CONAGUA receives funding from the Federal treasury for investment programmes, both for water resources management, and for water supply and sanitation infrastructure.

Over the last years, the levels of funding to the sector have decreased, for a number of reasons:

- The budget that CONAGUA receives out of the Federal treasury has reduced drastically from 53 billion Pesos in 2014 to 29 billion Pesos in 2017 and even more since then (CONAGUA, 2018).

- From a fiscal point of view, the water sector is extractive. The volume of investment budgets for the water sector represents about 60% of all the revenue that CONAGUA collects.

- Laws on public finance and fiscal discipline put limits on the extent to which municipalities can provide funds to OOs, and on the levels of debt they can take on.

- Revenue from tariffs of the OOs is insufficient to cover all their costs. In most of the larger OOs, the costs of water production and distribution is higher than the revenue from tariffs. This is in part caused by high levels of non-revenue water.

About BANOBRAS

BANOBRAS was founded in 1933. It currently is the 5th largest bank in the country, when measured by the size of its assets. It has the aim of (re)financing projects that relate directly or indirectly with public or private investment in infrastructure, and with public services, and at the same time contribute to the institutional strengthening of the Federal, State, and Municipal government, so as to contribute to the sustainable development of the country.

It provides two financing flows. The main one is in its role of development bank, through which it provides debts, leases and guarantees, but also no-repayable finance, to States and municipalities. The second one is providing financing to the private sector through project finance structures, by which public-private partnership works are funded, as well as productive public works.

[6] All acronyms in this case study are the original acronyms in Spanish.

Products and services applied in the water sector

BANOBRAS has a series of financial and technical products and services that it can provide in the water sector. These include repayable and non-repayable finance, directed towards public and private entities, and covering investments in infrastructure, as well as performance improvements. Some of these are managed in the form of programmes. The main ones include:

Social Infrastructure Contribution Fund. This is a multi-annual finance scheme to support the development of physical works, basic social activities and investments that favour the parts of the population that are in extreme poverty and settlements with a high or very high level of social lag. It is a credit line, through which 25% of the resources to which municipalities may be entitled are paid up front. The financing can only be used for certain expenditure items, including water, sanitation and drainage. However, in practice there is little demand for this coming from small municipalities.

Direct credit. This is a direct credit line to municipalities or OOs. Contrary to FAIS, it can also be used for productive public works. Moreover, the specific conditions – in terms of tenure, interest rate and use – are tailor-made to the needs of each client. In the last years, the percentage of all direct credits that was destined for the water sector has been minimal, approaching zero.

Programme for Modernizing OOs (PMOOA) This programme provides non-repayable funds to OOs to undertakes projects of modernizing and improving performance, so that OOs can increase levels of tariff revenue. It consists of technical assistance to OOs, but also some infrastructure investments, for example to reduce physical losses. PMOOA es funded out of a trust fund, created by the Ministry of Finance, public credits and BANOBRAS. The Ministry of Finance made initial contributions to the trust fund, and since then BANOBRAS has replenished it from its own profits.

BANOBRAS has entered into an agreement with the Mexican Institute for Water Technology (IMTA), which is responsible for guaranteeing that all the activities are duly executed contributing to the modernization objective. Once a modernization project has been concluded, IMTA will issue a technical statement, based on which 40% of the investment costs in any infrastructure that was developed as part of the modernization is paid back by BANOBRAS.

In order to participate in the PMOOA, an OO needs to meet various criteria:

- Duration of the modernization trajectory is between 12 and 18 months
- Number of users served by the OO is more than 15,000, so that it focuses on medium and large sized OOs
- It needs to have the formal approval of the Municipal or State Government to execute the project

Since its start, some 48 OOs have joined the programme, of which 31 have concluded it successfully. Currently, a pilot is being planned to show that the programme can also work in smaller municipalities.

Project finance. This is the provision of finance, based on an expected revenue flow that a project will generate. This is different from a direct credit, which is based on the expected revenue flow that an institution will generate. Generally speaking, a Special Purpose Vehicle is created, which has a long-term concession from an OO, often for a treatment plant (either for treatment of wastewater, drinking water treatment or desalination). Moreover, a key condition is that the project is co-financed with a commercial bank, or other financial institutions. Next to the main financial product, a long-term credit, other elements may be added, such as guarantees, re-financing and second-floor financing.

Main requirements include

- To have a robust revenue flow
- A long-term credit, for more than 20 year

- Constitute a trust fund
- Collaterals over shares and over the assts
- During the construction period, guarantees are needed (credit letters or corporate guarantees)
- Guarantees from the contractor in case of incompliance
- 20% own capital contribution

There is no minimum size, but because of the complexity of these forms of finance, no projects of less than 15 million US$ have been approved.

PROMAGUA of FONADIN (National Infrastructure Fund). FONADIN is a trust fund, established by the Ministry of Finance but within BANOBRAS and managed by BANOBRAS. The fund is replenished by the profits from toll roads, and can be used for concessional finance, junior debt, guarantees and risk capital. Moreover, it can be used to provide subsidies and non-repayable finance to projects with a high social return. Above all, it is used for projects with financial risks that the market is not able to take. One of the programmes under FONADIN is PROMAGUA, which includes:

- Providing concessional and non-repayable finance of up to 49% of projects under PPPs.
- Providing non-repayable finance of up to 50% of the costs to prepare projects, studies, tendering documents and project closures. Even though it provides these conditions, only 20% of the projects financed through this, have concluded successfully.
- Still under consideration is using this programme to create earmarks for the modernization of the commercial departments of utilities.

Recipients of non-repayable finance from PROMAGUA include States (through the CEA) and municipalities, as well as OO. One of the main advantages of this programme is that it reduces the pressure on local public finance, as it combines with private capital.

This fund has been used for some 33 projects in the water sector. With the equivalent of €420 million in non-repayable finance, an investment total of €937 million has been generated. Moreover, some 47 grants for studies and Project preparations were approved.

Risk assessments

As part of its due diligence process, BANOBRAS does a risk assessment for the various types of finance. In terms of financial risks the following applies:

- For credits to local governments, the laws on fiscal discipline apply, which indicate the level of debt a local government can take on
- For credits to an OO, the OO needs to have a certain revenue flow from tariffs to cover both operational costs, and the paying-back of the credit.

Moreover, environmental and social risks are assessed, as part of the Environmental and Social Policies of BANOBRAS. Within that, a specific point of attention is climate change mitigation and adaptation. BANOBRAS is in the process of being accredited as Direct Access Entity for the Green Climate Fund (GCF). The GCF has the objective of catalyzing climate change mitigation and adaptation projects, in alignment with the SDGs, through concessional finance channelled through accredited entities. BANOBRAS is being supported by the World Bank, IDB and GIZ (amongst others) in this accreditation process.

Opportunities and challenges

The last few years, loans to the water sector have reduced for a number of reasons:

- Budget allocations to CONAGUA have reduced. The reduction in public finance means also a reduction in possibility to provide co-financing on loans.

- The laws on fiscal discipline put a limit on the extent to which local governments can take on debt. Those same laws also put restrictions on the transfers that local governments can make to OOs.

- The limited financial and operational sustainability of the OOs. This is due to the combination of low tariff levels, and high levels of non-revenue water. This low financial sustainability means that OOs are not in a position to take on loans.

The combination of these factors could possibly lead to two opposite results:

- Higher degree of self-sufficiency of the OOs. If the OOs receive less municipal funding, they would be incentivized to increase their tariff revenue, and so filling the financial gaps. Eventually they could access loans.

- Reduction in service levels. There is also a risk that without municipal funding, the OOs don't make any investments anymore at all, nor improve their tariff revenue. Eventually, this could lead to a reduction in service levels

In order to ensure that the first scenario unfolds, and avoiding the second, there is need to push and support a water sector reform process, which focuses on improving sustainability of the sector.

BANDESAL and FIDEAGUA in El Salvador

Financing the water sector in El Salvador

El Salvador has a national utility, called ANDA (National Administration of Water Supplies and Sewers). It covers 168 out of the 262 municipalities in the country. It does so by providing services directly or through local decentralised service providers. It thereby serves 63% of the population with water supplies and 42% with sanitation. The other 94 municipal water systems are managed directly by the municipalities. In rural areas, service provision is usually done by community-based organisations, such as Rural Water Supply Boards (JAARs) or Community Development Associations (ADESCO), of which there are an estimated 2,300. These can receive technical support from ANDA, through the dedicated Anda Rural department.

The main entity carrying out sector investments is ANDA, using its own tariff revenue, budgets it gets from the central government and loans. Municipalities also spend part of their intergovernmental transfers on investments in water and sanitation. Even though there are no consolidated data about sector investments, it is estimated that 5% of municipal budgets are spent on water and basic sanitation, representing some US$ 9 million/year on average (World Bank, 2014).

The various types of water and sanitation system operators other than ANDA, so the decentralised local operators, municipalities and community-based organisations (grouped under the acronym OSAS), have not had access to finance to do investments. Even though there are financial institutions that could provide loans, in practice that has been limited for the following reasons:

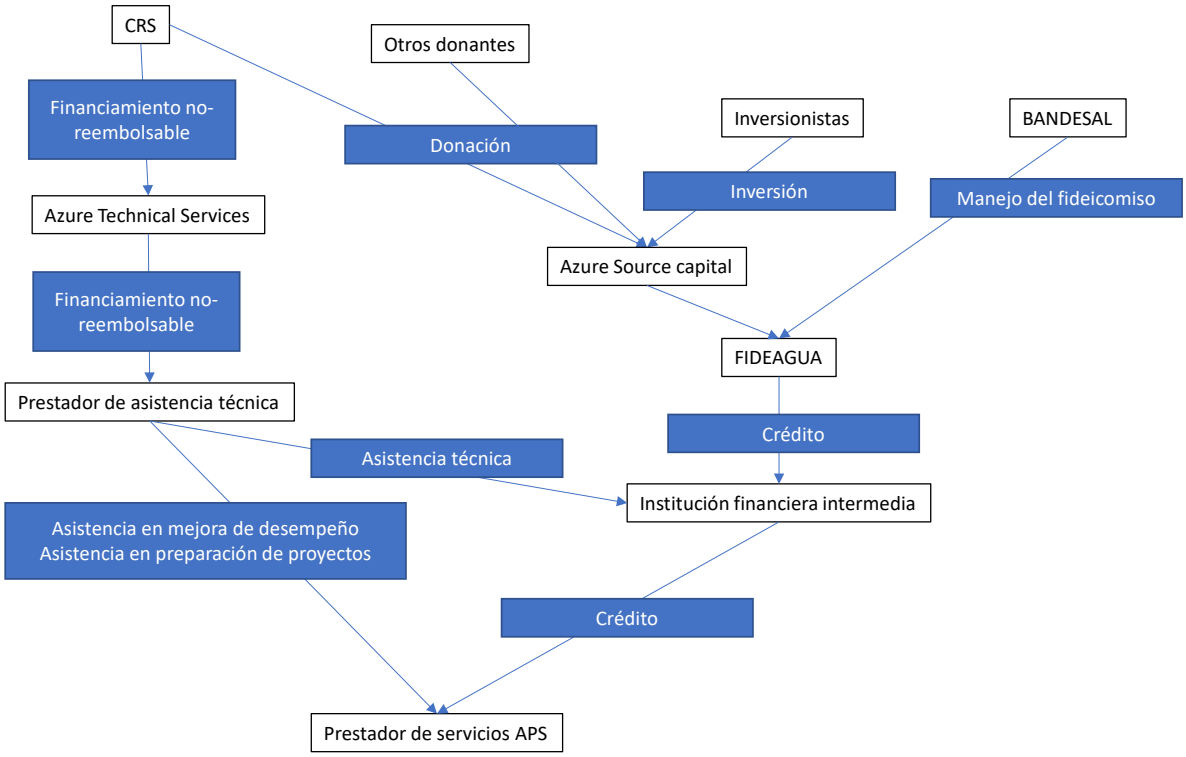
- Financial institutions don't know the water sector
- They have little trust in the OSAS given that most OSAS don't have a credit history
- Loan requests often lack technical detail and viable business plans
- The financial institutions demands guarantees that are difficult to provide by the majority of the OSAS

Against this background, FIDEAGUA (Trust Fund for Water Security) was establised and administered by BANDESAL (Banco de Desarrollo de El Salvador).

About FIDEAGUA, its products and services

FIDEAGUA was established in 2019. It is a trust fund that provides service providers access to credit in order to repair, expand and improve access to water supply and sanitation services in rural peri-urban communities and small towns. Its functioning is presented below:

Figure A1 : Set-up of FIDEAGUA



Source: author's own elaboration

Service providers can receive technical assistance to improve their performance, as well as to prepare and formulate projects. This non-repayable technical assistance is provided by a specialised company, called Azure Technical Services, which in turn is funded by the NGO CRS.

Through the technical assistance service providers are able to present credit requests to financial intermediaries, which in turn can access FIDEAGUA. These financial intermediaries also receive technical assistance by Azure Technical Services.

FIDEAGUA is administered by BANDESAL. The entity that contributes financially to FIDEAGUA is Azure Source Capital, which mobilizes finance from CRS, donors and investors.

The combination of non-repayable technical assistance to OSAS and financial institutions, and availability of finance through FIDEAGUA, should then initiate a process of performance improvement of the OSAS, and subsequently improved access to credit.

Credit. The different types of OSAS can access credit for the following uses:

- Construction, expansion and improvement of water supply and sanitation systems
- Development of constructions, installations and physical infrastructure associate with the OSAS.

Loan amounts are between US$5,000 and US$500,000, with payback periods of up to 10 years, and grace periods of up to 36 months.

Loan requests don't go directly to FIDEAGUA, but to intermediate financial institutions. These in turn open a credit line with FIDEAGUA. The first credit line went to a financial institution called ACAPRODUSCA de R.L, for an amount of US$ 1 million.

The interest rates are defined by the financial intermediary. But the trust fund provides loans to those institution with an interest rate of in between 6 to 8%. The financial intermediary can set its own mark-up, with a maximum of 4 percentage points. This means that effective interest rates are between 8 and 12%.

Guarantees and discounts. The OSAS have to provide a guarantee in order to access the credit. Normally this is provided in the form of fixed assets like terrains and buildings. There is also a fund with the name of Solidarity Guarantees, which serves to complement the guarantees provided by the OSAS. For example, if an OSAS has a terrain as guarantee, but which doesn't cover the total value of the loan request, they need a complement. The Solidarity Guarantee can provide that, but at a cost of between 2.5-3%. Up to this moment, these guarantees have not been used to access loans from the trust fund.

Municipal providers can provide a so-called FODES letter as guarantee. That is a letter which states the transfer that the central government makes to the municipalities. The letter details how much the government transfers, any discounts for other loans and hence its resulting ability to pay.

Non-repayable finance. As shown in the figure above, technical assistance is provided in a non-repayable manner. The entity responsible for this component is Azure Technical Services. It provides technical support and capacity building, specifically:

- Support in project development, design and engineering; studies of systems, improvement plans, tariff structures, training and other technical services
- Completing studies and technical folders for projects
- Developing business plans for OSAS
- Training and technical assistance to OSAS
- Connecting OSAS to support by ANDA Rural

The costs of technical assistance are provided from a non-repayable fund, which comes from different donors and NGOs, including CRS.

Mobilizing investment capital. The FIDEAGUA trust fund is replenished with capital by Azure Source Capital (ASC). In order to so, ASC mobilizes capital from impact investors, including private foundations, and multilateral and bilateral donors. Moreover it mobilizes capital through credit and potentially guarantees from local financial institutions.

The role of BANDESAL.

FIDEAGUA is administered by BANDESAL. Its specific roles as administrator of the trust fund are:

- Carrying out all administrative tasks
- Promoting it and linking with local financial institutions
- Qualifying local financial intermediaries. BANDESAL applies its own methodology to evaluate financial intermediaries. Based on that it provides a recommendation to FIDEAGUA. Then internally within FIDEAGUA an evaluation is done, after which it is sent to the committee that assigns shares. Requirements for the financial institutions include: have a own asset coefficient of 12%, outstanding debts no higher than 10% at 90 days, reserves coefficient lower than 60% and minimally 350 clients, as well as complying with all legislation on internal and external audits and policies on money laundering
- Discount on credits of Azure Source Capital

BANDESAL does not contribute financially to FIDEAGUA, but it has shown flexibility in considering the various requirements and applying some of the guarantees mentioned above.

Results, opportunities and challenges

The results up to 2020 include the following:

Table A2 : results of FIDEAGUA up to 2020

Result	Value
Number of OSAS supported by Azure Technical Services	156
Local financial institutions certified by FIDEAGUA	10
Financial institutions that have provided loans to OSAS through FIDEAGUA	3
Number and volume of loans provided via FIDEAGUA	13 loans for $2.2 million
Number and volume of loans provided outside FIDEAGUA	6 loans for $560,000
Other sources of non-repayable finance mobilized	$1.7 million
Persons with improved access to services	180,000

Based on these results, the following opportunities and challenges are identified:

- Financial intermediaries have a better knowledge of the OSAS. Previously, there was not a lot of experience in providing loans to OSAS, let alone detailed methods for doing so. With the experience and even a whole tool box being developed, the financial intermediaries can assess the OSAS in a similar manner as any other company.

- However, there are still problems with credibility of the OSAS, as there have been bad experiences with other loans.

- Guarantees are difficult to obtain. Many OSAS don't have terrains duly registered under their name, nor do they have other fixed assets that can be provided as collateral.

FONPLATA - Development Bank

About the institution

FONPLATA was established in relation to the Treaty of the La Plata River Basin, which sought the economic development of the subregion, between the member countries: Argentina, Bolivia, Brazil, Paraguay, and Uruguay. It was initially established as a development fund, but it evolved into its current status of a multilateral public development bank.

FONPLATA is owned by the 5 riparian countries of the La Plata river, and it lends to national or sub-national governments (municipalities, provinces and States) in the five countries. In addition, it has a financing line for non -sovereign risk operations, which is intended for national development banks, as well as national and sub-national institutions, public companies or mixed companies, all with mostly public capital.

It has an A- rating, and in 2019 (FONPLATA, 2020), it had about 1.3 billion US$ in assets, approved loans to a value of 460 million US$ and disbursed 221 million US$ on loans, in that year. It has been growing its portfolio over the past few years, since becoming a multi-lateral development bank, in an average of 30% annually.

Its mission is to support the integration of the member countries in order to achieve a harmonious and inclusive development within and across the River Plate Basin's areas of influence. It does so by financing small and medium-sized projects (typically up to 30-60 million US$) in specific geographic areas to help one or more countries achieve greater integration at a sub-regional, regional and global level. It therefore particularly focuses on projects in border areas and transboundary infrastructure.

Role of FONPLATA in the water sector

Within the water sector, FONPLATA seeks to operate under a river basin perspective. Water-related investments currently represent a relatively small percentage of the loan portfolio. This is explained by the fact that up to 2013, FONPLATA focused exclusively on regional infrastructure, particularly transport. Since then, the institution has been seeking to diversify and expand its portfolio to other sectors, including water. It has the ambition to grow its water portfolio, but is still developing a sector strategy to guide its work in water. Currently, it finances projects in two sub-sectors:

- Water supply and sanitation, including wastewater treatment. This is reported as a sub-sector in its own right. The annual report 2019 indicated that it represented 2% of FONPLATA's entire loan portfolio.

- Water resources management, including urban drainage, flood protection and catchment protection. This is reported under the broader sector of environment, which represented 3% of 2019 FONPLATA's loan portfolio.

Water sector products and services

The following types of financial services, which are provided in general, by FONPLATA, are also provided in the water sector:

- Nationally-guaranteed credit to sub-national entities, such as municipalities, provinces and States for infrastructure development. In this, it works demand-based, whereby sub-national entities express a demand for financing. These demands are then prioritized by the national liaison agency and subsequently critically reviewed, with all due diligence and risk assessments. In some cases, project preparation may be included in the loan.

- Credit, without sovereign guarantee, to national development banks. These can then pass the credit on to their clients. These may or may not be used in the water sector.

- (Grant-funded) technical assistance. FONPLATA has a relatively small fund for technical assistance, which was established out of the profits of FONPLATA, with a turn-over of around 1 million US$/year. This is mainly oriented towards strategic studies, strengthening of intellectual, technical and institutional capacities and project preparation.

- Co-financing with other IFIs. Other, larger, IFIs, such as AFD, IDB, CAF and EIB tend to structure their projects and programmes by sector. But many sub-national governments need financing for multi- or cross-sectorial projects. FONPLATA is able to take on different parts of sectoral programmes of other IFIs, and bundle them as multi-/cross-sectorial projects.

Risk assessment

Risk assessments are always project-based. An integrated analysis is made of technical, financial, economic, environmental and social aspects of the project. In addition, it includes an assessment of

the borrower, both in terms of its institutional performance and its credit-worthiness. National criteria for the extent to which a borrower can further indebt itself are used, as ultimately, the country is the guarantor of the loan.

Opportunities and limitations

Whereas FONPLATA thus seeks to expand its portfolio in water-related investments, it faces a number of limitations, mainly demand-side related. The main ones – and the ways it seeks to overcome those – include:

- Governments usually reach out to FONPLATA to obtain financing for other infrastructure projects. Last year, for example, prospective borrowers did not reach out at all to FONPLATA for water-related financing. Since FONPLATA works as a demand-driven institution, it takes time to build up the awareness among prospective clients that FONPLATA is willing to provide finance for water-related investments.

- Limited financial space for financing of projects in the water sector in the countries of its mandate and overlapping efforts to finance same projects. Therefore, FONPLATA has a particular niche by: 1) having a clear geographic focus: on medium-sized towns in border regions, or projects with a catchment or river-basin focus; 2) providing better financial conditions than national PDBs, as the credit rating of FONPLATA is higher than the ones of its member States. Also, it provides Green Financing, which allows obtaining better financial conditions. FONPLATA has a strategic advantage in water related projects, executing projects in the la Plata River Basin and in the Amazon Basin. Exploring possibilities in water financing in these regions is one of FONPLATA's focus for the next years.

- Limited project preparation. Many local governments in the region have limited know-how and workforce with knowledge of the specificities needed for this kind of project preparation. This results in either no projects coming forward, or projects that are poorly designed. FONPLATA has only limited means to address this limitation on its own. Its grant-funded facility for that is limited. And sometimes, it can be addressed by including the project preparation in the loan. By partnering with other IFIs, who may provide grant- or loan funding for that, extra financing for project preparation can be made available.

- Unable to provide loans to public utilities. In most countries in the region, water-related investments are not (only) made by sub-national governments, but by public and private companies, particularly water and sewerage utilities. Currently, FONPLATA is not providing loans to private companies. It is expected to start providing loans to public companies (including water-related) by the end of 2021, and to private companies in the next years.

- As one of the interviewees said: "there is a general concern by borrowers, that green projects and water-related projects will have additional costs and demand complicated studies". These concerns are being tackled with explanatory presentations and the availability of technical cooperation, mainly with key partners.

- Attractiveness of water resources management projects. The sizes of water resources management projects, such as catchment protection works and macro-drainage, is too high and financially less attractive, in federal levels. Nevertheless, there is a growing demand for financing of those projects, FONPLATA is currently addressing it at town or city level, focusing on urban catchments as parts of urban projects.

North-American Development Bank (NADB)

About the institution

NADB is a binational financial institution established in 1994 by the Governments of the United States and Mexico to provide financing to support the development and implementation of infrastructure projects, as well as to provide technical and other assistance for projects and actions that preserve, protect or enhance the environment. It is authorized to serve communities located within 100 km north of the international boundary, and within 300 km south of the border.

In that, it supports the development and implementation of environmental infrastructure projects, as well as technical and other assistance for projects and actions that help preserve, protect and enhance the environment of the border region. The sectors covered include water, energy, waste management, air quality and basic urban infrastructure

As of Dec 2019, NADB had contracted close to US$ 3.3 billion in financing to support 262 environmental infrastructure projects. Of those funds, US$ 2.5 billion were in the form of loans and US$ 762 million in grants, mostly provided by the US Environmental Protection Agency (EPA).

Role of NADB in the water sector

The water sector – which includes drinking water supply, treatment and distribution; wastewater collection, treatment and reuse; water conservation; and storm drainage and flood control - is the most important sector for NADB. Of the 262 projects it has financed since 1995, 178 were in the water sector. In 2019, some 75% of the disbursements went into the water sector.

Within the water sector, over the years most of the finance went into sewerage and wastewater treatment. That has been the main area of need over the 25 years of existence, particularly on the Mexican side. By now, most of the Mexican side of the border has high levels of access to basic sewerage and wastewater treatment. Also, investments took place in water supplies. And there is an expectation that there will be an increased need for rehabilitation of those, as infrastructure is ageing. Stormwater drainage has received less financing, also because there are less clearly defined institutional responsibilities around it – without dedicated utilities. Due to the nature and size of these investments, but also their capacity to take on debt, most financing has been going to intermediate-sized towns and cities.

Water sector products and services

The following types of financial and technical services, are available by the NADB:

- Loan Program. This consists of providing financing to public (local governments and public utilities) and private (PPPs) entities operating within the border region to support the implementation of environmental infrastructure projects. Financing may be provided in a number of ways, depending upon the characteristics of the project and financing needs. These include: direct loans, corporate loans and participation in municipal bond issues, among others. The conditions of the loan depend on the project characteristics as well.

- Border Environment Infrastructure Fund (BEIF). These are grant funds provided by the Environmental Protection Agency for co-financing high-priority municipal water and wastewater infrastructure projects. As these are for co-financing, these funds can be used to finance up to 50% of the investment on the Mexican side, with the other financing needing to come from other sources.

- Community Assistance Program (CAP). This is grant financing for environmental infrastructure projects – including water - in low income-communities. It is geared to public entities with limited

capacity to incur debt. These are grants of up to 500,000 US$ and hence are typically geared towards smaller communities.

- Technical Assistance Program (TAP). This is also grant support to help strengthen the financial performance of prospective clients. These are three types of activities that can be funded:

- Project development. This entails the necessary studies for a specific infrastructure project, and are intended to help the project achieve funding approval within a year, or should help develop a specific project within three years after completion of the study.

- Sector studies. These studies are intended to help identify environmental infrastructure needs, promote sound public policy or generate knowledge about a new sector or technology.

- Capacity building. To help potential clients improve their financial or technical capabilities or to facilitate access to knowledge. This includes forums and training programs, as well as knowledge management and information sharing efforts.

- Project Development Assistance Program (PDAP). Technical assistance grants from EPA to support communities in the development of water and wastewater projects that have been prioritized by EPA to receive a BEIF grant for their implementation.

Risk assessment

Risk assessment focuses in first instance on the financial risk of the borrower. For public entities, this entails assessing their overall financial risk, as dictated by the national legislation on the extent of debt they can assume. For private entities, the risk assessment is done at project level or corporate level. For PPP projects, the risk assessment is focused on the source of payment from the public entity. But in these cases, the public entity that supports it, needs to provide a guarantee.

Given the types of projects financed, NADB also reviews technological risks. For example, it looks at the efficiency and costs of certain technologies, particularly when they are high-end technologies.

Finally, environmental risks – or rather environmental compliance – plays a key role. EPA (in the USA) and CONAGUA/SEMARNAT (Mexico) compliance needs to be followed. Due to the geographical conditions in the border region, there is a strong need to diversify, and create redundancy in, water resources that utilities are accessing, to deal with the arid conditions.

Opportunities and limitations

Generally speaking, there is a regular demand for financing water projects. The local governments and utilities in the border region know to find NADB, and also know what types and sizes of projects can be financed by NADB, and for which financing can better be obtained from other banks., In the case of projects in Mexico seeking grants from the BEIF program, the projects need to be selected and prioritized by EPA and CONAGUA.

Also for the CAP program, there is generally a high demand. And NADB is able to make a prioritization based on the needs of the beneficiary communities.

Some of the limitations that apply to Mexico as a whole – as seen in the case study on BANOBRAS - also apply to the area in which NADB operates: 1) the law on fiscal discipline, 2) the low tariff levels and revenue of utilities, and 3) lower institutional capacity to formulate and execute projects.

NADB has a long-standing practice to co-finance together with development banks, multilateral banks and commercial banks, including the IDB, IFC and the U.S. International Development Finance Corporation. Though BANOBRAS could be seen as competition, in practice, they are close partners, particularly where larger investments are needed that go beyond the capacity of the two individual banks.

Annex 2: interviewees

Name	Organisation	Function
Carlos Aguilar	AZURE-CRS	Global Head of Azure
Carlos Puente	BANOBRAS	Director Water, Energy and Media
Carlos Roldán	BANOBRAS	Assistance and financing to governments officer
Delia Sánchez	BANOBRAS	International affairs officer
Danielle Cuéllar	BANOBRAS	International affairs
Victor Montiel	BANOBRAS	Project Finance officer
Randall Chang	BCIE	Head of Credit
Carlos Quintanilla	BCIE	Supervision Unit
Angel Murillo	BCIE	Environmental specialist
Pablo José Brizuela	BCIE	Specialist in supervision
Olaf Gámez	BCIE	Specialist in supervision
Xavier Vidal	BDE	Deputy Director Business / interim Director
Raisa Botto	BDE	Director Infrastructure
Myriam Elizabeth Puebla Puebla	BDE	Environment and biodiversity officer
Valdir Machado	BNB	Department of sanitation policy
André Mascarenhas	BNB	Operations in water and sanitation infrastructure
Irenaldo Rubens	BNB	Section head
Leticia Barbosa	BNDES	Manager of the Environmental Sanitation Department
Marcelo Iterhof	BNDES	Environmental Sanitation Department
Jennifer Fuentes	FIDEAGUA	Head of Total Impact Capital in El Salvador
Henrique Pissaia	FONPLATA	Head of Department
José Lupo	FONPLATA	Head of Technical Cooperation
Marina Dockweiler	FONPLATA	Head of Environment
Salvador López	NADB	Chief Environmental Officer

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