

Factors Influencing the Adoption of Municipal Public-Private Partnerships in Water-Infrastructure Projects in South Africa

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The Constitution of the Republic of South Africa considers access to water a basic right for all citizens, and it assigns the responsibility of water provision to municipalities. Nevertheless, water access is not yet available to all citizens, for several reasons. South Africa is the thirtieth-driest country worldwide and has severe water-infrastructure backlogs from insufficient funding and investment. Public-private partnerships (PPPs) may be utilized to bridge the funding gap; however, they are rarely used as a financing option, so this study assesses factors influencing their adoption for water-infrastructure projects. The findings show that a cumbersome regulatory environment, political influence, PPPs' complexity, and the lack of knowledge and skills influence adoption of them by municipalities.

Introduction

Water is essential to sustain life, and access to and competition for it pose a potentially serious threat at a global level (World Economic Forum 2015, 8). Addressing access to water is crucial for sustainable human and economic development. In South Africa, the National Department of Water and Sanitation (DWS) holds the overall authority and responsibility for managing the country's water resources. South Africa's water sector is governed by the Water Services Act, 108 of 1997 (Republic of South Africa 1997) and the National Water Act, 36 of 1998 (Republic of South Africa 1998). Section 3(1) of the former asserts citizens' rights to receive basic water and sanitation with a reliable supply and of an acceptable quality.

South Africa is the thirtieth-driest country worldwide and receives insufficient rainfall to sustain sufficient water resources to meet its citizens' water needs (GreenCape 2017, 14; National Treasury 2011, 124). Around 66 percent of South Africa faces semiarid conditions, receiving rainfall well below the annual global average (Maphela and Cloete 2020, 536). As the population grows and infrastructure ages, the Water Research Commission (2018, 8) estimates a water-supply deficit of 1 billion cubic meters by 2035, unless changes to the current water-demand patterns occur.

In South Africa, municipalities are the authorities tasked with delivering water to the consumers or residents in their area of jurisdiction. Section 156 and Schedule 4 Part B of the Constitution of the Republic of South Africa Act, 108 of 1996, set out the roles of local governments, including the role of water provision. South Africa has 257 municipalities, of which only 144 are designated as water-service authorities: the municipalities are categorized as metropolitan (Category A), local (Category B), and district (Category C); all the metropolitan municipalities are authorized to provide water services (SALGA 2020, 11). Water-service authorities apply one of several models in providing water:

- They can appoint other municipalities to provide water.
- They can establish their own wholly owned retail water utility.
- They may contract a municipally owned entity to provide water services in another municipality.
- They can contract a water board to assist with water provision for a fee.

- They can contract a concessionaire, lease agreement, or management contract with a private sector entity.
- They may use community-based organizations to provide water services. (World Bank 2011, 98)

Water-services authorities face several challenges in the delivery of their mandate. At least a third of those that are designated water-service authorities are dysfunctional, and more than half have only limited qualified technical staff to undertake their water-service function effectively (Department of Water and Sanitation 2018a, 21). Some of the challenges faced by them can be classified in three categories: limited investment in infrastructure, resulting in rapidly ageing infrastructure; governance failures and institutional capacity constraints; and municipal finances constrained by poor tariff setting and billing (National Business Initiative 2019, 8; Petterson 2019, 12).

Extent of Water-Infrastructure Backlogs and Funding Gaps

South Africa is facing severe backlogs in water infrastructure due to insufficient investment and lack of maintenance (Department of Water and Sanitation 2018b, 2). Quantifying the exact level of the water backlog and the investment required to address the backlog has been a difficult task for government, given an increase in the rate of urbanization and the emergence of informal settlements. It was estimated in 2018 that over the next ten years, the national and local governments would need to spend approximately ZAR 840 billion for adding new infrastructure, maintaining existing infrastructure, and upgrading old infrastructure (Department of Water and Sanitation 2018a, 47). The funding gap was estimated to be ZAR 333 billion over the ten-year period (Department of Water and Sanitation 2018a, 48; Slater 2017, 1). Estimates suggest that between ZAR 28 billion to ZAR 30 billion will be required per annum to close the funding gap at the municipal level (Department of Water and Sanitation 2017, 64; Palmer et al., n.d.). In a media statement (2019), the City of Johannesburg Metropolitan Municipality estimated that it had a water-infrastructure renewal backlog of ZAR 5.8 billion and would require ZAR 12.65 billion in the next ten years to replace critical assets requiring refurbishment or replacement. Similarly, the City of Ekurhuleni Metropolitan Municipality (2018, 42) estimated that it required ZAR 10 billion to eradicate water backlogs, renew assets, and cater for growth over a thirty-year horizon.

Urbanization is a global phenomenon and has been speeding up over time (United Nations Conference on Trade and Development 2020, 63); for instance, in 2010, 51 percent of the world's population lived in urban areas, and this ratio had increased to 55.7 percent by 2019. Basic services in South Africa are under pressure from increasing urbanization, and limited infrastructure investment has exacerbated the backlog (Financial and Fiscal Commission 2017, 2). The rate of urbanization in South Africa is not uniform across the nine provinces or the major cities: the share of urban households for the total population per province is increasing faster in the Gauteng, Western Cape, and North West provinces (Statistics South Africa 2020, 17). Gauteng has experienced the highest increase, a rise of about 1 percent in the proportion of urban households between 2016 and 2020. (This statistic is the reason that this study focuses on Gauteng municipalities.) Gauteng is the economic hub of South Africa, accounting for more than 34.8 percent of the national gross domestic product (*Local Government Handbook* 2019, 87). Addressing the water-infrastructure backlog will therefore affect its economy positively.

The sources of infrastructure financing available for cities around the world include their own revenue from levies and taxes, land disposals, debt financing, and blended finance through

leveraging public, private, and donor funding (Shand and Colenbrander 2018, 178; United Cities and Local Governments 2010, 16). Public-private partnerships, collaboration between public sector and nongovernmental organizations, and public-community partnerships are additional alternatives used to finance service delivery in cities (United Cities and Local Governments 2013, 16); however, cities that intend to invest in informal settlements may lack financing options because of the risks perceived by private investors. There is an inherent assumption that residents of informal settlements have problems paying for services (Shand and Colenbrander 2018, 181). Accordingly, collective savings and coproduction of services within informal settlements may be a viable option to deliver basic services at a small scale. For example, residents of informal settlements in Thailand utilize savings groups to negotiate with the local municipality and other stakeholders to get access to land for urban development (Shand and Colenbrander 2018, 182).

Coproduction of municipal services is another option utilized in less developed countries, especially for service delivery in informal settlements. Coproduction refers to strategies initiated by the communities or community-based organizations in partnership with government agencies or nongovernmental entities to deliver public services (Castán Broto and Neves Alves 2018, 367; Shand 2018, 519). The use of coproduction strategies has been on the rise in the Global South (Moretto et al. 2018, 425–27). In Quillacollo, Bolivia, a portion of the water services was transferred to local small-scale operators to manage and maintain technical networks in local jurisdictions. Similarly, in Dar es Salaam, Tanzania, alternative water provision using a decentralized system involving community-based entities is in place to supplement government efforts. Community-based organizations utilize low-cost methods, such as getting water from hand-pumped wells, which are usually financed by donors and to a lesser extent by municipalities (Moretto et al. 2018, 432). Partnership with local communities is highlighted in Orangi Town in Karachi, Pakistan, where communities participated in the finance and construction of infrastructure for their benefit. The so-called Orangi model was founded by Akhtar Hameed Khan, who placed value in local partnerships involving politicians, activists, community leaders, and local councillors. He argues that the cost of providing services can be made affordable if citizens make minimal monetary contributions and manage the infrastructure. Given the successful participation of local communities, the project was scaled up to various areas in Pakistan (Hasan 2020, 1); however, in major cities of the Global South, including those in South Africa, coproduction of water services with the community is not undertaken at a significant scale. Coproduction leads citizens to migrate from being direct beneficiaries of services to coproducers, and this often leads to inefficient control mechanisms, limited technical capacity, low-quality technology solutions, low investment, and heightened coordination problems (Castán Broto and Neves Alves 2018, 373; Moretto et al. 2018, 436). Coproduction of services leads to "disintegration of universal network infrastructures and to an increased urban fragmentation, defined as a double movement of de-spatialization and de-solidarization of urban areas" (Moretto et al. 2018, 438). It is susceptible to "elite capture," as some stakeholders/actors have limited influence in the coproduction process (Castán Broto and Neves Alves 2018, 373; Shand 2018, 520).

In South Africa, to tackle the infrastructure backlog and invest in new infrastructure, the main options available to municipalities include transfers or grants from the national government, long-term borrowing from financial institutions (including issuing bonds), their own revenue sources (increasing service tariffs), outsourced water provision, and entering into public-private partnerships (PPPs) (Financial and Fiscal Commission 2019, 206).

The mobilization of additional financial resources for infrastructure from the national government is constrained by low levels of economic growth, undercollection of taxes, the rising budget deficit, and increasing debt (National Treasury 2019, 74; Presidency 2020, 2). The COVID-19 pandemic has deepened the economic challenges and further limits the ability of the government to continue its planned infrastructure investment (National Treasury 2021, 156). Municipalities are also facing shrinking revenue collection levels due to poor economic performance, which has a negative impact on their ability to fund new infrastructure and maintain existing infrastructure adequately.

Given the mismatch between the funding available from the national government and municipalities' own revenue sources, alternative sources of finance are required to address water needs. In South Africa, PPPs are the least explored alternative, and in this article, we discuss our findings on why municipalities do not use PPPs as an alternative source of funding for water-infrastructure investment.

Several studies have been done internationally that highlight general problems with PPPs, including the complexity of the procurement process, contracting, the negotiation process, and project implementation (Boyer and Newcomer 2015, 130). The procurement process for larger PPP projects tends to be longer and complex (Iossa and Saussier 2018, 28). Hence, this complexity tends to attract only a small pool of private-sector players to participate in the PPPs (Chowdhury and Chowdhury 2018, 55). According to transaction-cost theorists, PPPs induce additional costs due to their complexity, the often-prolonged tender phase, complex financing structures, and limited government contracting skills (Dudkin and Vällilä 2006, 309; Reeves et al. 2017, 1073).

There are also questions about the value-for-money proposition of PPPs, given the perception that PPPs minimize up-front government expenditure and thereby save taxpayers money. However, some scholars argue that this perception may be an illusion, as taxation is simply postponed or transferred to future generations (Klitgaard 2012, 41). PPPs significantly alter the social and political functioning of governments' ways of operating and interacting with citizens (Opara and Rouse 2019, 80). In a PPP arrangement, the responsibility for providing public services rests with the private sector, and transparency is therefore often compromised (Skelcher 2010, 292). PPPs involve public procurement, and, in instances where supply-chain-management procedures are not followed, corruption, graft, cronyism, and collusion tend to manifest in the procurement process (Chowdhury and Chowdhury 2018, 54; Farlam 2005, 33; Hall 2015, 27; Pusok 2016, 681). It is true that the private sector may bring about efficient services, but higher prices and strict credit control may spark a political storm that could lead the government to put pressure on the private partner, which may in turn reduce the attractiveness of PPPs to investors (Farlam 2005, 36). PPPs in the water sector in France raised water prices by around 16.6 percent (Hall 2015, 31).

Public-sector employees are concerned with PPPs if the service-delivery mechanism changes from being exclusively delivered by the government to delivery by the private sector, as this alters the underlying culture and ideology of both sets of organizations (Bishop and Waring 2016, 472). Labor unions representing private sector employees are generally supportive of PPPs, due to the expansion of employment opportunities for union members, but the opposite applies for public sector unions (Siemietycki 2015, 173). PPPs materially minimize the negotiating power of public-sector unions, given the probable increase of employees from the private sector (Boardman, Siemietycki, and Vining 2016, 20).

Only a limited number of studies have been done on South Africa and water-infrastructure PPPs at the local-government level, as most of the studies done focused on PPP success factors at a provincial or national government level (Fourie 2006, 925; 2015, 107; Fourie and Schoeman 2005, 30; Maseko 2014, 129; Rubin 2007, 3). Other studies have evaluated the benefits of water PPPs at the local-government level (Bender and Gibson 2010, 45; Chetty and Luiz 2014, 572–75; Marin 2009, 21–25; Martin and Sohail 2005, 5–6). None of the studies in South Africa explored the impeding factors for PPP adoption for water-infrastructure projects in municipalities, but internationally, PPPs at the local-government level are now attracting interest from researchers (Bel, Brown, and Marques 2013, 436; Hodge and Greve 2010, 13). An exception is a study by O. Kennedy Okwaro, Joel Chepkwony, and Rose Boit (2017, 41). The current study therefore seeks to contribute to the development of PPP knowledge at the local-government level in developing countries by focusing on South Africa.

Experiences of Water PPPs in South Africa

A formal PPP framework for local government came into effect in 2000 and 2003, with the promulgation of the Local Government: Municipal Systems Act, 32 of 2000 (Republic of South Africa 2000) and the Local Government: Municipal Finance Management Act, 53 of 2003 (Republic of South Africa 2003). This was followed by the Municipal PPP Regulations issued in 2005 to guide the process (National Treasury 2005). Although PPPs in local government existed before this date, there was no standardized process or formal recognition that these arrangements were classified as PPPs (Walwyn and Nkolele 2018, 4). For example, the Queenstown Local Municipality (now the Lukhanji Local Municipality) was a pioneer in municipal water PPPs in South Africa in 1992, followed by the Stutterheim Local Municipality (now the Amahlati Local Municipality) in 1993, and then the Fort Beaufort Local Municipality (now the Raymond Mhlaba Local Municipality) in 1995. Two concession contracts were signed in 1999 for the Nelspruit Local Municipality (now the City of Mbombela Municipality) and Dolphin Coast (now KwaDukuza) (Marin 2009, 5). Since the promulgation of municipal PPP guidelines, no concession agreements in the water sector have materialized, and the study seeks to understand the impediments to such agreements under the new dispensation.

Theoretical Framework

Research in the social sciences involves understanding complex social behavior, group dynamics, and unique human settings. Therefore, researchers require a framework for study (Van der Walldt 2020, 1). Since the focus of the current study falls within the social sciences, public-choice theory was chosen for its main theoretical framework. Public-choice theory has influenced the new public management reforms (Łukomska-Szarek and Włóka 2013, 282). It asserts that economic incentives guide human action, which arises from self-interest. It assumes that "any policy decision made by elected officials is underpinned by the expected reciprocal action by the voters" (Mizrahi 2004, 277). It is thus anchored in the assumption that "the main interest (and, on occasion, the only interest) of politicians is to maximize their chances of being re-elected" (Lomasky 2012, 327; Mizrahi 2004, 277; Owusu-Ansah et al. 2018, 941). In such a scenario, politicians may use PPPs to "garner political credit by delivering project benefits instantly, while transferring many of the government costs to the future" (Piano 2019, 306). Similarly, bureaucrats are likely to be influenced by the desire to maximize their own benefits, which include remuneration, public reputation, and patronage by the appointing authority, and bureaucrats may be unwilling to involve a private partner in infrastructure delivery because of a perceived loss of power or influence (Erkoc 2013, 9; Piano 2019, 306).

Politicians play an important role in PPP solutions in various ways (Gawel 2011, 4): they have policymaking powers, which dictate the institutional framework for private sector participation; the political system or ideology may drive PPP solutions; and the political system is relevant, in that it may or may not permit PPPs. In South Africa, elected officials in local governments are responsible for policy direction, lawmaking (in the form of bylaws), and oversight, as prescribed in Section 160 of the Constitution. Municipal councils are responsible for several functions; one that is relevant to this study is approval of the capital budget for infrastructure development and approval of service-delivery plans. Municipal officials—the bureaucracy—focus on planning, administrative functions, and policy implementation, given their qualifications and requisite skills (Masiya, Davids, and Mazenda 2019, 29).

Research Methodology

This study assesses factors that may influence the adoption of PPPs for water infrastructure in selected Gauteng municipalities and proposes a regulatory framework for municipal water-infrastructure PPP projects. It uses a qualitative case-study research methodology because one of the strengths of qualitative case studies is that such studies capture multiple dimensions in real-life settings and offer insights that are often difficult to attain with numeric data collected from multiple sources (Creswell 2013, 97; Hyett, Kenny, and Dickson-Swift 2014, 1–2; Yazan 2015, 142; Yin 2013, 321). Convenience or purposive sampling was suitable for this study, which focused on four Gauteng municipalities: the City of Johannesburg Metropolitan Municipality, the City of Tshwane Metropolitan Municipality, the City of Ekurhuleni Metropolitan Municipality, and the Midvaal Local Municipality.

Interviews were conducted with key officials in the selected municipalities, who were selected via nonprobability sampling. To improve the robustness of the results, triangulation was used, because responses were sought from the private sector and government officials—provincial and national—who play a role in the municipal water-infrastructure financing and policy space. The interviews were conducted primarily through online platforms, the interviews being recorded with the participants' permission, and document analysis was used as a research method to complement the interviewees' responses.

A sample of thirty-one participants, all middle to senior management officials, was selected. Thirteen came from the four municipalities and included representatives from national and provincial government departments: the National Treasury, the DWS, the Department of Cooperative Governance and Traditional Affairs, and the Gauteng Provincial Treasury. The remaining seventeen were independent PPP experts and participants from financial institutions. All were selected because of their expertise and the roles they were playing in their organizations. Variation in their responses allowed us to triangulate the responses and improve data robustness (Flick 2017, 53; Natow 2020, 161). In this regard, research ethics, informed consent, and the ethics-committee review process are imperative in undertaking research (Flick 2015, 604). Accordingly, participants are not identified here by name or institution, or position held, to maintain their anonymity in the report on the findings.

The data collected from the interviews were analyzed by theme. Participants' responses were analyzed by checking patterns in the data, grouped into common topics or themes. For instance, one participant confirmed that politics plays a role in the adoption of PPPs, while another highlighted that politicians stall PPP projects if they are not benefitting directly. These factors were grouped together under a common theme, called political will and influence. Thematic analysis is "a method for identifying, analyzing, and interpreting patterns of meaning within

qualitative data"; it is "unbounded by theoretical commitments" and provides simple and logical methods for patterns of meaning (Clarke and Braun 2017, 297).

Findings

The themes identified from the interviews with participants on the factors affecting adoption of water-infrastructure PPPs are presented below.

Cumbersome Regulatory Environment

A sound regulatory framework, including procurement laws or specific PPP laws, facilitates private-sector participation (World Bank 2015, 11). Approximately 85 percent of the participants from municipalities (eleven out of thirteen) described the PPP regulatory environment in South Africa as highly restrictive, consequently limiting its ability to generate sufficient appetite for municipal water PPP projects. These participants perceived the PPP regulations as cumbersome, rigid, and unresponsive to the changing environment. For instance, participants noted that no formal review process for PPPs has occurred in more than fifteen years. The inflexibility of the PPP regulations discourages municipalities from exploring PPPs, even where PPPs may be a viable option to fund specific water-infrastructure projects.

Some participants from the private sector (the funding side) offered a different perspective. They blamed the slowness of PPP adoption on the length of time taken by the National Treasury in granting approvals. Three out of four potential funders argued that with the right experience, the municipal PPP process is easy to follow. These participants believed that PPP regulations are a mechanism for municipalities to justify their business case—the same process followed in the private sector when an organization or entrepreneur presents a business case to an investment committee. The interviewees from the funding institutions expressed a distinct conflation of the regulations themselves and the process emanating from the regulations, such as supply-chain-management processes and Treasury's Views and Recommendations (TVR) processes at the National Treasury, which delays the PPP process.

The Treasury's Views and Recommendations (TVR) Process

The National Treasury plays a role in establishing PPPs, as stipulated in the Local Government: Municipal Finance Management Act, 53 of 2003 (Republic of South Africa 2003). The National Treasury issues four TVRs for each application during the PPP cycle:

- TVR I deals with the feasibility study. A municipality produces a feasibility study and submits the study to the PPP regulator, the National Treasury's Budget Office. In developing this study, a municipality as an organ of state may approach the Government Technical Advisory Centre (GTAC) for advice, technical assistance, and guidance on the process. GTAC is wholly owned by the government and reports to the Minister of Finance (BRICS South Africa 2018, 13). Once a feasibility study is submitted, a committee is set up to consider the application. This committee includes other divisions in the National Treasury, such as Intergovernmental Relations, Asset and Liability Management, Public Finance, and the GTAC. Various divisions in the National Treasury prepare separate comments and submit them to the PPP regulator for consideration. This regulator then independently considers the submissions and issues the TVRs on behalf of the National Treasury.
- TVR IIA involves the ratification of the bid documents and draft PPP agreement.

- TVR IIB gives the go-ahead for the municipality to negotiate with the preferred bidder and finalize the PPP contract management.
- TVR III authorizes the final PPP agreement to be considered and approved by the municipal council and subsequently signed by the accounting officer.

The TVR process is thus repeated four times before a final go-ahead is given. The National Treasury ratifies each stage of the process, but it follows no legislated timeframes for assessing applications. Hence, there are no deadlines to expedite the process. All the participants from both the municipalities and the private sector cited delays in TVRs as a hindrance to swift consideration of the PPPs. Several reasons were offered for the delays, including limited capacity (head count) and a lack of dedicated personnel focusing exclusively on PPPs. Participants indicated that only three to four National Treasury staff members deal with the entire PPP portfolio for the whole country, and these officials have additional responsibilities, aligned to the national budget process.

Almost 94 percent (twenty-nine out of thirty-one) of participants believed that the units in the National Treasury operate in silos, leading to coordination lapses—which negatively affects the TVR timelines. Two participants from the National Treasury itself attested to the need to coordinate their efforts better. The internal National Treasury process is summarized in figure 1.

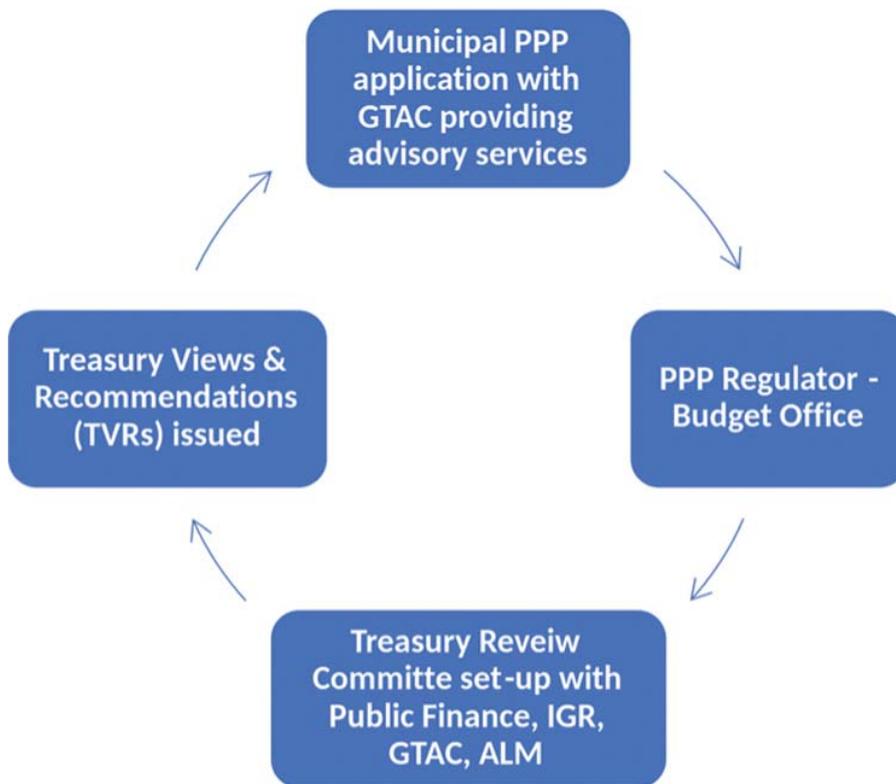


Figure 1. National Treasury's internal process on PPPs.

Political Will and Influence

Section 46 of the Local Government: Municipal Finance Management Act, 53 of 2003 (Republic of South Africa 2003), stipulates that long-term borrowing is permitted to finance capital investment/expenditure or refinance existing long-term debt (Financial and Fiscal Commission 2018, 210). Decisions on which infrastructure-financing option a municipality chooses is subject to a political process.

Seats on municipal councils in South Africa have a term of five years. It was therefore not surprising that participants cited short-term infrastructure investment planning by municipalities as directly linked to councilors' political term of office. This short-term planning horizon acts as an impediment to the creation of a long-term infrastructure pipeline of projects that could be financed through PPPs. Politicians prefer ad hoc projects with immediate visibility once they commence their political term to PPPs, which require time to come to fruition.

Eight participants from the municipalities indicated that the water sector is a sensitive topic to politicians, who raise reservations regarding private-sector involvement in the delivery of an essential public good and are wary of the potential effect on tariffs arising from PPPs, given the cost-recovery model used by private-sector partners.

Lack of Knowledge and Negative Perceptions about PPPs

Almost 54 percent of the participants from municipalities (seven out of thirteen) stated that PPPs are a form of privatization, especially by politicians. This perception is driven by limited knowledge or politicians' ideological orientation, which does not support the private sector's delivering public services such as water. Even where politicians and some senior municipal officials understand the difference between PPPs and privatization, the common narrative is that the involvement of the private sector in the delivery of public services is a sign of the government's failure to provide residents with proper services. Participants noted the consistent focus on funding when discussing PPPs, without considering the technical support offered to municipalities by the private sector. Lack of knowledge about PPPs contributes to negative perceptions and the slow uptake of water-infrastructure projects.

Another dimension of perception articulated by four participants, two from municipalities and two from the private sector, was the race dynamics associated with South Africa's past. The larger players in the private sector in South Africa are still predominately white men, and involving them in a PPP creates a perception of the public sector (largely controlled by Black men) as a failure. There was consensus among participants that if political leaders are not keen on PPPs, it is unlikely that any projects will be considered for funding through PPPs. Participants suggested that the negative perception of PPPs filters through to the bureaucrats, who will not explore PPPs as viable alternatives for water-infrastructure investment. The vicious cycle of negative views of PPPs will continue until a change of leadership occurs, or when circumstances force political leaders to consider private-sector participation.

Influence of Labor Unions

PPPs naturally involve collaboration with the private sector, and this raises concern from labor unions aligned with the public sector. Most of the participants mentioned the experiences of the City of Mbombela Municipality regarding a water concession as an example where labor

unions fiercely opposed the implementation of a water PPP. These experiences are said to influence politicians' thinking on water PPPs in their municipalities. Six interviewees from municipalities cited instances where political heads had reminded them of labor unions' apparent opposition to the City of Mbombela Municipality's water concession if similar projects were to be proposed. Given politicians' concerns regarding dealing with labor unions, a venture into water PPPs is not readily considered. Participants said the political alliance between the African National Congress and the Congress of South African Trade Unions had contributed to politicians' hesitancy to appear to undermine the labor unions by considering PPPs in the water sector.

Complexity of PPP Arrangements and lack of skills

All the participants from the municipalities contrasted the requirements of funding a project through a PPP arrangement with other funding options, such as own revenue, grants, and long-term borrowing. Participants classified other funding options as generic procurement. Because municipalities have some experience of the process, these processes can be concluded in four to six months. Regarding municipal PPPs, participants indicated that a municipality must appoint a transaction advisor to coordinate all the activities related to the project, such as conducting feasibility studies. Additionally, the four TVRs are required before a project is implemented and various skills are required. One participant illustrated the complexity of PPPs using an office accommodation PPP project in one of the municipalities, which required the appointment of a project manager to coordinate the work streams associated with the project. The project took more than ten years to finish.

The complexity of PPPs is compounded by the lack of skills and training. Only 23 percent (three out of thirteen) of the municipal officials interviewed had received some form of training on general municipal PPP regulations. They themselves acknowledged that the training was elementary and did not afford attendees practical skills. Participants from the water-services department constituted a bigger proportion of the officials with no basic training on PPPs. One participant admitted understanding the PPP process only when serving on the bid-evaluation committee for another PPP project with which the municipality was involved. Without more training and exposure, the municipal officials conceded they are unlikely to propose infrastructure funding through PPPs, given their understanding of the process.

A deficiency in skills was raised by some participants as a hindrance to the adoption of PPPs in the water-infrastructure sector. All the participants outside the municipalities pointed out that the deficiency in skills is driven by the appointment of inadequately qualified personnel in key positions inside the water departments. More than 90 percent of the participants from the municipalities insisted that without the relevant skills, possibilities for new PPP projects being proposed by infrastructure and finance departments are rare. Infrastructure departments, including water departments, in municipalities tend to base their work plan on the funds available from government grants, loans, and municipal revenue, and they are uninterested in taking on the additional work of undertaking feasibility studies and proposing projects to be funded from PPPs.

Around 62 percent of the participants from the municipalities lamented that the deficit in skills arising from the appointment of inexperienced staff is exacerbated by the fact that several vacant positions at the technical and senior level have not been filled. Participants from the municipalities pointed out that while officials may have the requisite educational qualifications

and experience, some skills are better acquired while developing and implementing a specific PPP project.

The Cost of PPPs Compared to the Cost for Other Funding Options

About 77 percent of the participants from the municipalities (ten out of thirteen) cited the high costs associated with PPPs as disincentivizing their adoption. Participants believed that PPP projects require up-front costs for pilot studies and prefeasibility and feasibility studies, the appointment of external advisors, and other technical skills at the inception stage. A participant from one of the municipalities estimated that these costs may be between ZAR 30 million and ZAR 50 million for the entire process, depending on the size and complexity of the project. Such costs would deter the adoption of PPPs, especially if the money could be used with more rapid outcomes for competing projects, particularly given the infrastructure backlogs.

Lack of Independent Economic Regulation of Water

Almost 84 percent of all participants (twenty-six out of thirty-one) mentioned the opaque regulatory framework in the water sector as an impediment to PPPs, referring specifically to the lack of independence of the water institutions. They described the role of the DWS and the overall regulatory environment as "structurally deficient," marred with "chronic conflict of interest." They believed that this deficiency limited private-sector participation at the municipal level, itself tainted by the instability of the political environment.

Participants raised the powers vested in the Minister of Human Settlements, Water and Sanitation as contributing to the conflict of interest. The DWS, which resides in this Minister's portfolio, is simultaneously the sector leader, policy maker, supporter, regulator, and bulk water provider. The participants argue that the DWS is ineffective because it acts both as a referee and a player, with no independent oversight across the entire value chain. It sets bulk abstraction tariffs for the water sold to the water boards, the water boards report to the minister and sell water to municipalities, and the tariffs are unregulated. Criticism of the DWS for not advocating and moving toward establishing an independent regulator detrimentally affects the efficiencies of the entire water sector.

The participants underscored the centrality of the institutional and regulatory environment in the water sector as a component of attracting private-sector investment. They suggested that an independent water economic regulator would be one of the most important potential interventions in the regulatory environment. They stressed that such a regulator might mitigate the political influence associated with tariff determination. One example cited was an instruction issued to the water boards by the Minister of Human Settlements, Water, and Sanitation not to increase water tariffs to municipalities, despite escalating costs.

Participants stressed that the current water-tariff-determination framework is largely unscientific, as it lacks a predetermined methodology. As a result, most parts of the water-value chain charge tariffs that do not cover the cost of providing water. Additionally, participants described the self-regulation by municipal councils on water tariffs as problematic, in that councilors are politicians who consider several factors before deciding on tariffs. One such consideration is the desire to manipulate water tariffs, keeping the tariffs low as a campaigning tool. Almost 52 percent (sixteen out of thirty-one) of the participants argued that politicians at the municipal level ascribe more weight to social regulation—affordability—in election campaigns to enhance their chances of reelection.

Unattractiveness of the Water Sector to Private Sector Investors

Sixty-one percent of all the participants (nineteen out of thirty-one) attested to the difficulty of making water investments profitable at a municipal level for a variety of reasons, some already explained above. Private-sector participants explained that they base investment decisions on the expected returns of each project, irrespective of the sector. They emphasized that different sectors of the economy compete for private-sector investment and that the characteristics of each sector inform investment decisions. They cited features of the water sector that reduce its attractiveness for private-sector investment. First, that water is recognized as a basic right imposes an obligation on municipalities to provide free minimum amounts of water, even to residents who cannot pay. The minimum is currently six kiloliters per month per household. Any water usage exceeding this amount attracts a tariff. The critical issue with water, as several participants pointed out, is that implementing strict credit control in the case of nonpayment of water tariffs is problematic. Because of constitutional obligations and political considerations, municipalities choose not to cut off the water supply, resulting in a situation where a considerable amount of water is used but not billed.

Thirty-nine percent of the participants (twelve out of thirty-one) believed that water-sector investments could be profitable in specific cases. They argued that private-sector participation in the water sector improves the enforcement of credit-control policies. They pointed out that the private sector might be more insulated from political influence, which may be beneficial because they claim that politicians do not always support tight credit controls, especially near elections.

Summary of the Factors Influencing Adoption of Water PPP Projects

Participants identified several factors in municipalities that impede the adoption of water-infrastructure PPPs. These factors are internal to the municipalities and external to the water sector. These factors are summarized in figure 2.

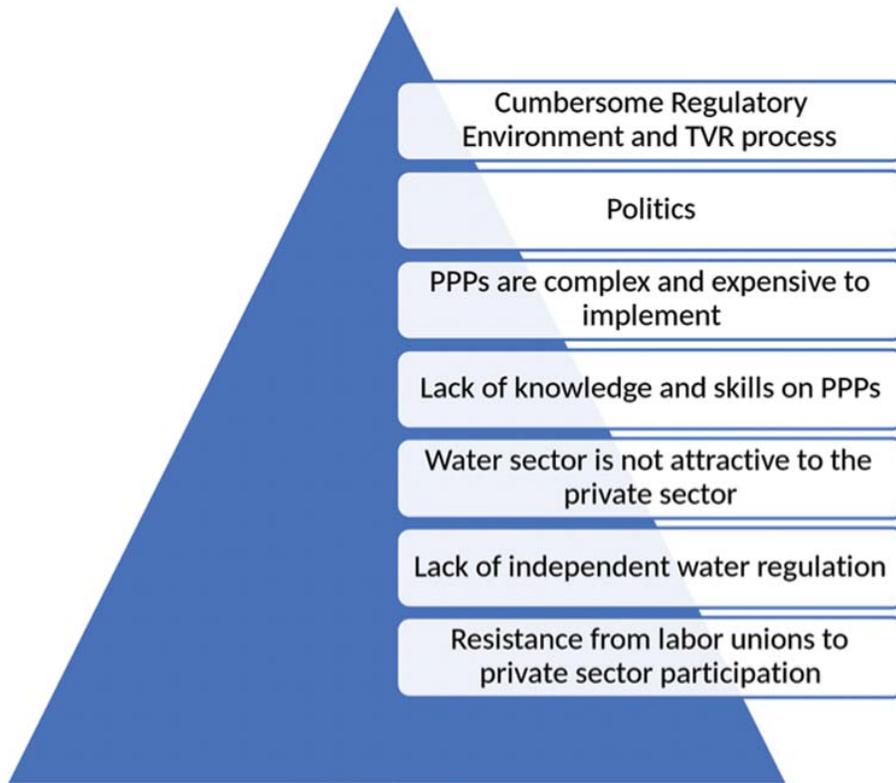


Figure 2. Summary of factors influencing water PPP adoption.

Recommendations

Given the factors identified above, we propose the following recommendations, aimed at improving the adoption of municipal water-infrastructure PPP projects.

Review of the TVR Process

The TVR process provides four sets of comments on every single PPP application. Undeniably, the National Treasury plays an important role in the PPP process as an important gatekeeper, given its expert skills, but delays in obtaining the TVRs justify a call to review the municipal PPP framework. The National Treasury's role should optimally be limited to the crucial phases, such as the feasibility phase. Once it has given TVR I, confirming that a project is most appropriately financed through a PPP, the municipalities could proceed with the procurement process without the National Treasury's involvement.

Accordingly, we recommend that the TVRs be reduced from four to two reviews. TVR IIA and TVR IIB can be conducted at the municipal level (for municipalities with PPP experience) or at the provincial treasury level (for municipalities that have not done PPP projects before). Metropolitan municipalities and other municipalities with sufficient technical capacity and experience with PPPs may proceed to procurement without the need for TVR IIA and IIB. Municipalities with no experience of PPPs will have to approach the provincial treasury for TVR IIA and TVR IIB, as opposed to getting views from the National Treasury. In turn, where gaps in capacity and skills occur, the provincial treasuries may require assistance and guidance from the National Treasury.

The current process already requires the provincial treasuries to provide comments, but most of the interviewees from the municipalities indicated that the view of the National Treasury takes precedence. The delegation of specific functions to the provincial treasuries should be stronger; it is not a new phenomenon, as this is provided for in section 5 of the Local Government: Municipal Finance Management Act, 53 of 2003 (Republic of South Africa 2003). Provincial treasuries already have some PPP experience, but additional capacity is required for them to process PPP applications expeditiously and effectively.

To ensure that TVR processes are implemented timeously, the PPP regulations must prescribe fixed timeframes for both the National Treasury and provincial treasuries. A period of three months is proposed for each of the current four TVR processes, ensuring that any PPP regulatory process will cumulatively take no more than twelve months in total.

Creation of an Independent Economic Regulator for the Water Sector

The regulatory certainty created by an independent water-sector regulator is instrumental in attracting private capital. Experience from other countries indicates that independent water regulation is likely to achieve tariffs that reflect the real costs, which will in turn attract private capital investment (Schouten and Van Dijk 2010, 248). The dual role of the Department of Water and Sanitation as a policymaker and as a regulator creates a conflict of interest and is prone to political interference, since both functions are subject to the same minister.

For the last ten years, the DWS has considered establishing an independent water regulator, but it has not done so, as deadlines have continuously been moved up (National Treasury 2020a, 723). Policy inertia by the DWS fuels regulatory uncertainty and disincentivizes private-sector investment. We therefore recommend that government expedite the establishment of the independent water regulator, given the positive experiences in other countries, such as the United Kingdom, where an autonomous regulatory agency, Water Services Regulation Authority (OFWAT), was established as an independent authority in England and Wales in 1989. OFWAT issues licenses to water utilities, regulates their activities, resolves disputes in the water value chain, and conducts price reviews (OFWAT, n.d.). Regulators' decisions may be challenged in court. Similarly, China in its early reforms adjusted tariffs as a way of reassuring investors and showing that the water sector can be a profitable investment for private players (Qian et al. 2020, 636).

Improve Capacity and Skills in the Public Sector

The complexity of PPPs was one of the reasons cited for the low uptake of this option, and this was compounded by the limited skills available at the municipal level. Some municipalities rely on external skills to undertake feasibility studies and draft procurement-related documents. Training is provided to municipal officials, but it must be considered basic and introductory, and hence insufficient to deal with PPP complexity. In this regard, we recommend that municipalities develop inhouse skills. One such mechanism is instituting a dedicated PPP unit at the municipal level, especially for large cities. Additionally, increased resources are required at the National Treasury's unit regulating PPPs.

Proposed Regulatory Framework

Considering the findings and recommendations discussed above, we propose a PPP framework to enhance the effectiveness of the regulatory environment. The main issues identified in the

municipal PPP regulatory framework are the cumbersomeness of the process and the length of the time taken by the National Treasury to issue the four TVRs required for a PPP to go ahead. It is recommended that the TVRs be reduced from four to two reviews.

Additionally, the lack of ex-post evaluation does not create any impetus for regulatory reforms, and therefore we propose that the Auditor General of South Africa, in conjunction with the National Treasury, undertake an ex-post review, which should include periodic monitoring of PPP implementation progress and a value-for-money assessment. The auditor general currently audits adherence to the procurement process but does not evaluate value-for-money compliance, unlike in the United Kingdom, where the National Audit Office presents a report in Parliament on all matters related to PPPs (National Audit Office 2018, 36–39). Independent evaluation serves two purposes: first, it elevates the role of PPPs as an infrastructure option, and second, it helps timeously identify challenges with the regulatory framework and helps propose corrective actions. South Africa has not done any ex-post evaluation of PPPs, so this suggestion may be helpful to generate new proposals for reforms based on the findings of such a review.

Since the promulgation of the PPP regulations, no substantive review has been undertaken to enhance the PPP framework and improve outcomes. This is contrary to the experiences of countries such as China and the United Kingdom, which periodically issue directives to address emerging issues and changing market conditions and developments that require attention (Guo, Martek, and Chen 2019, 17–19; Willems and Van Dooren 2016, 212). Since the period when the interviews for the current study were conducted, the National Treasury has identified the need to review the PPP regulations, given some impediments to the implementation of PPPs (National Treasury 2020b, 149), but such a move is too little, too late: sixteen years is too long to wait for a comprehensive review.

To promote PPPs, we propose that the GTAC specifically focus on advisory services for PPPs and not promote their use. The GTAC's services are currently demand driven and do not proactively promote the use of PPPs (Ngamlana 2009, 42). There is a perceived lack of separation of the roles of the National Treasury as a promoter, advisor, and regulator of PPPs. In our view, the promotion of PPPs should be a joint responsibility of the private and the public sector: national and provincial departments, municipalities, and organized local governments.

PPPs can be promoted at the local-government level through developing academic programs or accredited courses on municipal PPPs. Various institutions could offer specialized and accredited programs on municipal PPPs. These include the Local Government Sector Education and Training Authority, mandated to "promote skills development for the local government sector" (2019, 11), and the National School of Government, mandated to provide education, training, and development in the public sector, including for state-owned entities and other organs of state (2020, 5).

The concentration of PPP promotion at a national level, as vested in the National Treasury, is not effective. We therefore propose a decentralized structure, as in some other countries. For instance, in Canada and Australia, PPPs are largely driven from the provincial or state level, rather than from the federal government (Palcic et al. 2022, 160; Raisbeck, Duffield, and Xu 2010, 346). Furthermore, in Australia, the evaluation of PPPs differs across states to accommodate the circumstances in each state. The varying conditions may in fact induce some level of competition between states to attract private sector investment (Raisbeck, Duffield, and Xu 2010, 346). In Canada, the provincial governments of Ontario, British Columbia,

Alberta, and Quebec are largely responsible for the bulk of PPP projects, and the provincial governments are assisted by specialist PPP agencies or government departments (Palcic et al. 2022, 160). Mexico, China, and Brazil's PPP frameworks allow for establishing PPP units at state and municipal levels to support and develop PPPs in their respective jurisdictions (De Castro Silva e Neto, Oliveira Cruz, and Miranda Sarmento 2019, 557; Economist Intelligence Unit 2019, 39; Guo, Martek, and Chen 2019, 17–19). This is a feature that is lacking in the South African PPP framework, where the GTAC has multiple tasks that they cannot perform adequately because of human-capacity constraints. The size of the South African PPP market may not justify several PPP units, but the promotion of PPPs should be the responsibility of the entire government, not only the GTAC. The proposed framework is summarized in figure 3.

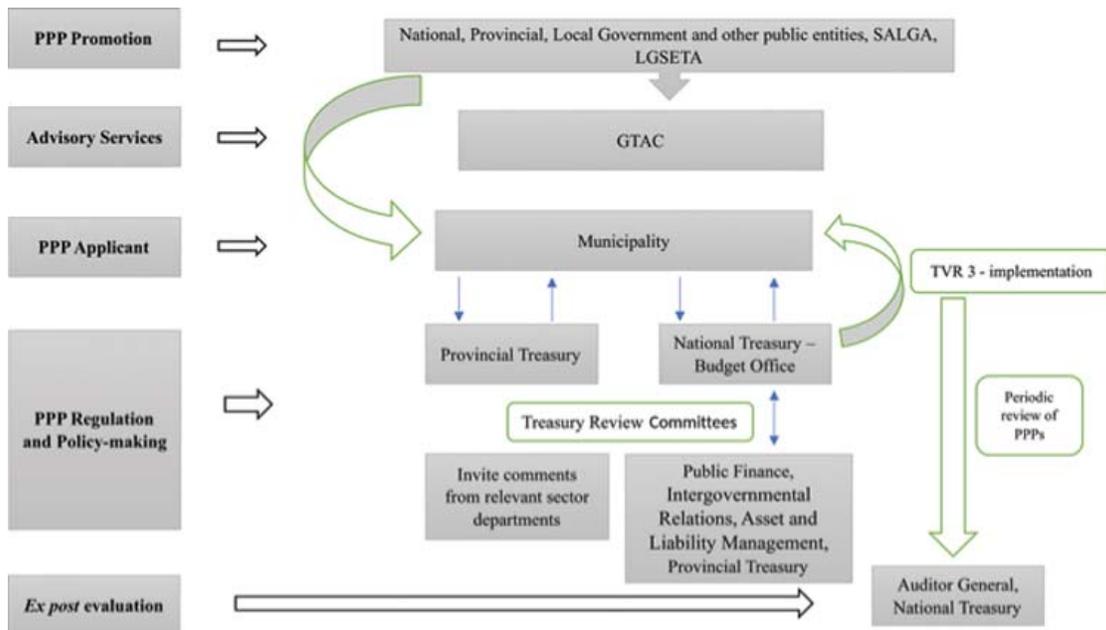


Figure 3. Proposed municipal PPP framework.

Conclusion

The study sought to explore the factors influencing the adoption of municipal water PPPs. Understanding these factors provides an opportunity to reform the PPP framework to improve private sector participation. Using a qualitative research design, the study established that the cumbersome PPP regulatory framework, negative political influence, delays by the National Treasury in providing TVRs, the complexity of PPP procurement, the general unattractiveness of the water sector for private-sector investment, and the lack of independence in the water-sector value chain negatively influence adoption of water-infrastructure PPP projects. To overcome these challenges, the study proposes a new PPP regulatory framework.

The study expands on the existing knowledge of self-interest objectives as postulated by public-choice theory. The findings of the study may assist policymakers and scholars in various countries, especially in Africa, on how to design an effective regulatory framework to facilitate the speedy adoption of municipal PPPs. The findings and recommendations may have common

application in other African countries, given that South Africa is generally a pioneer in the policy environment.

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