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RESEARCH ARTICLE

Between *development* and *banking*: the KfW Development Bank in Latin America's water sector

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ABSTRACT

This paper sheds light on the question to what extent public development banks can, and do, contribute to achieving the United Nations' Sustainable Development Goal (SDG) 6 on water and sanitation under the current political economic conditions, drawing on the case of the German KfW Development Bank and its activities in Latin America. It concludes that bankable, large water supply and sanitation services (WSS) infrastructure projects based on cost-recovery models can hardly deliver the WSS systems needed in Latin America in a sustainable manner. Achieving SDG 6 requires long-term subsidies for public water utilities and addressing the political conditions of WSS governance on the ground.

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Introduction

The supply of clean 'water for all' has been a key goal of national governments and international development agencies since the 1960s, when water-borne diseases of an increasingly urban population came into focus (Bakker, 2013, pp. 284–285; Adjei Adams et al., 2019, p. 243). Nevertheless, after the UNESCO International Hydrological Decade (1965–74), the UN Water Decade (1981–90), the Millennium Development Goals (2000–15) and the International Water for Life Decade (2005–15), the overall results of more than 50 years of development interventions still have not been able to provide 'water for all'. In 2019, the World Health Organization (WHO) reports that 2.2 billion people around the world – one in three – do not have safely managed drinking water services and 4.2 billion – more than half the world's population – do not have safely managed sanitation services (WHO, 2019).[1] In Latin America and the Caribbean, the situation has improved since 2015, but still in 2020 – the year of the Covid-19 pandemic – only 75% used safely managed drinking water and only 30% safely managed sanitation (WHO & UNICEF, 2021). In fact, access to safe water supply and sanitation service (WSS) may often be overestimated due to various factors, such as the perspectives and knowledge of local officials on defining 'clean water and sanitation', the water storage capacity of

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households in the face of intermittent piped service, and incomplete connectivity to sewage networks (Reis, 2012, pp. 134–142; Adjei Adams et al., 2019, p. 248; Sturzenegger et al., 2020).

Under these conditions, Sustainable Development Goal (SDG) 6, which aims to provide universal access to 'safe, affordable and available when needed' WSS by 2030, remains ambitious and continues to require huge efforts. International organizations such as the World Bank and Organisation for Economic Co-operation and Development (OECD) point to a large funding gap to achieve SDG 6. The OECD estimates that current investment levels must be tripled to meet SDG 6 (Ajami et al., 2018, p. 5).

The three financing mechanisms for the water sector usually mentioned are taxes (government funding), income from water tariffs and transfers from international development assistance (OECD, 2010). Moreover, capital markets, private charity and the corporate sector have been active in the provision of funding for water infrastructure (Alaerts, 2019, p. 21). Another trend in the Global South have been microfinance schemes (Mader, 2011; Reis & Mollinga, 2012).

However, in general, finance for WSS has been dominated by public budgets (Alaerts, 2019, p. 21). Even if privatization in the sector has proceeded, private investment is highly skewed geographically and tends to focus on the wealthiest countries and locations (McDonald et al., 2021, p. 119). Moreover, the vast majority of private sector involvement in WSS is based on public–private partnerships (PPPs) that remain relatively insignificant in overall funding (McDonald et al., 2021, p. 118). For most water operators, 'private finance is almost non-existent' (Kolker et al., 2016, p. 1). The World Bank thus notes that 'sustainable and equitable [WSS] services will hinge on substantial public investment' (World Bank, 2017). Therefore, it has been pointed out that there is a need to better understand the available sources of financing for WSS and their characteristics (Machete & Marques, 2021, p. 12). To date the question of financing water has not intersected with an emerging literature on the role of public banks for progressive social change in general (Marois, 2021, 2022) and as a source of SDG 6-related finance in particular (McDonald et al., 2021). Hence, this paper bridges these literatures by exploring the role of public banks in WSS finance.

This aim is significant because public banks are already major players in financing WSS globally, even if this is little known. In the Global South, development banks are particularly relevant. The top 20 public development banks, which make up 75% of all public banks in terms of assets, together have around US$ 8.7 billion in combined assets (AFD, 2021). While the World Bank has been the most important public development bank in WSS and has significantly shaped sector policies (Bakker, 2013), other public development banks have also been key actors in the sector.

This study focuses on the role of public development banks in addressing the challenge of SDG 6, drawing on the case of the German KfW Development Bank (*Kreditanstalt für Wiederaufbau* – Credit Institute for Reconstruction) and, in particular, its activities in Latin America. It sheds light on the extent public development banks can and do contribute to achieving SDG 6 under the current political economic conditions. The KfW Development Bank is one subsidiary of the larger KfW Group. The bank focuses on financing projects with the explicit aim of 'improving the living conditions of people in developing and emerging countries' (KfW, 2021a).

The potential benefits of public development banks such as KfW include that they are generally not oriented towards profit maximization and can access funds at extremely cheap rates on financial markets. The latter is especially true for the KfW and does not have to be the case for all public banks. As pointed out by Naqvi et al. (2018), the KfW's position among public banks is particularly strong as it is privileged due to Germany's hard currency and its low sovereign credit risk. However, public banks are not good or bad per se, as what they do and how they function must always be seen in a broader political economic context and is subject to power relations. That is, public banks function under changing and contested historical, social, political and economic conditions (Marois, 2022).

Hence, this paper examines the activities and functioning of the KfW in the Latin American water sector and analyses the structural conditions under which it operates. It draws three main conclusions. First, the KfW concentrates its activities in WSS predominantly on financing large infrastructure systems. This is the case although KfW staff are aware that this may not always be the most successful approach, and it is often difficult to find suitable 'outlets' for the allocation of credits. While there are also attempts to address the fundamental, but enormously complex and small-scale, issues related to deficient WSS services in the Global South, high transaction costs and the need to allocate large credits have so far made it difficult for the KfW to increase their activities beyond the 'modern infrastructural ideal' (Graham & Marvin, 2001).

Second, the experience of the KfW shows that it is very difficult to construct and operate WSS infrastructure in Latin America without (continuous) government or donor transfers. In the case of the KfW funding WSS in Latin America, there is a conflict of objectives between funding WSS infrastructure that is financially sustainable and infrastructure that is socially equitable and sustainable. That is, bankable, cost-recovery models can hardly deliver the WSS systems needed in Latin America, despite the expertise and public resources provided by the KfW. This supports the findings of previous studies arguing that long-term subsidies of local WSS services are necessary (Libey et al., 2020). It also calls into question the general appropriateness of North–South loans for solving the water crisis in the Global South. There is thus an urgent need for policymakers, KfW and recipient governments to rethink WSS development finance.

Third, the study shows that achieving SDG 6 will not be achieved through increased public development bank funding alone, but requires more fundamental socio-political transformations. This is because water utilities in Latin America often operate under complex social and political conditions that inhibit their efficient operation. Since interventions by external development agencies are necessarily depoliticized and technocratic (Ferguson, 1994), one outcome of this situation has been the partly outsourcing of KfW-funded WSS infrastructure to private water firms from the Global North, as this ensures at least that the infrastructure is running. Hence, it must be called into question if the public funds used to subsidize private water firms cannot rather be used to subsidize the costs for the operation, maintenance and new capital investments of public water utilities, and discussed how these funds can be spent in a socially equitable and sustainable way.

Methodologically, the paper draws on in-depth interviews with seven KfW officers who are responsible for water sector activities and/or manage water projects in Latin America. Due to the restrictions of the pandemic, the interviews were conducted through videocalls.

The remainder of the paper is structured as follows. The next section provides a brief context of the current WSS situation in the Global South, which is characterized by 'unbundled' systems and 'urban archipelagos'. The third section describes the activities of the KfW in Latin America's water sector, providing an overview over the underlying policies and the functioning of its financing. The fourth section focuses on the challenges and constraints of its involvement in the water sector and explains why the water sector is one of the most difficult sectors for development banks to work in. The paper concludes with a summary of the findings and key questions for further research.

WSS in the Global South: unbundled systems and urban archipelagos

As opposed to the cities of the Global North, where the modern 'infrastructural ideal' arose with 19th-century industrialization and urbanization, encompassing public water supply systems that serve the whole urban population (and much less, the rural) have in fact never existed in the Global South. The colonial city was typically characterized by a high fragmentation of access to urban infrastructure, particularly water supply (Kooy & Bakker, 2008, p. 1843). Across Africa, Asia and Latin America, water supply and sewerage were usually limited to the central areas of the city, where the white population lived, while the rest of the (largely rural) population did not have access to urban infrastructure. These colonial structures have been reproduced with increasing urbanization in the 20th century. In Latin America, urban growth took off in the 1960s with massive rural-to-urban migration, and today, more than 80% of the population lives in urban areas. In many countries of Latin America, the largest part of urban space is self-constructed by its residents. That is, urbanization has largely happened without state planning on land and without basic urban infrastructure. This does not mean that the state is absent, but typically, that 'the state acts *after the fact* to modify spaces that are already built and inhabited' (Caldeira, 2017, p. 5, emphasis in original). Water supply and other services are often provided in the course of negotiations between residents and politicians, and are often subject to complex political relationships (p. 7).

As in Africa and Asia, the typical spatial pattern of WSS in Latin America today is one where central, established and often wealthier areas of the city are served by public (or privatized) water utilities, while the peripheral, poorer neighbourhoods are served by a diversity of water sources. Hence, the standard model of WSS services is an 'unbundled' one characterized by diverse suppliers and forms of supply (Coutard, 2008, p. 1818). If sewerage exists, sewage is mostly drained untreated into rivers and oceans. As self-construction has frequently taken place in risk zones, such as rocky and hilly land or floodplains, the construction of infrastructure networks is often difficult. Even if networks have been extended to peripheral settlements, access to safe water is in fact often lacking as water supply is intermittent and only arrives for a few hours per day or week. Moreover, water quality is often deficient. Therefore, residents are forced to rely on alternative water sources, in particular private water vendors, and end up paying much more for water as wealthier inhabitants of established urban areas (United Nations (UN), 2019, p. 2). The boundaries between formal and informal, public and private water supply are always blurry and shifting (Bakker, 2013).

A major problem in existing Latin American water supply networks is the enormous inefficiency and water loss. According to a study by the Latin American development bank Corporación Andinda de Fomento (CAF), around 60% of the water is lost in networks in Latin American cities. This is despite the fact that, according to the same study, the annual billing cost of water users connected to networks in Latin America amounts to 8% of household income, which is significantly higher than in the United States or Europe (CAF, 2018).

Since the 1990s, the peripheries of Latin American cities have undergone significant transformations (Reis & Lukas, 2022). While poor self-constructed neighbourhoods have continued to grow in the context of de-peasantization (meaning, the dismantling of smallholder agriculture, causing rural–urban migration) and population growth, urban peripheries have also seen the massive construction of privatized urban spaces, not only for the upper but also for middle and working classes. In some cities, this has been going along with the further privatization of urban services, in particular water supply, where water companies serve wealthier areas and new residential areas in the suburbs, leaving self-constructed areas behind. These tendencies have consolidated the perception of Latin American cities and towns as 'urban archipelagos' of water (Bakker, 2003; Kooy & Bakker, 2008). Moreover, across Latin America, urban growth – and with it, the problem of lacking access to safe water and sanitation – has shifted from megacities to small and medium-sized cities, which are growing in the context of neo-extractivism, new land occupations and 'informal' settlements (Reis & Lukas, 2022). High urban growth rates thus confront small municipalities with the challenge of infrastructure provision. Besides population growth, a major challenge is water scarcity, which will worsen with climate change. Further, the 'New International Division of Labour' (Fröbel et al., 1980) has created high competition for urban water supply by export-oriented industrial agriculture, manufacturing and tourism. Considering all these trends, it becomes clear that achieving SDG 6 is a huge challenge. Our aim in the following is to highlight the activities of development banks in the sector, focusing on the KfW in water and sanitation in Latin America.

The KfW Development Bank in Latin America's water sector

Overview

According to a survey conducted by the French Development Agency (*Agence Française de Développement* – AFD), SDG 6 on water and sanitation ranks lowest among the SDG-related focus areas that development banks focus on, while water in general makes up 5–15% of their investments (AFD, 2021). The same study revealed that public development banks have a strong focus on financing sanitation (i.e., sewerage and wastewater treatment) and water supply (especially large treatment and desalination plants). Typically, they provide credit for infrastructure investments to water utilities of medium-sized cities, which have more creditworthiness than smaller municipalities and rural areas, but are not able to obtain loans directly from multilateral development banks or commercial banks. The loans are usually provided to a central Ministry of Finance, from where the money is passed on as grant or loan to responsible ministries, water utilities or local governments. Besides credits, the public development banks analysed in the AFD study

are also active in project preparation (grant-based, or repayable if the project preparation leads to a bankable project); technical assistance to utilities and local government to improve financial performance and ability to ensure the sustainability of investments; structuring project finance and PPPs; managing multi-donor trust funds for the water sector; influencing sector reforms and dialogue, also through funding studies; and channelling grants (funds from general taxes or sovereign loans) to local governments and utilities. The KfW is also active in most of these areas.

The KfW is the world's fifth largest public development bank and was founded by the German government after World War II for the purpose of reconstruction. It is legally owned by the Federal Republic of Germany (80%) and the federal states (20%). In 2019 it held assets of US$569 billion, more than twice the total assets of the World Bank (Marois, 2020). By law the KfW is not a profit-oriented bank, but must provide for the 'sustainable improvement of the economic, social, and ecological conditions of people's lives' (Marois, 2020, p. 153). As the German state formally guarantees KfW debt, the KfW counts on a very strong credit rating and thus, the possibility to access the cheapest possible credits on financial markets (Marois, 2020, p. 153). The KfW is funded almost entirely via international financial markets and in 2020, raised €66.4 billion. Domestically, the KfW finances start-ups, SMEs and municipalities, where it provides support for public and social infrastructure. Domestic financing makes up about two thirds of total KfW financing (Marois, 2020). Internationally, the KfW is present with three divisions: International Project and Export Financing (IPEX) and *Deutsche Investitions- und Entwicklungsgesellschaft* (DEG – German Investment and Development Society), which support European and German companies in key industrial sectors by financing their exports and securing European raw materials supply; and the KfW Development Bank, which finances development projects around the world on behalf of the German Ministry for Economic Cooperation and Development (*Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung*, BMZ; hereafter Development Ministry) and the European Union (EU).

The KfW Development Bank[2] has been active in the water sector of developing countries since the end of the 1970s (interview with KfW officer 1). Since 2013, the KfW has provided €6.3 billion to 234 projects in the water sector, which amounts to 11% of their total funding commitment for all sectors (KfW, 2021). With this, water is the third largest focus area of KfW lending, after the financial and the energy sector (interview with KfW officer 2). Figure 1 shows that together, the Middle East, Latin America and the Caribbean and North Africa make up more than half of KfW funding in the water sector globally. Figure 2 shows that based on the number of projects, the distribution is more equal (while the Middle East still makes up the largest share), that is, that projects in Latin America and North Africa are substantially larger in volume than in most other world regions. Overall, these data show that the geographical reach and influence of KfW lending worldwide has been extraordinary.

At the moment there are 31 water projects active in Latin America, whereas the real number is a little higher as projects in the energy or financial sector sometimes also include water components, or projects run under energy for political reasons (interview with KfW officer 3). In total, the KfW has invested €5.2 billion in the water sector in Latin America between 2016 and 2020, the majority in the water supply and sanitation sector (interview with KfW officer 3; KfW website data). Figure 3 shows that KfW funding for

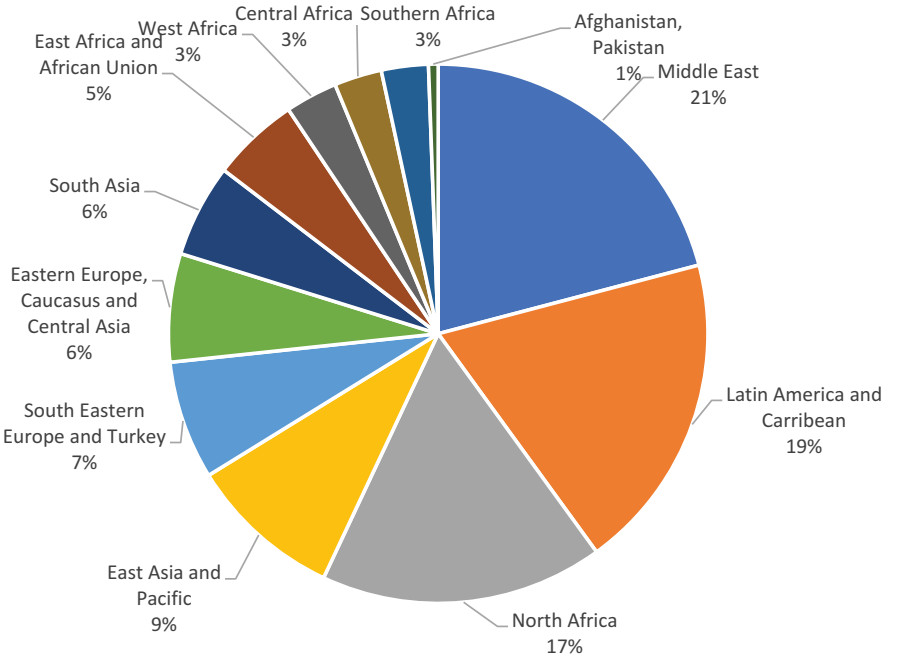

Figure 1. KfW projects in the water sector (volume), all regions, 2013–21. Source: Author's own representation based on KfW Projektdatenbank (KfW, 2021b).

water in Latin America is highly concentrated on a few countries: Mexico, Peru, Brazil and Columbia make up half of the financing volume of KfW projects. However, another 30% is concentrated on funding with the Central American Bank for Economic Integration (Banco Centroamericano de Integración Económica – BCIE) and CAF as intermediaries. These funds can thus find their way to many more countries in the region. Figure 4 shows that considering the number of projects, the KfW has most projects in Peru and Bolivia.

Policy guidelines

As a public purpose development (or 'promotional') bank, the KfW is legally obliged to follow the policy of the German Development Ministry, which is one of the largest donors in the water sector globally. German development cooperation in the water sector follows the Development Ministry's water strategy from 2017. The latter is generally oriented towards achieving SDG 6, which is translated into the following six principles for water sector cooperation (Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung (BMZ), 2017):

- The human right to water, that is, a focus on poor and marginalized populations.
- The Leave No One Behind Principle, that is, the priority of human use if there are competing interests for water.
- The potential of water to reduce conflicts and origins of migration.
- Integrated water resources management.

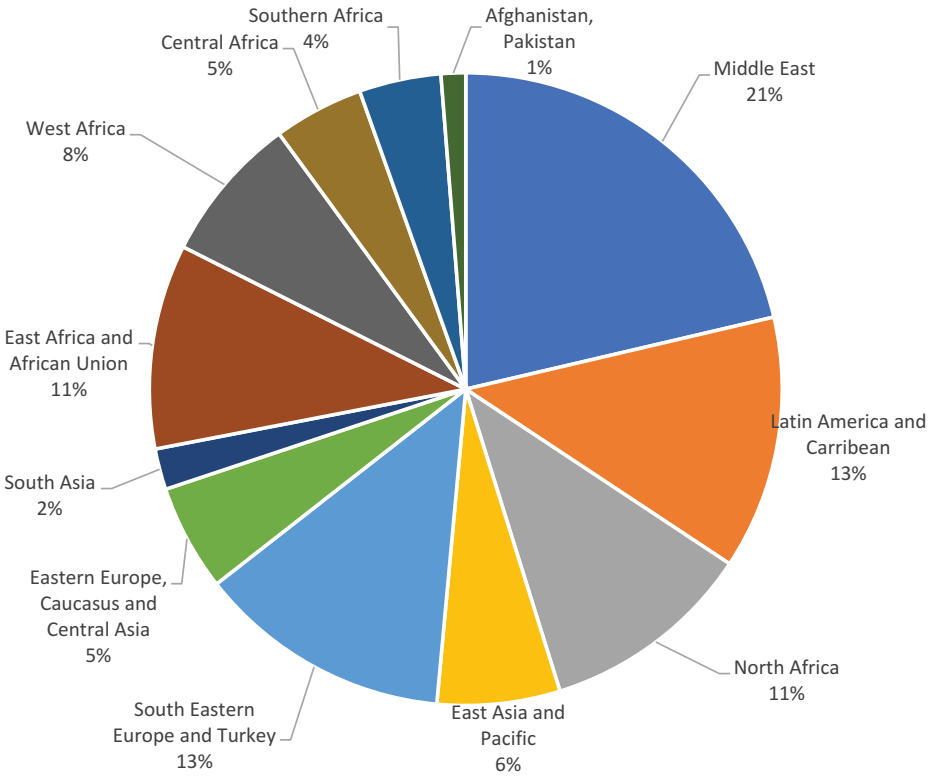

Figure 2. KfW projects in the water sector (number), all regions, 2013–21. Source: Author's own representation based on KfW Projektdatenbank (KfW, 2021b).

- The sustainability of investments, that is, capacity-building for partners to find their own sources of financing and operate infrastructure after projects have ended.
- Climate change adaptation.

The Development Ministry's water strategy also determines that German development cooperation supports the implementation and expansion of central, semi-central and decentralized supply systems, depending on the context. In urban areas, central water supply networks are the pursued standard. In the sanitation sector in general, the focus is on sewage management. Alternative solutions to central systems, such as water kiosks and community taps, are considered necessary, but only as intermediary solutions on the way to a full coverage of central water supply systems (BMZ, 2017, p. 12).

German development cooperation is essentially separated into technical cooperation, which is done by the *Gesellschaft für Internationale Zusammenarbeit* (GIZ – German Association for International Cooperation) and nowadays focuses on consulting and capacity-building, and financial cooperation, which is done by the KfW. Hence, the KfW's 'bread and butter business', as one interviewee puts it, is the financing of hardware (interview with KfW officer 2), supported by appropriate training and consulting services, which is organized around the respective infrastructure.

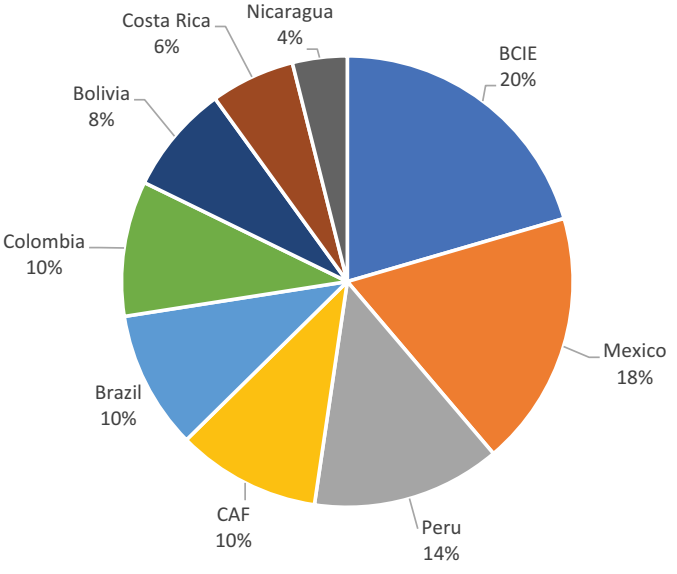

Figure 3. KfW projects in the water sector (volume), Latin America, 2013–21. Source: Author's own representation based on KfW Projektdatenbank (KfW, 2021b).

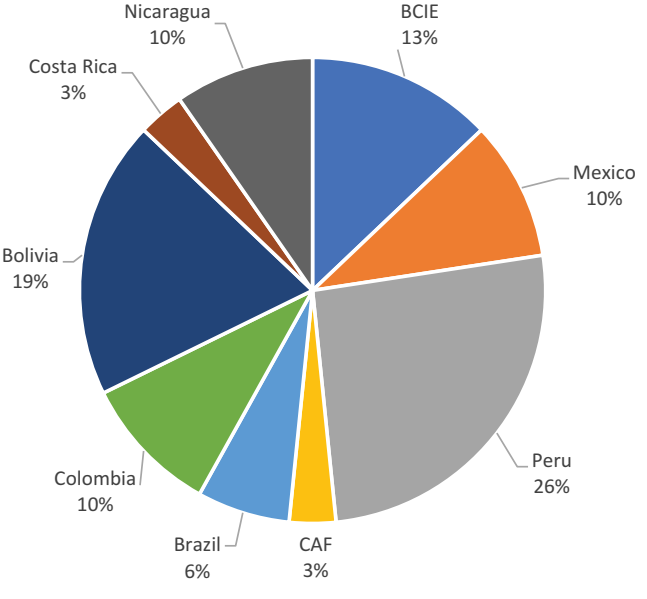

Figure 4. KfW projects in the water sector (number), Latin America, 2013–21. Source: Author's own representation based on KfW Projektdatenbank (KfW, 2021b).

In the water sector, this means larger investments into plants or networks such as water treatment plants, water supply networks, desalination plants (which are gaining importance, especially in the Middle East and North Africa (MENA) region and South

Africa) and rainwater management (which in the context of climate change is also considered an area with growth potential) (interview with KfW officer 2). In general, KfW staff emphasize that the funded infrastructure must make sense in the local context: 'There is no point in financing a high-tech plant when it overburdens the operator in the end, financially and technically. So we must find suitable solutions' (interview with KfW officer 4). In some cases, the KfW also supports projects with smaller volumes; however, this is rather exceptional:

> Sometimes it is only about exchanging a pump or inserting a more efficient pump. Or about connecting a smaller area of the city, where you don't need at once 20, 30 or 100 Million € but only 1, 3 or 5, so it is only small or medium volume. [. . .] But it is only a very small part of our investment. (interview with KfW officer 2)[3]

According to the interviewee, it is very rare for large international donors to be able to finance projects with small volumes because of the high transaction costs.

The KfW water sector involvement also includes the so-called policy-based lending (PBL). PBLs are provided in accordance with the adoption of public policies that are agreed between the KfW and the government of the receiving country before signing the loan contract. For instance, there have been two PBLs in Mexico, in 2014 and 2015, of €100 million each. These PBLs were provided as promotional loans based mainly on requiring the government to adopt a new water law for the regulation of the sector. The required law, however, did not materialize (see below). It is important to mention that the resources provided by PBLs do not have to be used in the water sector. According to a KfW official, PBLs are supposed to function as 'sort of incentive to the government to continue working in the sector' (interview with KfW officer 6). PBLs are also supported by consultancies to achieve the policy objectives, which are financed by the KfW.

As one KfW officer explains, projects often come about on the grounds of water operators approaching the KfW, and in many cases, because of prior positive experiences with the KfW, in particular regarding the technical advice that the bank provides on top of the funding (interview with KfW officer 4). Another officer mentions that there is generally the assumption that German engineers and consultants are extremely competent (interview with KfW officer 2). In some cases, governments also collect and prioritize project demands in the country and then present the portfolio to the KfW. For instance in Costa Rica, a major criterion for prioritizing the projects were the complaints of the population. The projects are then discussed with the Development Ministry, and only if it agrees can the KfW fund the project. The most important factor for the Development Ministry is that the proposed project meets the criteria of poverty relevance and sustainability. Here, according to another KfW officer, lies the major difference to private banks, which have profit maximization as their main criterion. According to the KfW officer, private banks would not be interested in financing the projects that the KfW finances as their priorities differ significantly: for the KfW, 'We do not want to finance where it is commercially attractive' (interview with KfW officer 1).

Usually, investments in WSS infrastructure require feasibility studies. As feasibility studies are very costly (in one example, the study cost €1.2 million for three locations in the country), only if it is already decided that a project will be financed, a feasibility study is implemented. If it is still questionable whether a project can be financed, there is a pre-study. In this case, it can also happen that the project is not financed; for instance, if there

is a deficient legal framework in the water sector, such as lacking regulation of water extraction, the KfW cannot finance the project. The feasibility study is financed either through the Development Ministry directly, or – if the financing involves promotional credits (funds that the KfW obtains through financial markets) – through the Latin American Investment Facility (LAIF), and also includes hydrological studies about future water availability. In general, many partners have been working together for many years, and often projects are also aligned with GIZ activities, that is, combining infrastructural and institutional measures such as sector reforms.

Types of financing

A large part of finance comes from the German state budget. The KfW provides two types of finance: grants and loans. Grants are non-repayable funds provided by the German Federal state or the EU, and can be used for technical assistance and consultancies, but in some cases also for project components required due to their 'developmental impact' or if the partner is 'very weak' (meaning if the partner country is very poor). Loans can follow three different modalities: (1) they are provided according to international Overseas Development Assistance (ODA) standards and financed 100% out of the federal budget, with very long maturities and very good conditions; (2) subsidized 'development' loans (*Entwicklungskredite*), where federal budget funds are blended with KfW funds, that is, funds that the KfW borrows on financial markets; and (3) promotional credits (*Förderkredite*), which are 100% KfW funds and where the KfW passes on its favourable funding conditions to the partner. The KfW is able to obtain funding very cheaply on financial markets, as the German federal state guarantees the repayment of 80% of the credits, while the KfW itself holds 20% of the default risk. In practice, however, defaults have not occurred in KfW history, as the partner state must guarantee the repayment, so that even if the partner utility or ministry is not able to pay back the loan the central government must (interview with KfW officer 2). It is common that partners contribute a certain share to the projects, depending on their capacity (10% is common).

Collaboration with other public development banks

Besides direct financing, the KfW also collaborates with other regional (CAF) or national development banks (FINDETER (Colombia), BNDS (Brazil) and BCIE (Central America) and with the EU (LAIF) to fund water and sanitation projects in Latin America.

Broadly, this collaboration can take on two forms, which our interview partner from the KfW explained for the case of the Latin American Development Bank (CAF). Next to the Inter-American Development Bank (IDB) and the World Bank, the CAF is a key actor in infrastructure financing in Latin America, and the most important partner among banks for the KfW. The KfW has collaborated with CAF in the water sector for 12 years, in the energy sector already for more than 20 years, while the water sector has gained importance (interview with KfW officer 7).

The first modality is that the KfW issues a credit to CAF, and CAF provides the credit to the respective country, in most cases the Finance Ministry, which passes on the credit to the final borrower. This means that if there is an intermediary bank, the KfW can also emit credits to private companies, as the intermediary takes over the credit risk.

The credit can be either 'development' (subsidized) loans or promotional credits. In the first case, the project must meet the political criteria of the Development Ministry (for instance, it must include climate change mitigating technology that reduce emissions in sewage treatment, if this is the political aim of the Development Ministry), and it will generally be similar to a project that is funded by the KfW directly. In the second case, when the KfW passes on funds from financial markets to CAF, the KfW itself decides whether it funds the project. Nevertheless, the project must meet the sector objectives and the general objectives of ODA. According to a KfW official, the advantage of collaborating with the CAF or other local development banks is that the KfW can increase its reach. On its own the KfW could not provide credits to many small or medium-sized municipalities or water utilities due to a lack of local knowledge and hence their poor creditworthiness. As KfW official 7 explains, local banks are embedded in the social context of the region, making risk assessment more easily accessible. Moreover, the KfW is required to provide credits to foreign institutions that come with a sovereign guarantee. Municipalities and water utilities often do not fulfil this condition. Hence, collaborating with regional or national public development banks 'provides value for money to IFIs [international financial institutions] in terms of what the outcomes they achieve relative to the size of loans they provide' (AFD, 2021, p. 10). On the other hand, for banks such as CAF, such cooperation is beneficial as they have cheaper access to capital.

The second modality involves cooperation with CAF on the basis of an EU mandate, the LAIF (interview with KfW officer 7). The LAIF is one of the EU's regional blending facilities, aiming to mobilize funding for development projects by combining EU grants with financial resources from European and regional financial institutions, governments and the private sector. Its purpose is to help Latin American countries finance projects in key sectors that are essential for the achievement of the SDGs, such as energy, environment, water, transport, social services, and to support small and medium-sized enterprises (SMEs) (LAIF, 2021). However, the LAIF does not finance the projects but aims to provide the basis for any financiers to invest in these projects by co-financing feasibility studies that facilitate investment. In this context, the KfW and CAF together apply for funding from LAIF to implement studies that include investigations about the technical, hydrological, environmental, social and political dimensions of the projects, and determines the amount of financing necessary to reach a specific objective.

Contracts

When moving forward to finance WSS abroad, the KfW loan contract is normally made with the government or the Ministry of Finance. If the loan is for infrastructure (and not general budget support in the form of a PBL), the government passes on the funds to the water utility. However, the conditions of the loan for the water utility can differ from the original loan contract between the KfW and the government. Most

importantly, the loan can be passed on as a grant. One KfW official emphasizes that the KfW has influence on this process, as the agreements must be appropriate in terms of development policy. That is, what the receiving government intends to do with the funds must align with the intentions of the German government and its representative institution, the KfW.

For instance, in the case of a sewage project in Nicaragua, the KfW lobbied the Nicaraguan Finance Ministry so that the government would pass on the loan as a grant to the local water utility. This was because sewage is even more difficult to refinance than water supply. The aim was that the utility 'only' needs to refinance operation and maintenance, but that the investment would be covered by a Nicaraguan government transfer. In other cases, the KfW collaborates directly with the water utility, but only if it is 'more potent', as is the case for instance in Brazil (interview with KfW officer 4). In this case, the water utility directly takes on the debt (which is, however, always guaranteed by the government). There is also the case that the government directly implements the investment, and transfers its operation to the utility when it is finished. However, this model is often problematic (interview with KfW officer 3).

In the case of PBLs, fixing the contract is somewhat trickier. As one KfW officer mentions, there are two options:

> At the end of the day, the PBLs really have two options. [Either] you advance with the federal government, which is going to be a borrower from the very beginning to be very involved in the additionality part and all that, but with the risk that it will probably fail, because something may or may not be exactly as you wanted and, in the end, you have invested a lot of time and money in those structural reforms that finally did not materialize. [. . .] Or, that at the end of the day, you jump on the bandwagon, that is, if you see that the country has advanced very very well already with a law and that law resonates with you and you find it well, you can try to go up from there and give a PBL, but the truth is that this means there is less additionality. So there you have to look for that trade-off. I can invest, invest, invest, and then realize that nothing came out [. . .] or in the end I practically jump on the bandwagon three, four, five months before and what has already materialized, we do it. That is very complex. (interview with KfW officer 5)

This quotation illustrates a basic dilemma in which donors and public development banks often find themselves, namely that between the need to disburse funds (particularly in SDG-related sectors), on the one hand, and the need to find 'legitimate' outlets for these funds.

Institutional 'deficits' or lack of trust that the partners are not able or willing to implement the projects in accordance with the regulations or requirements of the German government are also the reason why KfW projects are always accompanied by consultants, in particular an implementation consultant, who supervises and approves the construction, and ensures the sustainability and utilization of funds. The consultancies are also usually outsourced, in this case to international engineering firms that usually collaborate with local consultancies. In the past, the engineering firms were mostly German, but this has changed. In contrast to IPEX and DEG, there is no aid tying related to KfW Development Bank-financed projects, that is, financing by the KfW is not tied to contracting German firms and projects are tendered internationally. According to a KfW official, the consultancies are usually US or European large consultancy firms, as 'a lot of know how is required to do the job' (interview with KfW officer

4). The projects are usually implemented in PPPs through so-called built–operate–transfer (BOT) contracts. What kind of support is necessary is decided case by case on the basis of feasibility studies. Often, the projects involve training in the water utility, to ensure the professional operation and management of the infrastructure. Consultancy measures can also involve the education of end-users about health and hygiene. This type of technical assistance is usually funded through grants in order to guarantee the sustainability of the infrastructure. The KfW itself also has offices in many partner countries, and where the water sector is important, also specialized local staff who keep contact with the utilities, the government, the embassy, international partners or other donors.

The politics and pitfalls of implementing the 'modern infrastructural ideal' in the Latin American water sector

As shown, the main focus of the KfW's engagement in the water sector lies on the implementation of large infrastructure. This section shows that this approach is maintained although KfW staff are aware that it may not always be the most socially equitable and sustainable solution. The general difficulty for the KfW is to find projects that the bank can sustainably finance and at the same time, legitimize as 'poverty relevant' vis-à-vis the German Development Ministry. Moreover, the structural issues of WSS in Latin America are highly political and thus lie beyond what development agencies such as the KfW can address. The partial outsourcing of project components to private sector companies represents a 'solution' to these difficulties insofar as it ensures at least that the infrastructure is running, and thus provides legitimacy for the involved actors.

Challenges and constraints of large water infrastructure projects

Sustainability

One of the major issues in KfW projects is the financial sustainability of investments in infrastructure. The infrastructure is usually financed by the KfW based on the idea that water utilities should generate sufficient income to be able to finance operations and maintenance, and ideally even to finance necessary replacement investments after 20 or 30 years. However, in many cases, even the financing of regular maintenance, such as pump repairs or replacement of smaller parts, causes difficulties (interview with KfW officer 2).

According to a global survey, only 15% of water utilities were able to cover their operation and maintenance costs and create a basic surplus (Alaerts, 2019, p. 15). In Mexico, where sewage treatment plants were financed by the government in the past, the large majority of existing plants are not operating as the income is not even sufficient to pay their energy bill (interview with KfW officer 6). According to interviewed KfW officers, a major problem across the Global South is that water tariffs are not set high enough to cover the costs for operation and maintenance, let alone for new investments (interviews with KfW officers 2 and 6). However, a common problem is also that many users do not pay water fees, often because of deficient service, causing a vicious cycle of bad service and lacking funds to improve the service.

This reading of the problem of course leaves aside that within the development 'industry', acknowledging that the majority of the population is too poor to pay (and the complex reasons for this situation, amongst them colonial rule) and that social reproduction including housing is borne by the poor who are forced to self-construct on land without urban infrastructure would undermine the basis for the necessarily depoliticized, technocratic approaches to 'development' (Escobar, 1995; Ferguson, 1994; Harriss, 2001). In many countries, water utilities also do not work efficiently due to the political character of the state and its class basis, over which many development actors have no control and which are excluded from their official analysis (Ferguson, 1994, p. 178). To illustrate again with the case of Mexico, municipal administrations change every three years, and with the political changes, it is common in many parts of the country that staff of water utilities are changed over to fill the positions with their own clienteles. This also leads to water utilities often being over-staffed, and other common problems such as disappearing funds and water utilities being used as 'petty cash boxes' by politicians (interview with a former financial officer of a Mexican water utility; McDonald, 2016, p. 108). In general, because of this situation, it is difficult in the first place to find suitable projects (see below).

Particularly in sanitation, there is the problem of the 'last mile': even where sewage treatment plants and networks have been built, the households living in the service area are usually responsible for connecting to the networks. In many cases, connectivity is incomplete because many households cannot or do not want to afford connection. For Latin America, the IDB notes that the proportion of the urban population with access to sewage services increased from 62.4% in 2002 to 77.1% in 2017. However, while representative data are lacking, the IDB estimates that connectivity may be grossly overestimated as utilities usually report the number of households in the service area rather than households de facto connected to the network (Sturzenegger et al., 2020). The IDB analysed sanitation projects in Argentina, Ecuador, Paraguay and Mexico and found that '12 months after sewer networks were installed, 23% of households in these areas had connected, while 48 months later the connection rate was 33%' (Sturzenegger et al., 2020, p. 11). In the case of Nicaragua, the cost for connection to a KfW-financed sewage system was about US$150–200, that is, too expensive for many households (interview with KfW officer 4). A KfW official explains that neither the local government nor the KfW can enforce connection:

> [W]hat you often observe is that you finance a large plant that is also built, a sewage treatment plant or waterworks, maybe the network. But the crucial question is whether ultimately the connection also happens. This is a classic problem, not only for KfW, but also for other donors, that these connections are not made to the extent that was initially planned, but also to the extent that it would be necessary for the financed systems to increase income from tariffs, because more drinking water is obtained, more wastewater is discharged and corresponding tariffs are paid. And that is a sticking point because [...] KfW, but also a local government, cannot enforce connection. (interview with KfW officer 2)

In a rather self-critical way, the interviewee adds that it is not necessarily the priority of the KfW, nor of local authorities, to take care of connections after the infrastructure has been constructed:

> You have to be a little self-critical. KfW – but I believe this also applies to other development banks – is only willing to stop a project to a limited extent. Or the financing has already been concluded, and afterwards you have no way of enforcing it. This famous 'last mile' is a problem for many financiers in the water sector and for many utility companies. [. . .] To a certain extent, it is also a question of setting priorities, on all sides. Is [connecting the households] just as important for everyone involved as financing and realizing this large infrastructure? The decision-makers in the countries, including the management of a utility, are proud and happy when they implement this visible project. This nitty gritty around it falls down the back. And I believe that from a financier's point of view, there are also certain restrictions on taking care of it with due attention. (interview with KfW officer 2)

This illustrates that KfW staff are aware that large infrastructure cannot always be implemented in a sustainable way, but is still the preferred solution by donors and the governments of receiving countries because the visibility of large infrastructure contributes to political legitimacy on both sides. In general, KfW staff has criticized the Development Ministry's 'short-term orientation towards visible and quick success', which hampers the sustainability of projects (Christian, 2020, p. 12). Nevertheless, such criticism is not expressed at the level of the organization and its political principal, the German government, as it could question the very existence of the bank (Christian, 2020). However, as this quotation also illustrates, development policies and projects are not impartial, apolitical machines, but *do* have effects such as the legitimation of local governments and development agencies, even if it they do not always achieve their officially intended goals (Ferguson, 1994, p. 178; Mosse, 2004).

Lacking connectivity is especially rampant in sewage systems and is problematic in several ways. First and most obviously, the projects do not fulfil their objective of improving the environmental and health situation related to individual sanitation solutions such as septic systems, latrines and sumps, which are often deficient and not appropriate especially in densely populated areas. Second, insufficient flow of wastewater reduces the functionality of treatment plants, as they require certain flows to properly remove contaminants and prevent clogging through sediments (interview with KfW officer 4; Sturzenegger et al., 2020).

Third, beyond the failures to fulfil their objectives, the plants can have effects as regards the distribution of costs and benefits of the invested funds. If water utilities lack the income from tariffs due to lacking connectivity, this is especially problematic, not only because usually credits must be paid off,[4] but also because infrastructure projects financed by the KfW are usually implemented in PPPs through so-called BOT contracts. The participation of private firms in German development cooperation has been increasing since the 1990s, particularly in the water sector. Non-governmental organizations (NGOs) note that this is because there is a strong business interest of German firms in the water and wastewater sector of developing countries, while there is also little 'return on investment' (Fritz, 2006, pp. 33, 39). In BOT schemes, the government or water utility delegates the construction and operation of large infrastructure systems to a private company that constructs and operates the plant for a longer period, normally 10–30 years, and then transfers the system to the government entity.[5] However, the revenues of the company usually come from fixed or minimum payments from the government entity, rather than user fees. This means that the government or water utility must pay the company even if the income from fees is lower than expected. According to a KfW

interviewee, the KfW tries to convince water utilities to finance or subsidize connections for people in poor neighbourhoods (interview with KfW officer 4). In some cases in Africa, the KfW also provided grants to finance household subsidies for basic sanitation (interview with KfW officer 2). This can be problematic for public finance, if subsidies for connections are paid by public funds while private companies operate and charge for the infrastructure. According to an NGO report, in PPP projects of the KfW in the water sector, private investors only cover around 10% of all investment costs (Reckhard, 2006, cited in Fritz, 2006, p. 42). In general, even if the number of PPPs in WSS has been growing globally, less private money is spent based on these contracts, and capital spending is usually the responsibility of the public sector (McDonald et al., 2021, p. 119).

Another financial problem for water utilities can emerge when the local currency depreciates against the US dollar. This affects the profitability and financial sustainability of the plants, since technologies are usually imported, and construction becomes substantially more expensive with a depreciating exchange rate. Depending on the terms of the contracts, this can also be an issue concerning PPP schemes.

All these problems can be expected to have intensified with the Covid-19 pandemic. On the one hand, there is a stronger recognition of the importance of the water sector among all actors (McDonald et al., 2020). On the other, the financial situation of most countries in the Global South is even worse than before. To absorb the economic shock for households, some countries took measures such as waiving water fees for users. While this may have ensured access, it deteriorated the financial situation of water utilities, which was already critical before. Therefore, the Development Ministry compensated the loss of income for water utilities in some African countries. Interviewees clarified that this was an exceptional case due to the pandemic, not a change of policy (interview with KfW officer 1). However, as investments have been delayed or suspended because of the critical fiscal situation of partner governments, who normally contribute a certain percentage to the investments, the question arises whether the pandemic could possibly have more lasting impacts on the water policies of actors such as the German Development Ministry and KfW.

Public development banking

> We are a *development* bank, but we are also a development *bank* [. . .] so we always have the problem that we are caught between *development* and *bank*. (interview with KfW official 5)

Besides the fact that KfW staff know that the technocratic approach of large infrastructure construction can often only partly solve the problem, the interviewees also acknowledge that has been difficult to implement it based on a cost-recovery principle. The quotation by the KfW official illustrates a major difficulty for public development banks in the water sector: that is, to find projects they can sustainably finance, especially if they are to work without financial support from the Development Ministry.

In Mexico, the KfW has been forced to search for other options if they wanted to continue working in the water sector since 2015. One of the difficulties for KfW to work without financial support is that it is less competitive in comparison with other development banks such as IDB because it cannot offer loans in local currency and even loans in US dollars are more costly for the KfW due to the exchange rate loss. Moreover, according to a KfW official, banks such as IDB can offer cheaper credits also because of

lower personnel costs (interview with KfW officer 6). Ultimately, in Mexico the KfW found a new partner for the construction of sewage infrastructure in the North American Development Bank (NADB), which is financed by the US and Mexican governments. The NADB in this case served as an intermediary between the KfW and the private firms constructing the infrastructure.[6] However, in contrast to most national public development banks, the NADB does not come with a sovereign guarantee given its dual ownership. This situation was complicated to justify for KfW staff and it increased the price of the credit due to the higher risk. Therefore, the KfW still needed the Development Ministry to support the projects in several northern Mexican cities to offer a competitive credit, and the Development Ministry agreed. However, the mandate of the NADB only allows it to work within a radius of 300 km from the US border, which resulted in the problem that the projects did not have a focus on the poorer areas of the country, creating a legitimation problem for development cooperation:

> [the Development Ministry] did not like it, because it is a complex situation to justify. The north [. . .] is always much better economically, so, in that sense, it was very difficult to explain to [the Development Ministry] why we were supporting these municipalities, that are so strong that they could have done their own thing. (interview with KfW officer 6)

Ultimately, it is very difficult for the KfW to find 'bankable projects' in the water sector, and even more so projects that are also poverty oriented. In other words, KfW staff are aware that cost recovery – a key component of international water policy – is not functional for achieving SDG 6 in the Global South. As another KfW official explains, this was actually the reason for the EU to set up the investment facilities for the water sector:

> We don't get one project on the table where we can say, we can finance that. I have been working in the sector for 10 years now and I have already worked 10 years before in other countries, Philippines, South Africa, Brazil. There is no project where I could say 'let's go'. You always have to consider carefully, and usually you have to invest another six months, a year in consultants, queries, etc., and this initial situation also ultimately moved the EU to set up [the LAIF . . .] to improve or ensure the maturity of eligible projects. (interview with KfW officer 7)

However, as the interviewee further mentions, implementing the LAIF-funded feasibility studies has been a very lengthy process and so far none of them has been finished. Hence, it remains to be seen if and what kind of donors or private investors will increase their activities in the water sector based on the LAIF and if it will involve a further shifting of risk from private investors to public development banks. Overall, it becomes clear that it is very difficult to construct and operate large water and sewage infrastructure under the current conditions without (continuous) transfers from the government or donors.

Is good policy unimplementable (in the Latin American water sector)?

The previous section showed that the weak financial sustainability of WSS infrastructure is partly attributed by KfW interviewees to political institutional failures that hinder their successful implementation. In particular, this relates to pervasive issues such as lacking professionalization and frequent staff rotation in water utilities, too high electricity costs

to run the plants, and financing structures and limitations. In this context, the KfW has also been active in supporting structural sector reforms based on conditional lending, such as tariff adaptions and legal reforms. However, as a KfW official states, this has had limited success and has been generally difficult (interview with KfW officer 2). The instrument used here is PBL, which is an instrument that is very popular with development banks, as this KfW official explains:

> A PBL is a very easy instrument, if you more or less have everything under control, very easy to disburse, then as a bank it is quite good. In fact, many banks, including the IDB, love it even more than KfW, because they can disburse a lot of resources very easily. Above all, you can get on the boat of something with which you agree, and you almost grab and finance ex-post, right? (interview with KfW officer 5)

This quotation illustrates that the practices of development agencies are often driven by the organizational exigencies of donors and the recipient states, such as the securing of funding, organizational legitimacy and jobs, the enhancement of state control, and the need to maintain good relationships between governments, rather than by 'good policies' as such (Ferguson, 1994; Mosse, 2004). One of the problems with supporting sector reforms based on conditional lending is that the political–institutional issues in question are often located on state or municipal level rather than on national level:

> [with] a PBL the most important thing is that your triggers are in the hands of the federal government. If you start to define triggers that are state or municipal issues it can get very complicated, but the problem is that it is somehow unavoidable, because in the end the federal government has little responsibility in water [and sanitation]. [...] Who does the work in the end are states and municipalities, so it is really difficult to figure out where those triggers are, who is the borrower and who is the implementer. (interview with KfW officer 5)

This issue seems somewhat ironic, considering that the decentralization of WSS to state and municipal levels has been one of the cores of World Bank water policy since the 1980s in Mexico and globally (Soares, 2007; Wilder, 2010), and is now what makes political conditionality difficult to implement. In the case of Mexico, the KfW supported legal and policy reforms with two PBLs worth €100 million each in 2014 and 2015, which, however, were not even successful in leveraging federal level legal reform. One of the aims was to support a new water law, which was on the point of being passed when the loan contract was signed but was ultimately held up in congress and has not been passed as yet. Eventually, KfW staff attributes success or failure to the 'political will' of the governments:

> The issue of water is very poorly regulated. Many people do not pay, it is subsidized, there is a lot of corruption, many private companies also taking advantage of it, there is too much disorder, decentralized bodies that may regulate this and that, etc., which is what was intended [to be addressed] by the past PBL but unfortunately it was not achieved, it was not achieved, we did not achieve it. In the end, we depend on the government, that is, if the government does not have the political will, even if we want to accompany them with the best disposition, we cannot. (interview with KfW officer 5)

> If you take a look at what was different at the utilities where it did work, for example, ONEA [Office national de l'eau et de l'assainissement] in Burkina Faso or Kenya, National Water in Uganda, the water supplier in Phnom Penh. [...] Everything always begins with the

> management of the company. If the political level, whether at the municipal or state level, wants a change, wants a reform, and if there is also a reform-oriented and competent management in such companies, then one can – almost regardless of the other framework conditions, water scarcity, poverty or whatever – create a very successful company out of it. And that's encouraging on the one hand, but it's still the exception. (interview with KfW officer 2)

KfW officials are very open about the fact that they have little leverage to address the major structural problems in the water and sanitation sector. The consequence is that there has been an increasing 'resistance' from the German Development Ministry to further support projects in the water sector in Latin America:

> In Mexico, [the Development Ministry] no longer wants to work on the water issue, and in the rest of Latin America in general it does not want to work on that issue either, because they see few results. (interview with KfW officer 5)

> [the Development Ministry] is no longer willing to work in the water sector. They see us coming to them, very excited about projects, and they say, hey be realistic, I mean, it's the same thing you presented to me before and it didn't work. (interview with KfW officer 6)

The Development Ministry had already withdrawn financing for water projects after the failure of the PBL, which was supposed to continue in a third loan:

> After what happened in 2015, they began to have doubts, they have never prohibited us to work in the sector, but we no longer have the concessional credits in which [the Development Ministry] puts a contribution. So they told us, if you want to work in the sector, you can work with your own resources. And really, for KfW to work in such a complex sector, where you need so many people involved in these programs, with our own resources it does not pay off. (interview with KfW officer 6)

Here it becomes clear that the KfW's role is to implement the political intentions of the German government, which only provides resources as long as a certain narrative of 'good policy' can be maintained. However, as in other sectors, 'good policy' in the water sector is often unimplementable because of its highly political nature, and what is important is thus the representation of events in such a way that policy itself is not questioned (Mosse, 2004). Hence, as noted by Grindle and Thomas (1991), if development policies fail, 'lack of political will becomes a catch-all culprit, even though the term has little analytic content and its very vagueness expresses the lack of knowledge of specific detail' (p. 123). In this context, it could be added that 'lack of political will' becomes a discursive instrument for protecting the image and legitimacy of donors' 'good policy' and blaming the partner states per se, without having to acknowledge the political nature of the state and calling into question existing policies.

Outsourcing to private water companies as solution?

One outcome of the difficult structural conditions under which the KfW works in the water sector is the outsourcing of parts of the projects to private firms. While privatization has also been part of the neoliberalization of development policy since the 1990s, the inclusion of private companies through PPP/BOT schemes also provides legitimacy to all involved actors since it ensures that the infrastructure is maintained and keeps running, at least for the contract period:

> What is important to us that the service is correct, that people receive the water quality that they have to receive and that the water gets the treatment that it should have. Whether it is public or private, does not matter to us. (interview with KfW officer 6)

For instance, in Nicaragua, a sewage plant built with KfW funds is run by the British company Biwater based on a PPP/BOT contract. According to a KfW officer, this made sense as there had not been any large sewage treatment plant before in the country and the water utility had no experience in operating such a plant. However, while the idea was to transfer the knowledge to the water utility step by step and transfer the plant to the water utility after one year of operation, the latter decided to extend the contract with Biwater, and according to the KfW officer, the plant has now been running for 10 years 'with great success' (interview with KfW officer 4). Accordingly, the model has been so successful that the utility even decided to expand it to other treatment plants in the country, while these were not necessarily donor financed. The KfW officer explains that:

> In Nicaragua, [the private operation of sewage treatment plants] is a success story, because the utility recognized that they have weaknesses and if they privatize it, they have one problem less to deal with. And in the end it is more efficient economically, because everything works well, and maintenance is done on time. Because this has often been a problem: that maintenance is not done on time and the necessary investments ended up being more expensive than the privatized model. (interview with KfW officer 4).

The downsides and side-effects of the privatization of water services are well known (e.g., Bakker, 2010; Loftus & McDonald, 2001; Swyngedouw, 2005). Particularly problematic are the huge costs for taxpayers, especially in the countries of the Global South, where the European technologies and services are imported, as not only construction and operation, but also the corporatization measures before privatization are often financed with public debt. Moreover, for the companies to obtain profit, water prices end up being much higher and service oriented towards the wealthier urban areas. However, after all, in postcolonial contexts, where public accountability is often lacking and clientelism and corruption in water utilities rampant, outsourcing not only construction but also operation to the private sector has so far been a feasible solution for a development bank such as the KfW to continue working in the sector.

Conclusions

Public banks have been seen as key potential agents for progressive social change in general (Marois, 2021, 2022) and as a source of SDG 6-related finance in particular (McDonald et al., 2021). The reasons include that they manage enormous amounts of assets and are generally not motivated towards profit maximization. Moreover, banks such as the KfW can access funds at extremely favourable conditions on financial markets and with a decade-long experience, also have substantial expertise in the water sector. Nevertheless, as noted by Marois (2021), public banks always function in concrete socio-economic contexts, and as noted in the introduction to this special issue, little is known about how public development banks actually work in the water sector.

Therefore, the aim of this paper was to analyse the broader political economic context under which the KfW operates in the water sector of the Global South, with a specific focus on Latin America. This context is one where urban settlements are growing, while

ubiquitous WSS systems are lacking or deficient, hence, where there is a great need to expand access to safe water and sanitation. It also is one where public banks such as the KfW have the mandate to address this problem and contribute to achieving SDG 6 to ensure availability and sustainable management of water and sanitation for all by 2030. At the same time, banks such as the KfW underlie their own financial pressures and organizational pressures for legitimation to comply with 'good' international water policies. What can and do public development banks such as the KfW do to achieve SDG 6? Based on the present study, we can draw three main conclusions.

First, as other public development banks, when it comes to the water sector, the KfW predominantly finances large WSS infrastructure. This stark concentration of funding on large infrastructure may seem questionable at first considering the nature of the problem at hand, in particular in water supply but also in sanitation. In fact, the standard pattern of urban service provision in the Global South has always been characterized by a diversity of water suppliers and forms of supply, within urban settlements but also in the same households (Coutard, 2008, p. 1818). It has therefore been questioned whether the 'modern infrastructural ideal' is suitable for the cities of the Global South, especially because the specific patterns of rapid urbanization through self-construction require pragmatic pro-poor technological solutions of service delivery (Jaglin, 2008; Criqui, 2020). But even within the framework of the 'modern infrastructural ideal', there is an urgent need to address the decay of existing WSS networks with their extremely high water losses, deficient quantity and quality of water supply and lacking connectivity to sewage networks. Nevertheless, since transaction costs are high and there is a need to disburse large amounts of resources, it has been difficult for a big player such as the KfW to address these fundamental, but very complex and small-scale issues. This is especially true since the KfW is an implementing agency of the German Development Ministry, and cannot set its own agenda or reject orders from the ministry, even if KfW staff is often very critical of their own projects (Christian, 2020). There is therefore a need for powerful Northern development banks to find better and more effective ways of appropriately connecting to and financing WSS infrastructure at the scale and conditions appropriate to the communities in need. For instance, this may involve fostering new relationships with subnational public development banks, financial cooperatives and local civil society groups.

This points to the second conclusion, which relates to the financial sustainability of the KfW financed infrastructure. The case of the KfW in Latin America indicates that it is practically almost impossible to construct and operate WSS infrastructure without continuous government or donor transfers. In fact, other studies have shown that only a minor share of water utilities globally is able to cover the basic operation and maintenance costs for their infrastructure with revenues from fees (Alaerts, 2019, p. 15; Libey et al., 2020, p. 2). It is worth mentioning that this is also the case in high-income countries, where the level of subsidies is high (Libey et al., 2020, p. 11). Decentralization and commercialization policies enforced by international creditors onto the Global South since the 1980s have therefore often led to the bankruptcy and over-indebtedness of water utilities, resulting in the deterioration of existing infrastructure. There is thus reason to fear that the large infrastructure funded by public development banks today cannot be maintained in the future by scarce public tax bases of countries in the Global South, let alone based on income from user fees.

It becomes clear that the discourse of an existing funding gap in WSS – the disjuncture between the resources currently spent for water and sanitation and the resources needed to achieve SDG 6 – falls short. The case of the KfW shows that the available resources are not as much the problem as to find projects a bank – even if it can access cheap money on financial markets such as the KfW – can finance. In other words, it must be questioned to what extent repayable loans from development banks based on cost-recovery policies are the right approach to contribute to solving the WSS problem in the Global South. Ultimately, in the case of the KfW funding WSS in Latin America, there is a (perhaps insurmountable) barrier between funding WSS infrastructure that is financially sustainable and infrastructure that is socially equitable and sustainable. That is, it is extremely difficult for bankable, cost-recovery models to deliver the WSS systems needed in Latin America, despite the expertise provided and public resources deployed through the KfW. This finding is in line with a quantitative study on the life cycle costs of water utilities in low-, middle- and high-income countries conducted by Libey et al., who found that water utilities cannot improve service levels and expand coverage based on cost-recovery models (Libey et al., 2020, p. 11). It is likely that this funding gap cannot be filled by the public budgets of the Global South, which have further been strangled through the Covid-19 pandemic. There is thus an urgent need for policymakers, the KfW and recipient governments to rethink WSS development finance and to acknowledge that long-term subsidies for WSS services are necessary to achieve SDG 6.

Third, it has also become clear that achieving SDG 6 will not be achieved through increased funds alone, but requires addressing the underlying, inherently political conditions of WSS governance on the ground, which most fundamentally relate to issues of enormous inequality in access to resources and decision-making, globally and locally. Latin American water utilities frequently operate under conditions of unclear legal frameworks, lacking accountability, and low staff continuity, and where they form part of clientelist political relations on the local level, which inhibit efficient operation. New water infrastructure is thus constructed and supposed to operate and be maintained under complex social relations, which public development banks such as the KfW cannot influence. Structural water sector reforms are very difficult to implement for an external actor such as the KfW, if the involved actors on the ground are not able or willing to support political–institutional change. One outcome of this situation has been the partly privatization of funded WSS infrastructure, as this ensures at least that the infrastructure is running. This is problematic as privatization involves high costs for taxpayers. Hence, while Western donors have lifted full cost recovery for water utilities in the South to the highest principle of international water policy, private water firms (mostly from the Global North) do benefit from public subsidies for building and operating water infrastructure in the Global South. It must be called into question if the same public funds cannot rather be used to subsidize the costs for the operation, maintenance and new capital investments of public water utilities, and discussed how these funds can be spent in a socially equitable and sustainable way.

Finally, it should be mentioned that even if loans from development banks such as the KfW are much cheaper than credits that low-income countries could access on financial markets, they still add to the external, US dollar- or euro-denominated debt of the countries. This is especially problematic if the resources are not used efficiently in terms of broad-based human development, but must also be called into question

on a more fundamental level. The debt of 'developing and emerging economies' is currently at a record high and peripheral currencies have continuously lost value over the last decades – even more with the Covid-19 pandemic (Reis, 2020), with detrimental effects on national budgets and causing harsh austerity measures. This further challenges the meaningfulness of North–South loans as adequate and promising instrument to address the global water crisis that millions in the cities of the Global South are facing every day and raises two important questions: How can the need to finance WSS services be brought closer in line with the abundant resources of public development banks? To which extent can public banks of countries of the Global South operate independently of global financial markets and international development banks, and how could they contribute to achieving SDG 6? These questions cannot be considered independently of one another and should form the basis for future research on public banks and water.

Notes

1. Safely managed = drinking water from sources located on premises, free from contamination and available when needed, and using hygienic toilets from which wastes are treated and disposed of safely (WHO, 2019).
2. For better readability, the abbreviation KfW is used hereafter to refer to the KfW Development Bank.
3. Interviews were conducted in German or Spanish and translated into English by the author.
4. Even if KfW credits are passed on from the government to the water utility as grants, the credit remains external state debt.
5. Which, in fact, has not happened so far in the cases analysed in this study (Nicaragua and Mexico).
6. As mentioned above, although the infrastructure was supposed to be handed over to the municipality after the contract period ends, this has not happened so far in the analysed cases. Hence, while the infrastructure was supposed to be public, it is in fact a complex public–private fabric.

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