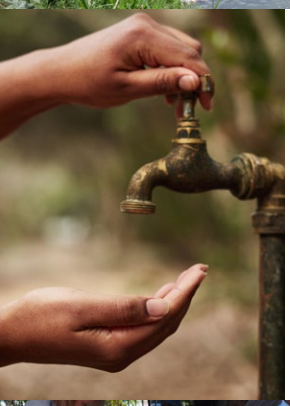
national treasury
Department:
National Treasury
REPUBLIC OF SOUTH AFRICA

cITiES SUPPORT PROGRAMME






THE STATE OF WATER IN SOUTH AFRICAN CITIES

The Case for Change


Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Departement of Economic Affairs,
Education and Research EAER
State Secretariat for Economic Affairs SECO

THE WORLD BANK
IBRD • IDA | WORLD BANK GROUP

In partnership with

RÉPUBLIQUE FRANÇAISE
Liberté
Égalité
Fraternité

AFD
AGENCE FRANÇAISE DE DÉVELOPPEMENT

SOUTH AFRICAN LOCAL GOVERNMENT ASSOCIATION
SALGA
Inspiring service delivery

BUILDING WATER RESILIENCE IN SOUTH AFRICA'S CITIES

Developed by the Cities Support Programme (National Treasury) with the support of the Swiss State Secretariat for Economic Affairs (SECO)/the World Bank/French Development Agency (AFD).

national treasury
Department:
National Treasury
REPUBLIC OF SOUTH AFRICA

cITiES SUPPORT PROGRAMME

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Departement of Economic Affairs,
Education and Research EAER
State Secretariat for Economic Affairs SECO

THE WORLD BANK
IBRD • IDA | WORLD BANK GROUP

In partnership with

RÉPUBLIQUE FRANÇAISE
Liberté
Égalité
Fraternité

AFD
AGENCE FRANÇAISE DE DÉVELOPPEMENT

SOUTH AFRICAN LOCAL GOVERNMENT ASSOCIATION
SALGA
Inspiring service delivery

PUBLISHED BY

Cities Support Programme: National Treasury
Private Bag X115, Pretoria, 0001 | 40 Church Square, Pretoria 0002 | South Africa
T: +27 12 315 5526 | F: +27 12 406 9055 | W: www.csp.treasury.gov.za

Eberhard, R. 2023. State of Water in Cities: The Case for Change. A report produced for National Treasury's Cities Support Programme by the World Bank.

ACKNOWLEDGEMENTS

This publication represents the combined effort of people from all over South Africa, either as authors, editors, reviewers or organisations sharing information. Sincere gratitude is due to everyone involved for their contributions and insights.

Cover Image: www.istockphoto.com
Edit, design and layout: Wayne Banks

The Cities Support Programme (CSP) is located within the Intergovernmental Relations (IGR) division of the National Treasury. Acting as a change agent and a vehicle for collaboration and integration, the CSP aims to improve the capacity of cities and create an enabling intergovernmental fiscal system and policy environment to support city-led transformation.

We welcome your comments: Bernadette Leon, Cities Support Programme: National Treasury;
Email: Bernadette.Leon@Treasury.gov.za

Table of Contents

Figures

Tables

Acronyms

AFD	French Development Agency
CECs	Contaminants of emerging concern
CoGTA	Ministry of Cooperative Governance
CSP	Cities Support Programme
DCoG	Department of Cooperative Governance
DWS	Department of Water and Sanitation
kl	kilolitre (one thousand litres)
LHWP	Lesotho Highlands Water Project
m^3	cubic meter (one thousand litres)
mSCOA	Municipal Standard Chart of Accounts
NMB	Nelson Mandela Bay Municipality
NT	National Treasury
SAICE	South African Institution of Civil Engineering
SALGA	South African Local Government Associated
SECO	Swiss State Secretariat for Economic Affairs

ACKNOWLEDGEMENTS

This report is the primary output of the South Africa Policy Institutions and Regulation (PIR) Advisory Services and Analytics (ASA) project, made possible through Trust Fund support from the World Bank's Global Water Security & Sanitation Partnership (GWSP) and the Swiss State Secretariat for Economic Affairs (SECO). The PIR forms part of the broader knowledge partnership between the National Treasury of South Africa's Cities Support Program (CSP), the World Bank, the Swiss State Secretariat for Economic Affairs (SECO), and the French Development Agency (AFD).

The Cities Support Programme is a demand-driven umbrella initiative of support to the metropolitan municipalities in South Africa whose overall objective is to effectively promote economic growth. The focus of the work of Cities Support Programme is to create an enabling intergovernmental environment, to develop fiscal policy incentives for change and to provide the cities with implementation support.

The Climate Resilience component of the Cities Support Programme addresses the alignment, integration and scaling up of adaptation and mitigation strategies with city plans and investments in infrastructure and service delivery. Within this component, the City Water Reform Team was established to initiate and support efforts to build city water resilience, with a core focus to turn around metropolitan water businesses. The metropolitan focus is aligned with the mandate of the Cities Support Programme. Occasional reference is made to the state of water services in other municipalities, which are, in general, much dire than the conditions reported for the metropolitan areas.

Team

Team Leaders: Chris Heymans (World Bank) & Anthea Stephens (CSP Resilience Pillar)

Principal Author: Rolfe Eberhard

Team members: Neil Macleod, Nhlanhla Mncwango, Nicholas Tandi, Pam Yako, Thuli Montana.

EXECUTIVE SUMMARY

Although impressive achievements have been made in extending access to water supply and sanitation to the majority of South Africans in the democratic era, the reliability of water supply to and in South Africa's major cities can no longer be taken for granted. Cape Town experienced a water crisis in 2017 and 2018 as did Nelson Mandela Bay in 2018 and 2021. Significant parts of Johannesburg have been without piped water supply for days. The quality of water and sanitation services in Mangaung are in a chronic state of disrepair. Section 2 of this report sets out the state of the water and sanitation businesses in the major cities in South Africa. Over the last ten years or more, service quality and reliability have been deteriorating in most South Africa's metros due to a lack of proactive maintenance and chronic under-investment in the rehabilitation, replacement as well as upgrading of water and sanitation infrastructure.

The economic downturn due to the COVID-19 pandemic, coming on the back of weak economic growth over the previous years, has exposed weaknesses in the financial performance of the metropolitan water and sanitation businesses, moreover, many of these businesses are now in serious financial trouble, with high non-revenue water and low cash collections. In the absence of a turnaround in the technical and financial performance of these businesses, there is a significant risk of a tipping point being reached, the point at which continuous pressurised supply is no longer the norm and where water is provided intermittently. This is the water sector's equivalent to load shedding in the electricity sector. When this happens, the piped network deteriorates quickly (because of the hydraulic hammer during repeated network re-pressurisation) and the water is no longer safe to drink (due to contamination entering de-pressurised pipes). This significantly increases risks of negative economic consequences due to disinvestment and job destruction as witnessed in South Africa's smaller towns, due to municipal service failures. It is difficult and expensive to recover from this, as has already been experienced in the electricity sector. A continuous water supply is worth protecting because more than 60% of South Africa's economic activity takes place in the metros..

The case for change is therefore compelling and is made in Section 3. The costs of inefficiencies in metropolitan water businesses are at least R10 billion per annum and the assets at risk constitute no less than R300 billion. Prevention is much better than the cure, thus interventions to turnaround the technical and financial performance of the metropolitan water businesses are urgently needed.

Section 4 links the performance challenges of water and sanitation services at the municipal level to the policy, institutional and regulatory frameworks within which the service is provided. Considering the declining performance of direct water services provision by municipalities in South Africa, it contends

that considering alternatives to the current model of direct municipal delivery may be required, such as establishing utilities organized as companies with a corporate structure in line with global trends; encouraging management contracts to bring in skills in a relatively short time; making more use of the private sector; along with undertaking pricing reforms and creating an economic regulator. Any path forward will need to address management and technical capacity constraints while considering South Africa's unique history.

Section 5 makes a case that moving from current levels of performance towards more successful performance will require changes in at least three foundational components of providing effective services: creating "good enough" governance; improving management effectiveness; and ensuring revenue sufficiency. Responsibility for water and sanitation services rests with local government. National Treasury's CSP City Water Reform initiative has adopted a theory of change that is based on two complementary drivers of change: (1) political and administrative leadership at the city level, combined with (2) National Treasury led reforms to the systems of incentives, as financial drivers of change. The first is a demand-driven bottom-up approach to reforms. The second is a 'top-down' system-wide approach to reform, in close collaboration with other government departments.

These two approaches complement each other and are set out in Sections 5 and 6 of the report, considering the existing policy, legislative and regulatory framework described in Section 4. National Treasury recognises that turning around the municipal water business is a critical step in addressing broader issues of water insecurity, and therefore in ensuring water resilience for citizens. The ability of municipalities to invest in the maintenance and expansion of their networks, to plan for and adapt to shocks and deliver services is a key enabler of economic growth, essential to address the stark levels of unemployment, poverty and inequality confronting the country.

To underpin the implementation of this reform agenda, South Africa's metropolitan municipalities are encouraged to take up the support offered within the framework set out in this report to turnaround and improve the performance of their water businesses and to build water resilient cities. The Cities Support Programme will elaborate, implement, adjust and deepen its support to metropolitan municipalities in line with the framework and approach set out in this report, and account on progress through the Presidency-National Treasury reform and transformation driver unit, Operation Vulindlela.

The Cities Support Programme focuses on some reform areas, where National Treasury has a mandate to lead. However, reforms to the water sector-wide institutional model and for service providers are beyond the scope of this paper and are not elaborated on as other government departments, especially the Department of Water Sanitation (DWS),have the leading role. National Treasury is collaborating and engaging with DWS and other stakeholders that include city governments, relevant national departments such as Cooperative Governance (DCoG) and development finance institutions (DFIs), to take the reforms to the enabling environment forward. A project charter for each reform stream will be developed to track progress, which will also be reported through Operation Vulindlela.

1. INTRODUCTION

1.1 CONTEXT

City water resilience

Cape Town's "Day Zero" water crisis in 2017/8 brought the issue of water resilience at the city level into sharp focus, both in South Africa and globally.[1] Water vulnerability is not limited to Cape Town; water security risks are high in seven of South Africa's eight metros and will remain high until suitable mitigating actions have been taken. At the time of writing, Nelson Mandela Bay was in the midst of a water crisis, and although the dams supplying water to Gauteng were full, Johannesburg, Tshwane and Ekurhuleni will be vulnerable to water supply shortages again from 2025 without effective demand management and until Phase 2 of the Lesotho Highland Water Project is commissioned, in 2027 at the earliest. Water resilience is not only about the sufficiency of the water supply, but also about how water is managed through the full water cycle. The focus of this report is on the financial health and effective management of the metropolitan water business. Financial health and effective management are critical to support water resilience across the full water value chain. Investing in new water supplies without addressing business failures at the retail level will not improve water security and will result in the wasteful use of scarce resources.

Supporting job creation and economic growth

Water security is essential to support job creation and economic growth. Businesses will move away from or choose not to invest in places where water supplies are insecure. South Africa's cities account for a large proportion of economic activity, therefore ensuring their water resilience is fundamental to the future well-being of all South Africans.[2]

Good progress in increasing access is being undermined by a lack of investment in sustaining services

While the metros made significant progress in expanding access to both water and sanitation since 1994 this progress is now being undermined by inadequate investments in, as well as lack of maintenance and upgrading of existing infrastructure. Over the last ten years or more, the construction of formal housing has not kept pace with demand in the metros and consequently the number of households living in informal settlements is growing. Providing adequate water and sanitation services in informal settlements is challenging and increases the financial burden in the absence of any recovery of these costs.

---

1 Ziervogel (2019)' but it should read: Ziervogel, G. 2019. "Lessons from Cape Town's drought. Cities Support Programme." www.africancentreforcities.net/wp-content/uploads/2019/02/Ziervogel-2019-Lessons-from-Cape-Town-Drought_A.pdf

2 Zaveri et.al (2021) observed that a) water shortages alone can slow city growth by up to 12 percent – depending on the size of the shock – enough to reverse development progress and compounding socio-economic vulnerability; b) growing populations could result in an 80 percent increase in demand for water in urban areas by 2050; and c) climate change and urban population growth are putting increasing strain on existing, often inefficient water infrastructure, putting cities at risk of running out of water.

Municipal water businesses are in serious trouble

The water services businesses in South Africa's metros are in serious trouble. A long-term decline in most of these businesses has been exacerbated by the COVID-19 epidemic and the associated economic fallout. These water businesses have experienced a significant drop in revenue collection and reduction in spending on maintenance, accelerating the deterioration of assets and affecting the continuity of services and water security, thereby impacting negatively on investment and the economy. Conditions in most other non-metropolitan municipalities are considerably worse posing a serious risk of financial contagion through the water value chain as customers and municipalities default on their payments, creating unsustainable levels of debt in municipalities, regional water boards and the national water trading entity.[3] South Africa is at or close to a tipping point in the water sector (See Text Box1).

Water Board debt was R12.6 billion, of which R9 billion was over 120 days old (March 2021). Four water boards are facing a financial crisis: Amatola Water, Bloem Water, Lepelle Northern Water and Sedibeng Water. In May 2021, Water Boards and municipalities owed the Water Trading Entity R14.8 billion. Earlier reports by the Auditor General had flagged that the Water Trading Entity was holding back payments to the Trans-Caledon Tunnel Authority with risks for its ability to service its debts.

The cost of NRW is about R9.9 billion, at an estimated national average of 42%.

BOX 1: Metropolitan water businesses: at a tipping point?

The lessons for the water sector from South Africa's electricity sector are salutary. Poor governance and mismanagement, including massive inefficiencies on both capital and operating costs, at Eskom, the national utility, resulted in chronic, highly visible, national rolling power outages. While some reforms have been initiated, the road to recovery in the electricity sector is proving to be long and expensive. There are important parallels in water, except that the fault lines occur at a local level and may be less obvious until it is too late. This report shows that water businesses in South Africa's metropolitan cities are very likely to be at, or close to, a tipping point. The same applies in many non-metropolitan municipalities, but this falls outside the scope of this paper. Urgent action is required. Aldo Baiette described the nature of failure in water businesses as follows:

> *"Unlike power and electricity distribution, water utilities can be gradually starved of resources without inducing a total collapse of service. Water services can decline over a long-time frame before a total shut down would occur. In fact, many poorly performing water utilities are often relegated to a minimal standard of life support, where the enterprise is just barely recovering its operating charges and performing only essential maintenance. Therefore, service quality can drop considerably and still function, albeit poorly." (Baietti et al, 2006)*

A review of water risks in the eight metros was undertaken by National Treasury in 2017.[4] The diagnostic was updated in 2020 with a focus on the financial and management aspects of the metro water business, in the context of COVID-19. The update showed a significant deterioration in the financial positions of

3 www.dws.gov.za/NWRI/

4 "Securing South African's Urban Water Future" (Eberhard, 2018) available at csp.treasury.gov.za/Resource_Centre/Conferences/Documents/CSPTools/ClimateResilienceandSustainability/SecuringUrbanWaterDP.pdf

the metro water businesses, ongoing declining technical performance, as well as growing risks with respect to water security and the provision of water and sanitation in informal settlements. These trends pose significant risks for water resilience. Without an adequate revenue base, it will be impossible for the metros to reduce water risks. Poor technical performance, such as high levels of non-revenue water, increase these risks. The reviews also showed a need to attend to intergovernmental issues related to planning and project development for new water sources. In a water scarce country, it is hard to overstate the importance of building water resilience in cities, which are growing users of a limited resource.

Source: *https://www.economist.com/the-world-this-week/2020/04/23/kals-cartoon?utm_campaign=editorial-social&utm_medium=social-organic&utm_source=facebook&fbclid=IwAR0UY8xfljCo5hn8gu_PiPY5DFyPk3Ij8h-5y3HrhgFsc8i0Zbwhbey6G3g*

1.2 SUPPORTING THE TURNAROUND OF METRO WATER BUSINESSES

In response to this context, National Treasury's Cities Support Programme (CSP) established a City Water Reform Initiative to support the turnaround of metropolitan water businesses and to initiate reforms to the enabling environment.[5] The City Water Reform Initiative supports the priority focus in Operation Vulindela – a joint initiative between the Presidency and National Treasury to unlock barriers to policy reforms that are critical for economic growth and reforms in the water sector. The City Water Reform Initiative is implementing a reform agenda to address inefficiencies in municipal water businesses, with a focus on the eight metros.

The overall purpose of the CSP support is to turnaround and improve the financial and technical performance of municipal water and sanitation businesses to enhance their financial viability and ensure that scarce human and financial sources are effectively and competently used to improve sector outcomes such as access to safe water and sanitation services, sufficient and reliable water supply, and compliance with regulatory requirements. This is critical to ensure that the water service provided by metros is resilient to future shocks including the impacts of climate change.

In particular, the support for the turnaround of municipal water and sanitation businesses comprises the following five key elements:

1. **Provide direct technical assistance to metropolitan municipalities** for water and sanitation business turnarounds in response to requested support and where political and administrative leadership have committed to develop, approve and implement a practical strategy to turnaround the water and sanitation business.

2. **Facilitate the effective sharing of knowledge and experience between metros** to support water business turnarounds and develop and agree on a core set of financial and technical

5 Operation Vulindlela is a joint initiative of The Presidency and National Treasury to fast-track economic reforms. www.treasury.gov.za/OperationVulindlelaSummaryBooklet20March2021.pdf

performance indicators to measure water business turnaround progress, and to inform the work of a national economic regulator.

3. **Initiate targeted policy, institutional and regulatory reforms** in the enabling environment that will support the improved performance of municipal water and sanitation businesses.

4. **Facilitate/catalyse access by municipalities to further resources** to support municipal business turnarounds and infrastructure investments.

5. **Implement reforms that will result in more effective use of private sector capacity,** particularly in areas of management, project implementation, operations and financing, to support improvements in sector outcomes.

1.3 PURPOSE AND OUTLINE

The purpose of this report is five-fold:

- To describe the state of water in South Africa's metros (Section 2)
- To make the case for why change is necessary (Section 3)
- To set out a theory of change and an approach to supporting the turnaround of metropolitan water businesses (Section 4)
- To set out an approach to reforming the enabling environment (Section 5) and
- To recommend a way forward for key stakeholders (Sections 6 and 7).

2. THE STATE OF WATER IN SOUTH AFRICA'S MAJOR CITIES

2.1 SUMMARY AND DATA SOURCES

Summary

The data presented in this section shows that the performance of water businesses have been declining in most South Africa's metros over the last 15 years, and that the risks of a more significant deterioration of the service over a short period of time is increasing. Sharp deteriorations in technical performance have already occurred in at least Mangaung and Nelson Mandela Bay, and a serious deterioration in financial performance is evident in a wider set of metros. Unless these trends are reversed, the risks of service failures will increase substantially.

Data sources

The primary sources of data used in this report are from reporting by metropolitan municipalities during the semi-annual benchmarking exercise undertaken by National Treasury in April and May 2021, supplemented with financial and technical data reported by municipalities to National Treasury and to the national Department of Water and Sanitation. The overview of the state of water in cities builds on earlier diagnostics undertaken by National Treasury, including the report "Securing South African's Urban Water Future" (Eberhard, 2018) and a poll of risk perceptions undertaken with City Water Managers.

2.2 INSTITUTIONAL CONTEXT

The Constitution of South Africa distinguishes between water resources management, a national government responsibility, and water services which is a local government responsibility, within a framework of three spheres of government (national, provincial, and local). National government undertakes water resources planning, management and regulation functions. It also owns and operates major dams and bulk raw water infrastructure. Water boards are national government owned entities that treat and supply bulk water to some (but not all) municipalities, acting as "regional wholesalers". Municipalities are responsible for the distribution of water for retail services and for the collection and treatment of wastewater. However, there is some overlap or sharing of function between these three entities as shown in Table 1 below. The institutional framework is elaborated in Section 5 in the context of policy, legislation and regulation.

TABLE 1: Overview of institutional responsibilities

Metro	Water resource	Bulk water	Water distribution	Customer revenue	Sewer network	Wastewater treatement
Joburg	DWS / TCTA	Rand Water (RW)	**Joburg Water** (municipal entity)	City of Joburg	**Joburg Water** (municipal entity)	
Ekurhuleni	DWS / TCTA	Rand Water (RW)	Ekurhuleni			ERWAT (municipal entity)
eThekwini	DWS / UW	Umgeni Water (UW)	eThekwini			**PRIVATE**
Tshwane	DWS / TCTA	RW & CoT	Tshwane (CoT)			
Buffalo City	DWS & AW & BCM	Amatola W & BCM	Buffalo City (BCM)			
Mangaung	DWS & MM	Bloem W & MM	Mangaung (MM)			
Nelson Mandela Bay	DWS & NMBM	Nelson Mandela Bay (NMBM)				
Cape Town	DWS & CoCT	City of Cape Town (CoCT)				**PRIVATE**

Notes: *DWS = Department of Water and Sanitation. TCTA = Trans Caledonian Tunnel Authority. Blue represents a national institution, pink a municipal institution.*

Rand Water provides bulk water to three metros – Johannesburg, Ekurhuleni and Tshwane. Umgeni Water supplies bulk water to eThekwini, Amatola Water to Buffalo City and Bloem Water to Mangaung. There are shared water resource responsibilities (for example, ownership and management of dams shared between national government and municipalities) in the case of four metros – Buffalo City, Mangaung, Nelson Mandela Bay and Cape Town. There is shared responsibility for bulk water supply (between municipalities and water boards) in the case of Tshwane, Buffalo City and Mangaung. These shared responsibilities can create challenges with respect to alignment of planning, project implementation and operations as well as contestation over responsibility for investment.

Governance and performance issues related to the functions performed by the national Department of Water and Sanitation (DWS) and water boards have been documented and reported in Parliament, but these are beyond the scope of this report and are not discussed here, except to note that there is also an issue of unsustainable debt build up in the water value chain from municipalities to water boards and the Water Trading Entity managed by DWS.

2.3 WATER RESOURCES SECURITY AND RISK OF RESTRICTIONS

The drought in Cape Town between 2015 and 2018 brought the issue of resources security to public attention in a dramatic way. South Africa is a water scarce country with renewable freshwater resources of less than a 1 000 m^3 per person per year. The national Department of Water and Sanitation (DWS) has constitutional responsibility for water resources management and undertakes studies and planning for water security to South Africa's major urban areas. The studies aim to reconcile demand and supply at a 98% assurance of supply, by identifying actions to augment supply, manage demand and optimise systems. A steering committee comprising the major stakeholders was established for each major water system intended to be updated annually on the status of the system and oversees progress on identified actions.[6] The water resources situation in the metropolitan areas is summarised in Table 2.

TABLE 2: Water resources situation in metropolitan areas

	People (million)	Water supply system	Current water restrictions	Water security risk [3]	Status of next major supply intervention (DWS)
Johannesburg, Ekurhuleni and Tshwane	13.5	Upper Vaal & LHWP	15% [1]	High	Lesotho Highlands Water Project Phase 2, delayed, now due 2027
Cape Town	4.5	Western Cape	None	High	Berg River augmentation, delayed, now due 2024
eThekwini	3.2	Mgeni	None	High	Dam on the Mkhomazi River, delayed, now due 2030
Nelson Mandela Bay	1.2	Algoa & Sundays	30%	High	Nooitgedacht system expansion delayed, now due September 2021
Mangaung	0.8	Caledon	15% / 24%[2]	High	A pipeline from the Orange river has been proposed with high capital and operating costs. Low-cost alternatives exist (no date)
Buffalo City	0.8	Amatola	35%	Moderate	None
Total	24	40% of South African population and over 60% of GDP			

Notes: *[1] Municipal restrictions are informed by demand targets established by Rand Water and DWS. This programme has not been formalised nor communicated to the public. [2] 24% agreed but not yet gazetted at time of writing. [3] High water security risk where demand exceeds assured supply at a 98% level of assurance (currently, or within the next five years).*

6 The steering committee is not a decision-making body.

The data shows that all 8 metros face high water security risks over the next five years due to delays in decisions and implementation of new water supply schemes. The cities have become more significant role-players in increasing water security both through actions to augment their water supplies (with groundwater, reuse and desalination) and as a result of the need to actively manage water demand. Further details are provided in Annexure 1.

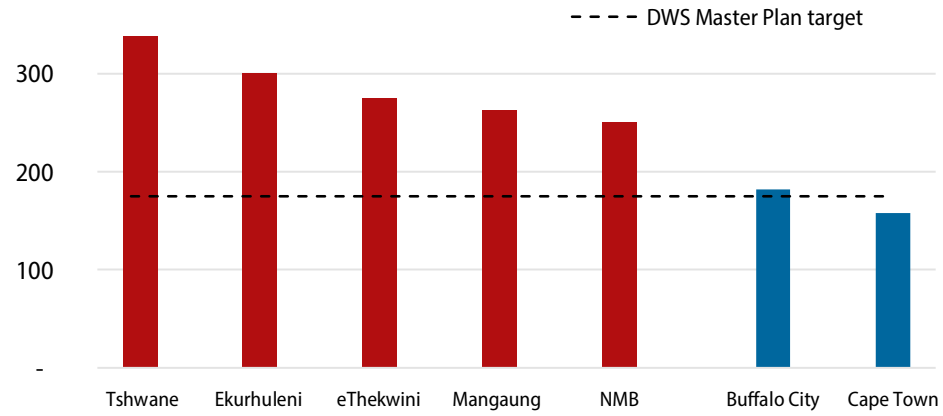
South Africa's $2.5 billion Lesotho water project delayed to 2027

By Reuters Staff 3 MIN READ

JOHANNESBURG, March 10 (Reuters) - South Africa's long-delayed 37 billion rand ($2.46 billion) Lesotho Highlands Water Project (LHWP) - facing funding pressures, COVID-19 delays and protests in the tiny mountain kingdom - will begin water delivery in 2027.

Water use in South Africa's metros is high and, except for Cape Town during its drought crisis, the cities have not been successful at managing demand (Figures 1 and 2).

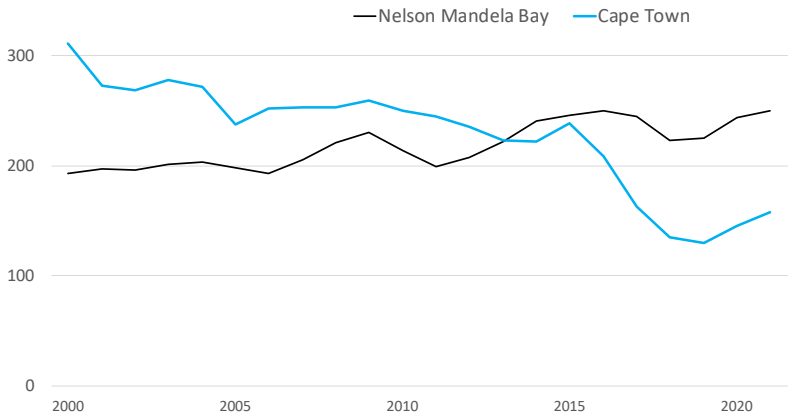
FIGURE 1: Total water use, including losses, in South Africa's metros (litres per person per day)



Cape Town reduced its total water use from over 300 litres per person per day in 2000 to 160 litres per person per day in 2021, with a remarkable reduction during the four-year drought from 2015 to 2018. In contrast, Nelson Mandela Bay's total water use has grown from 200 to 250 litres per person per day over the period 2000 to 2021, notwithstanding the current water crisis, and the city has not been effective in reducing demand.[7]

7 Average per capita use in Buffalo City could be low (compared to the others) due to a large peri-urban population.

FIGURE 2: Total water use, including losses, in Cape Town and Nelson Mandela Bay (litres per person per day)



Total water use in the City of Johannesburg is 275 litres per person per day, which is 18% above the Rand Water Board license apportionment.[8] Moreover, the situation in other cities and towns is also concerning. The national Department of Water and Sanitation concluded that "current water usage already exceeds reliable yield in many water supply systems and will mean that during a drought year it is likely that the affected area(s) will experience water restrictions more often on a fairly large scale and for longer periods."[9] The same report noted that, beyond the metros, 28% of towns already had an inadequate water supply.

In this context, the ability to mitigate adverse climatic events is closely related to how well water services and water resources are planned to increase water resilience. The lessons from Cape Town and other water stressed cities globally have shown that a broader and proactive perspective on resilience is pivotal, which requires that policies, institutions and regulations are directed at bigger waters security and risks, also at the basics of sound management at the operational level.

2.3.1 Quality of drinking water

While water security risks are high, the quality of potable water supplied to businesses and households is good and water quality-related risks are perceived as being low in seven of the eight metros, except for Mangaung, where the risk was assessed as moderate because of skills deficits and financial constraints (See Table 3).

TABLE 3: Perceived risks (over next five years) of episodes of supplied potable water being unsafe to drink

Metropolitan area	Water treated by	Risk
Johannesburg	Rand Water	Low
Ekurhuleni	Rand Water	Low
Tshwane	Rand Water and municipality	Low
Cape Town	Municipality	Low
eThekwini	Umgeni Water and municipality	Low
Nelson Mandela Bay	Municipality	Moderate
Mangaung	Bloem Water and municipality	Moderate
Buffalo city	Amatola Water and municipality	Moderate

Note: *Incidents of poor water quality resulting in boil notices – i.e. official advisory to use bottled water or boil tap water – in Nelson Mandela Bay and Buffalo City in early 2022.*

8 1600 million litres per day and a population of 5.78 million people

9 Department of Water and Sanitation (DWS). 2020. Strategic Overview of the Water Sector in South Africa 2019-2020. Unpublished.

2.3.2 Water and sewer network performance

Water interruptions


Waiting for water: Joburg hospital patients and communities bear the brunt of taps running dry

By Shiraaz Mohamed • 1 June 2021

Water interruptions inconvenience customers and compromise the integrity of the water network and quality of water supplied. Recent supply interruptions in the City of Johannesburg left hospitals without water (see picture).[10] The National Business Initiative reports that water interruptions are also affecting business: "companies' water issues are increasingly hitting the bottom line. In 2018, the financial cost of water-related impacts in South Africa was R1.8bn, 178% higher than in 2017. Capital expenditure to mitigate water risk has also increased significantly"[11]

The global benchmark for urban water systems is to deliver water through a pressurised network on a continuous 24/7 basis with a few interruptions due to planned or unplanned maintenance to the system (replacing pipes and repairing leaks).

The evidence shows, however, that water interruptions are increasing in frequency in South Africa's metros. A primary cause of this is the low level of pipe replacement. The international benchmark is to replace between 1% and 2% of the network each year, allowing for an average lifespan of a pipe of fifty to one hundred years.[12] However, the rate of replacement is far below in seven of the eight metros, which is very unsustainable (Table 4).

Intermittent water supply is already a significant challenge in many municipalities in South Africa (see Figure 14) and will become more widespread in the metros as well unless there is a turnaround in these water businesses.

TABLE 4: Risk of supply interruptions

Metropolitan area	Water mains bursts / 100km pa	Rate of pipe replacement (%) [1]	Risk of increasing supply interruptions
Benchmark	**30**	**2**	
Ekurhuleni	612	0.1	Very high
Nelson Mandela Bay	55	0.1	Very high
Tshwane	589	0.2	Very high
Buffalo city	20	0.2	Very high
Cape Town	28	0.3	High
Mangaung	-- [2]	0.4	High
Johannesburg	350	0.5	High
eThekwini	-- [2]	1.0	Moderate

Notes: *[1] Percentage of network length replaced per year (average for the last four or five years).* *[2] Not reported.*

10 www.dailymaverick.co.za/article/2021-06-01-waiting-for-water-joburg-hospital-patients-and-communities-bear-the-brunt-of-taps-running-dry/

11 https://www.nbi.org.za/wp-content/uploads/2020/03/NBI-CDP_Water_Executive-Summary-2018.pdf

12 See for example, "Water in figures: 2020. Benchmarking and Statistics, Denmark" (DANVA, 2021). Actual requirements will be specific to the local context including ground conditions, materials used etc.

Non-revenue water

Non-revenue water is a good indicator of the overall management effectiveness of the water business. High rates of non-revenue water generally reflect a combination of excessive levels of water losses through leaks and a large share of water that is used but does not generate revenue (for example, unbilled water use). This increases the unit cost of water that is sold, places a burden on paying customers and puts the utility under financial stress. A good practice benchmark for non-revenue water is generally considered to be 25%.[13] Well-run water businesses, even in resource deficient contexts, can achieve non-revenue water of 15% or less.[14] In South Africa, non-revenue water exceeds 32% in all 8 metros, and surpasses 40% in 3 metros (Table 5).

TABLE 5: Non-revenue water is well above a good practice benchmark of 25% in all metros

Metropolitan area	NRW %
Benchmark	**25%**
eThekwini	50
Nelson Mandela Bay	45
Mangaung	45
Tshwane [1]	32 / 42
Ekurhuleni	36
Buffalo city	36
Johannesburg	35
Cape Town	33

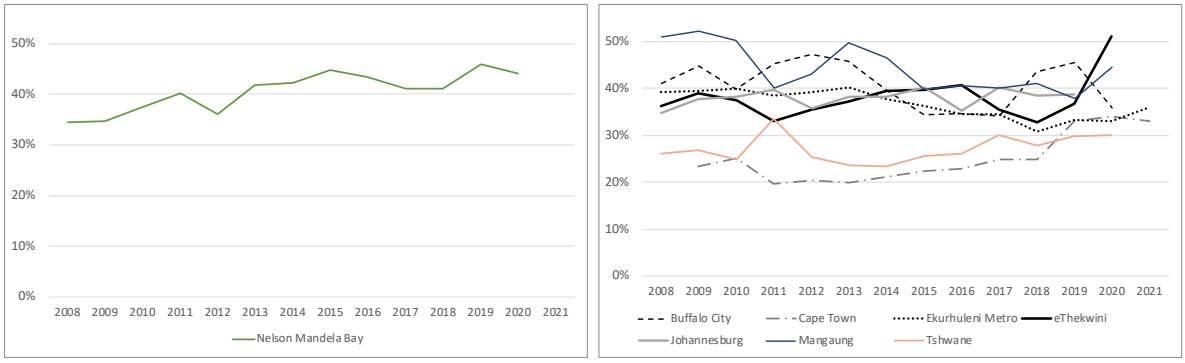
Notes: *[1] Tshwane reports 32% but this excludes a large share of water that is supplied but not billed.*
Picture source: http://thebaybulletin.blogspot.com/2016/05/port-elizabeth-nelson-mandela-bay-loses.html

13 Baietti, A., Kingdom, W., and van Ginneken, M. 2006. "Characteristics of Well-Performing Public Water Utilities." Water Supply and Sanitation Working Notes 9. World Bank. Washington DC.

14 Baietti et al (2016), Lee Kuan Yew SPP (2009).

There is a marked decline in performance trends in some metros, for example, Nelson Mandela Bay. None of the metros has shown a sustained improvement in performance over time (Figure 3).

FIGURE 3: Non-revenue water in Nelson Mandela Bay (left) and all metros (right)



Sewer spills

The frequency of sewer spills is another indicator of overall management effectiveness of the water and sanitation business. Sewer spills are an unpleasant threat to public and environmental health. The frequency of sewer spills is very high in all South Africa's metros. The rate of replacement of the sewer network is very low. Routine jetting of sewers is not practiced in most of the metros. Good practice is to clean all sewers in the network every five years as part of a routine sewer jetting programme. The high frequency of spills and slow response times to fix the problem leads to unhappy customers. The complaints related to sewer spills exceed water-related complaints in Cape Town, and this was true even during the height of the water crisis in 2017/8. Table 6 provides key trends in all 8 metros.

TABLE 6: Sewer spills, sewer pipe replacement and related risks

Metropolitan area	Sewer spills / 100km pa	Rate of pipe replacement (%)	Risk of Increasing sewer spills	Risk of river pollution
Benchmark	**<50**	**2%**		
Cape Town	1200	0.3%	High	High
eThekwini	1013	1%	Moderate	High
Buffalo city	1000	--	High	High
Johannesburg	504	0.4%	High	High
NMB	462	0.1%	High	High
Tshwane	385	0.03%	High	High
Ekurhuleni	300	0.1%	High	High
Mangaung	--	--	High	High

2.3.3 Wastewater treatment

There are significant concerns with respect to the status of wastewater treatment in South Africa's metros. Wastewater treatment performance is particularly poor in Mangaung and Tshwane, and increasingly so in Nelson Mandela Bay, eThekwini, Buffalo City and Cape Town (Table 7). Only Ekurhuleni achieved 90% compliance with DWS water quality licence requirements, although the latest available data is from 2018/9. Challenges arise because of works being under-capacity, poorly operated and maintained, and in need of rehabilitation and upgrading.

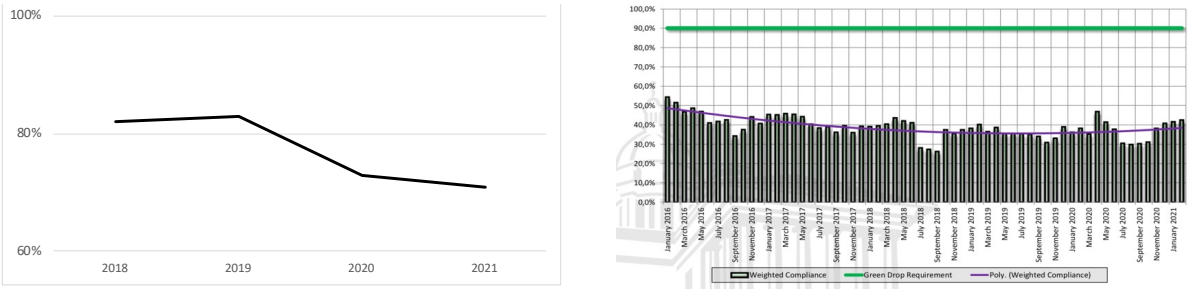
TABLE 7: Wastewater treatment performance

	Compliance	Status of wastewater treatment works
Benchmark	**90%**	
Mangaung	--	7 of 8 works considered to be in a critical state. Works do not comply due to personnel shortages and operational challenges, exacerbated by maintenance budget shortages and load shedding. Works have sufficient capacity except for one where flows are more than 50% over plant design capacity.
Tshwane	42%	Flows and loads exceed functional capacity for 6 of the 15 works.
NMB	71%	Works have sufficient capacity, but performance is poor. 6 works in total.
eThekwini	75%	5 works require capacity upgrades, 11 works exceed authorised capacity, 12 works do not have authorisation. 26 of the 27 works require refurbishment.
Cape Town	80%	4 large works are at flow and load capacity and are being upgraded, a further 6 works need improvement, out of 27 works in total. Treatment works experience operational challenges, particularly related to mechanical-electrical equipment.
Buffalo city	80%	4 overloaded, 4 in poor condition and 2 being upgraded out of a total of 15 works.
Johannesburg	85%	Sand ingress into sewers compromises wastewater treatment capacity and operations. Some capacity expansion is needed. 6 works in total.
Ekurhuleni (ERWAT)	90%	5 of the 19 works did not achieve required compliance levels. 11 out of the 19 works are operating above their design capacity. Data for 2018/9 (latest available annual report).

Source: *Reporting by metros to National Treasury in semi-annual benchmarking process, 2021*

Declining performance is evident in the case of Nelson Mandela Bay and poor performance is chronic in the case of Tshwane (Figure 4).

FIGURE 4: Compliance with WWTW license conditions – Nelson Mandela Bay (left) and Tshwane (right)



Source: *Reporting by metros to National Treasury in semi-annual benchmarking process, 2021*

Wastewater treatment performance in other municipalities is considerably worse. The latest available Green Drop assessment (2013/14) showed that 491 of 824 works assessed had a high or critical risk of failure. This is increasing the cost of water supply as pollution becomes a major cost driver for water treatment in some locations.

2.4 INFRASTRUCTURE INVESTMENT

2.4.1 Investment needs

The data on water and sewer network management above, together with the data on wastewater treatments, indicates that metros have been underspending on water and sanitation infrastructure over the past decade, at least. This means that there are large infrastructure rehabilitation backlogs. Furthermore, there is a need to increase new capacity.

The main cost drivers of capital expenditure are summarised in Table 8.

TABLE 8: Capital expenditure cost drivers

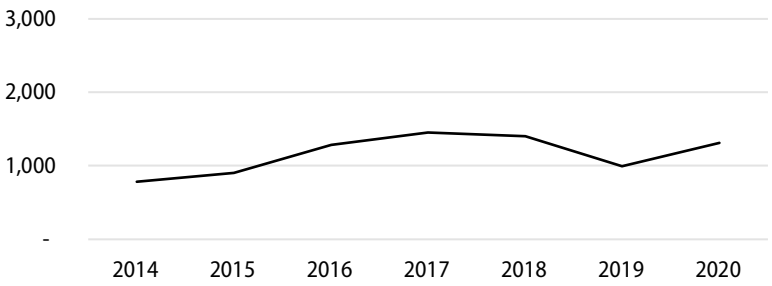
Category	Primary cost driver
New supplies	New more expensive sources, including desalination
Water treatment	Expansions & new technology (dealing with CECs)
Bulk water	Build resilience through increasing flexibility
Water network	Large rehabilitation and replacement backlog, plus expansion
Informal areas	Informal settlement growth and upgrading needs
Sewer network	Large rehabilitation and replacement backlog, plus expansion
Wastewater treatment	Large rehabilitation backlog, plant upgrades and capacity expansion
Reuse	New capacity and high costs to meet stringent standards

Cape Town's capital expenditure programme is illustrative of the challenges. To provide an effective and sustainable service, this expenditure programme needs to accommodate:

- a 300 million litre per day expansion in new water sources from surface, ground water, reuse, and desalination at an estimate cost of about R9 billion.
- a major bulk water system upgrade at a cost of about R2 billion.
- a 7.5 billion wastewater treatment upgrade programme.
- a doubling of network investments from R500 million to R1 billion per year.

This amounts to approximately R30 billion over ten years, at R3 billion per year, including various smaller capital expenditure components. This is more than double Cape Town's historical level of spending (Figure 5).

FIGURE 5: Cape Town's capital expenditure on water and sanitation (R million)



Capital budgets for the eight metros range from R200 and R600 per person per year (Table 9) and are inadequate in relation to the needs. Actual expenditure is also often less than what is budgeted.

TABLE 9: Capital budget for water and sanitation (2020/1)

	R million	R / person	Population	Comment
Cape Town	2 384	565	4 217 000	Includes bulk water and new water sources
Buffalo city	445	498	893 000	Water supplied by Amatola Water and metro
NMB	495	403	1 227 000	Includes bulk water and new water sources
Tshwane	840	239	3 600 000	Water supplied by Rand Water and metro
eThekwini	770	213	3 613 000	Water supplied by Umgeni Water
Ekurhuleni	660	207	3 178 000	Water supplied by Rand Water
Johannesburg	1 140	197	5 783 000	Water supplied by Rand Water
Mangaung	124	157	788 000	Water only. Water supplied by Bloem Water and metro

The scope of functions under municipal management varies between the metros (Table 10) and it is therefore not expected that spending per capita would be the same. Capital investment requirements will also depend on the size of the infrastructure backlog and the rate of growth, among other factors. A determination of the appropriate scale of the capital budget for each metro is beyond the scope of this report, but the case of Cape Town is illustrative and likely to be indicative of the relative difference between historical and required capital expenditure.

2.4.2 Informal settlements challenges

The number of people living in informal settlements in South Africa's metros is growing, accounting for about 18% of the total number of households in the metros in 2020 (Table 10). It is a significant challenge to provide adequate water and sanitation services to these people. In recent years there has been an increasing reliance on water tankers and chemical toilets, with a rapid expansion of these services during the pandemic. These are expensive services, and this approach is not sustainable. There also may be other incentives involved, as described in Section 2.5.3 (Inefficiencies in public spending), that are not in the public interest.

TABLE 10: Informal settlement population and access to services

Metropolitan area	Households living in informal housing	% of total households	Households without on-site water	Households without flush toilets
Johannesburg	381 000	20%	156 000	217 000
Ekurhuleni	255 000	20%	123 000	148 000
Cape Town	253 000	20%	144 000	85 000
Tshwane	202 000	17%	116 000	222 000
eThekwini	180 000	15%	178 000	275 000
Buffalo City	51 000	21%	74 000	63 000
Mangaung	47 000	18%	48 000	92 000
NMB	27 000	8%	12 000	16 000
Total	**1 396 000**	**18%**	**851 000**	**1 120 000**

Source: *National Treasury Circular 88, 2019/20.*

2.4.3 Inefficiencies in public spending

South Africa's regulatory framework for public financial management and procurement was designed to prevent, or at least minimise, the corruption of tender processes. However, strong evidence has emerged during the Zondo Commission[15] and elsewhere[16] of significant inefficiencies and corrupt practices in state procurement processes, including at the municipal level, leading to large and expensive capital projects (or expensive operating costs) instead of more cost-effective alternatives.[17]

Complex and onerous procurement rules and processes, required by overlapping and sometimes conflicting legislative jurisdictions, and how these have been interpreted, have also resulted in high levels of contestation and litigation, slowing down and making more cumbersome an already challenging process.

A recent review of corruption in the water sector concluded that corruption "is now endemic, present and taken for granted, across the South African water sector."[18] A leading South African water expert recently compared this with an observation in a global World Bank report that "*Where corruption is systemic, the formal rules remain in place, but ... in practice the law is not enforced …and informal rules prevail. Government tender boards may continue to operate even though the criteria by which contracts are awarded have changed.*" [19]

While it is difficult to estimate the cost of corruption in the water sector, there is no doubt that it is significant and that the efficiency of public spending to achieve value for money outcomes needs to be enhanced.

15 Commission of Inquiry to investigate allegations of state capture, corruption and fraud in the Public Sector including organs of state (www.statecapture.org.za).

16 Muller, M. 2020. "Money Down The Drain - Corruption in South Africa's Water Sector." Corruption Watch and Water Integrity Network.

17 The case of the Mangaung-Gariep pipeline and tanker-supplied water are cited as examples in Muller (2020).

18 Muller, M. 2020. "Money Down The Drain - Corruption in South Africa's Water Sector." Corruption Watch and Water Integrity Network.

19 World Bank (1997) quoted in Muller (2020).

2.5 FINANCIAL PERFORMANCE

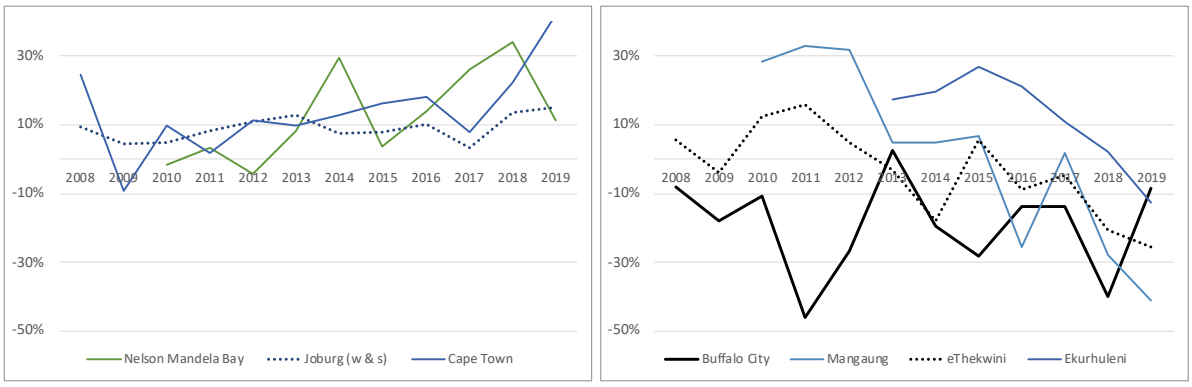
2.5.1 Serious financial performance concerns in the majority of metros

National Treasury expects municipal water businesses in South Africa to be financially viable within a framework of national government grants intended to support the provision of basic services for the poor. Water and sanitation are trading services, with revenues from service charges based on the approved tariffs.

More than half of the metropolitan water businesses are in serious financial trouble, including eThekwini, Buffalo City, Mangaung, Nelson Mandela Bay and Ekurhuleni.

Time series data on direct operating surplus (excluding net indirect costs) was compiled for the period 2008 to 2019. Four metros were showing concerning declines in direct operating surplus – Buffalo City, Mangaung, eThekwini and Ekurhuleni, and there was a positive direct operating surplus in Johannesburg, Cape Town and Nelson Mandela (Figure 6).

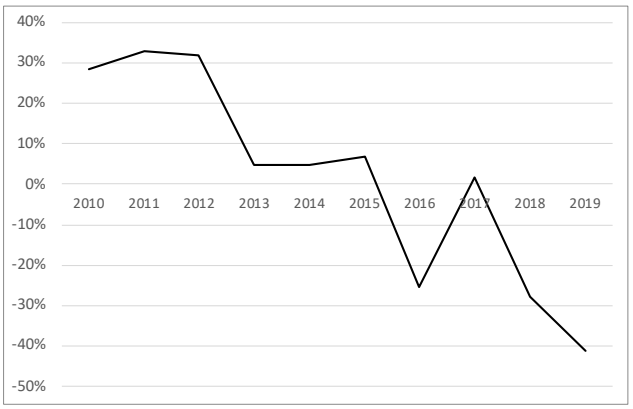
FIGURE 6: Direct operating surplus (water)



Note: *Johannesburg is for both water and sanitation. Data for Tshwane is excluded as it was considered unreliable*

The decline in direct surplus in Mangaung is particularly striking, showing a water business in distress (Figure 7).

FIGURE 7: Net direct operating surplus for water in Mangaung



A high-level income statement for four metros is shown in Table 11, including indirect costs and showing a large spread in financial performance between these metros. Treatment of indirect costs, for example, municipal overheads, are not consistent between metros.

Table 11: Financial viability of the municipal water service in four metros (2019/20 audited outcome)

	Tshwane	Cape Town	Buffalo City	Ekurhuleni
Service Charges	4 470	3 020	710	4 329
Total Revenue	4 470	3 966	852	5 921
Service charges (% revenue)	100%	76%	83%	73%
Direct costs	3 437	3 491	908	9 130
Net indirect costs	1	433	13	-28
Indirect Costs (% direct costs)	*0%*	*12%*	*1%*	*0%*
Net revenue	1 034	42	- 69	- 3 180
Net revenue %	*23%*	*1%*	*- 8%*	*- 34%*

Source: *National Treasury Benchmarking. June 2021.*

A note on financial transparency

Although National Treasury has made important strides in increasing the transparency and accessibility of municipal finances to the public and is in the process of extending this for individual municipal services, some challenges remain. See Annexure 2 and Section 5.4.1.

2.5.2 Factors affecting financial performance

Financial performance depends fundamentally on four things under the direct control of municipalities:

- **Setting tariffs** and other service charges at appropriate levels such that the combination of billed revenues and reliable operating grants are sufficient to meet required (efficient) costs, including overheads;
- **Allocating grants** (particularly the national government's equitable share) at an appropriate level to the water and sanitation service to support the cost of providing basic services to poor people;
- **Collecting revenue** effectively and efficiently; and
- **Being efficient** in how resources are used.

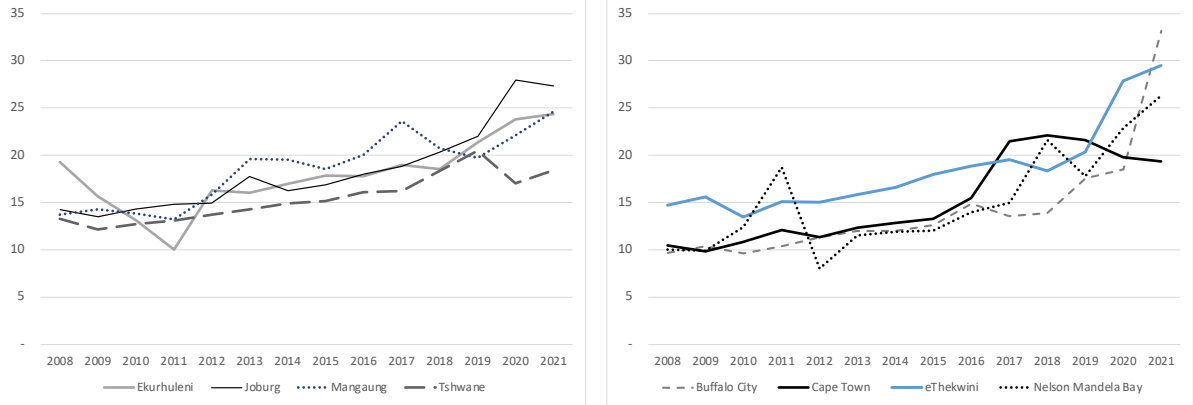
Each is detailed below.

2.5.3 Tariffs

Water tariffs are set by municipalities themselves. Internationally, it is the norm for urban water tariffs to be approved by an economic regulator through a formal process that is based on a determination of revenue requirements to meet efficient costs. (See Annexure 4.)

Nevertheless, declining financial performance does not appear to be necessarily due to tariff levels. The metro municipalities have implemented above inflation increases in water tariffs over a long period of time. Average effective tariffs increased in real terms (net of inflation) by more than 70% in six of the eight metros over the ten-year period 2012 to 2021 (Figure 8), and in some cases much more. Declining financial performance in this context means that expenses have increased at a greater pace than tariffs have increased, pointing to revenue collection and overall efficiency challenges that are elucidated below.

FIGURE 8: Average effective tariffs (2022 Rands) in inland (left) and coastal (right) metros over last ten years



2.5.4 Use of government grants

Practices differ between metros in how government grants are used to support provision of a basic water supply to poor households. Four out of six metros (for which data was available) allocated a portion of the national government's equitable share to the water service. The operating grant per household (including households living in informal settlements) receiving free water varied between R101 and R257 per household per month (Table 12, which includes data on 6 of the metros). While the principle of the equitable share allowing municipalities to utilize the grant according to their own priorities has been seen as a firm expression of the devolved system intended constitutionally, the lack of effective grant utilization at municipality level would appear to need attention if the water sector at local level is to become more sustainable and effective in reaching target groups of beneficiaries.

TABLE 12: Use of equitable share for water service in 2019/20

	Operating Grant [1] 2019/20 actual R million	Operating Grant % of	Total Households	Households Receiving Free water [2]	Operating grant per household receiving free water per month
Ekurhuleni	1 592	26%	1 283 000	515 000	257
Cape Town	945	24%	1 269 000	450 000	175
eThekwini	882		1 191 000	512 000	143
Buffalo city	143		245 000	117 000	101
Johannesburg	0		1 925 000	1 925 000	0
Tshwane	0		1 188 000	667 000	0

Notes: *[1] Operating grant allocated to the water service.*
[2] Include qualifying connected households as well as households living in informal settlements. See Annexure 3 for details. Source: Municipal reporting to National Treasury.

2.5.5 Revenue collection

Municipalities need sufficient cash to provide services. There has been a concerning drop in the ability of many of the metros to collect billed revenue for water and sanitation. The COVID-19 economic downturn made a difficult situation much worse. The level of revenue collected in 2020/1 is shown in Table 13, which is deeply unsustainable in at least 4 metros.

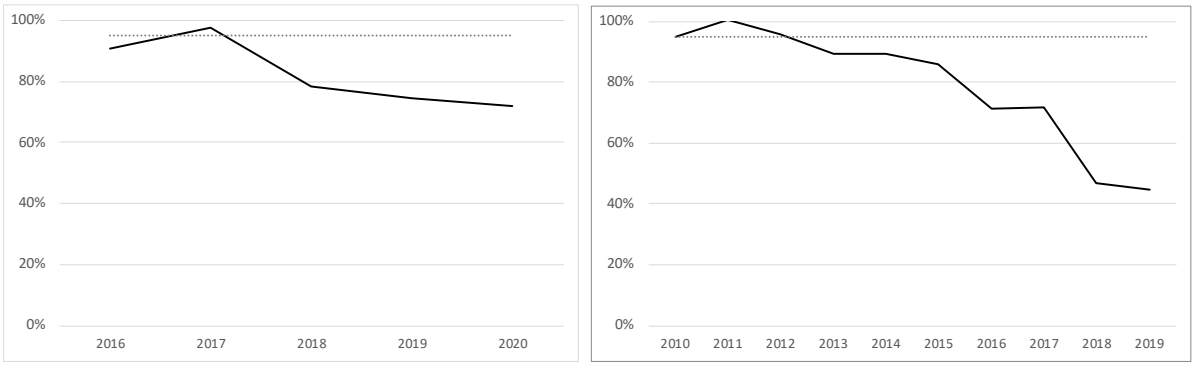
TABLE 13: Revenue collection efficiency for water (2020/1)

Metropolitan area	Collection %
Benchmark	95%
Cape Town	89%
Johannesburg	79%
eThekwini	72%
Mangaung	46%
Buffalo city	46%
Nelson Mandela Bay	45%

Note: *Revenue collection data was not reported for Ekurhuleni and Tshwane.*

Poor recent performance is part of a longer-term trend (Figure 9), which highlights the structural depth of the challenges, and hence the recommendations for deep rooted reforms in sections 5 to 7 of this report.

FIGURE 9: Declines in cash collection in eThekwini (left) and Mangaung (right)



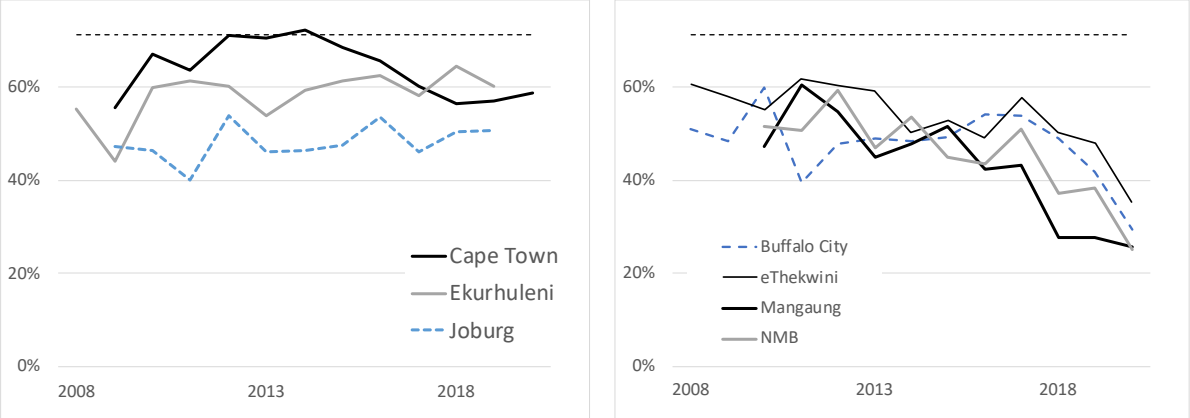
2.5.6 Efficiency

There has been a precipitous drop in the overall efficiency in at least four metropolitan municipalities – eThekwini, Mangaung, Nelson Mandela Bay and Buffalo City (Figure 10), where the overall efficiency of the water business is measured as the product of "revenue water" and collection efficiency. This can be viewed as the percentage of water produced (system input volume) that translates into cash revenue.[20] The benchmark for overall efficiency is 71%.[21]

20 Revenue water = 100% minus the % non-revenue water. For example, nonrevenue water of 45% will mean revenue water of 55%.

21 75% Revenue water (that is, 25% non-revenue water) x 95% cash collection efficiency.

FIGURE 10: Overall efficiency of metro businesses has declined significantly in some metros



A note on technical performance transparency

The determination of revenue requirements depends on an understanding of requisite efficient costs but is only possible where there is data on compliance and technical performance. There have been various efforts to improve reporting on technical compliance and performance including the blue, green and no drop initiatives; the Regulatory Performance Monitoring System; the Municipal Vulnerability (self) assessment MuSSA (Department of Water and Sanitation); the Infrastructure Report Card (SAICE); Service Delivery and Budget Implementation Plan; Circular 88 (National Treasury); and the Municipal Benchmarking Initiative (SALGA), among others. Nevertheless, robust timeseries data on key compliance and performance indicators remains elusive, even for the metros. Recommendations to address this shortcoming are made in Section 6.

2.6 HUMAN RESOURCES

There is a low number of registered professional engineers in most of the metros and all metros reported concerns related to the high number of vacancies or persons in acting positions in critical posts (Table 14). More specifically: Cape Town reported a 21% vacancy rate in critical posts (defined as level T14 and above); Johannesburg Water reported 18 critical vacancies including 4 executive managers, 7 managers and 2 specialists in 2019;[22] Tshwane reported 106 critical vacancies in 2020; and in Nelson Mandela Bay there were a reported 12 vacancies at the professional level or above (2021). In Mangaung, 2 (out of 4) general managers, and 8 (out of 12) manager positions were vacant or had acting managers. Buffalo City reported that 41 critical posts had been frozen because of a moratorium on recruitment.

TABLE 14: Human resources overview

Metropolitan area	# of Staff [1]	# of Vacancies [2]	% Vacancies [3]	Registered Professional Engineers	Registered Technologists & Technicians
Cape Town	4110	907	22%	42	--
Johannesburg	2 716	--	--	37	
Ekurhuleni	962	197	20%	1	
Nelson Mandela Bay	800	--	--	0	9
Buffalo city	653	122	19%	1	9
Mangaung	623	624 [4]	100%	1	2
Tshwane	--	--		7	--
eThekwini	--	--	--	--	--

Notes: [1]Current staff in water and sanitation department (filled positions). Note that the scope of functions differs between municipalities. [2] Based on funded posts. [3] Percentage of filled positions. [4] Includes unfunded posts.

2.7 FACTORS AFFECTING SERVICE OUTCOMES

The eight metro Water Managers were polled in 2017 on the significance of factors affecting service outcomes (Table 15). The most important factor impeding better performance outcomes was reported to be political decisions not being made in the long-term interests of service outcomes. This is a serious concern because the water business is capital intensive and sound decision-making must, by definition, take the long-term into account. Directly related to this is the fact that not enough is being spent on the replacement of existing assets (the second most significant factor reported). Further, closely linked to both factors are the reported risks that engineering skills are diminishing, plus maintenance is reactive rather than proactive. Regulatory burden was also reported as a significant issue inhibiting better performance.

These factors are unlikely to have changed significantly since the time of reporting and unless they are addressed, it is doubtful that the negative sector performance and outcomes can be reversed.

22 Joburg Water Annual Report 2018/19 (latest available).

TABLE 15: Relative significance of factors negatively impacting service outcomes

Enabling environment	Regulatory burden needs to be reduced	84%
	Grants & related incentives frameworks need review	78%
	More clarity on policies needed	63%
	Institutional responsibilities need changing or clarity	59%
Council governance	Decisions are not in the best interest of a long-term sustainable service	94%
	Politicians are involved in operational decisions	75%
	Investments are not prioritized appropriately	56%
Administrative processes	Not enough is spent on replacement	91%
	Engineering skills & experiences are reducing	91%
	Maintenance is reactive & not proactive	88%
	Investments are not value for money	50%

Note: *Results based on a poll of eight city water managers responsible for water and sanitation in metros. A score of 100% means that all eight considered the factor very important. A score of 75% indicates an average score of important.*

Source: *Eberhard (2018)*

2.8 PERCEIVED RISKS

National Treasury's summary view of the risks facing the water businesses is outlined in Table 16, based on metros' self-assessment of perceived risks over the next five years, as reported in Annexure 5. Based on the relative performance of the metros and their trends in performance over time, these risks were adjusted for consistency between metros and to better reflect the data and assessments presented in Sections 2.1 to 2.8, and as explained in Annexure 5. The numbers in bold were adjusted and in all cases the adjustment was an increase in the risk assessment.

TABLE 16: National Treasury perceived risk (over next 5 years)

NT adjusted perceived risk (over next 5 years) of …	MAN	NMB	BUF	EKU	TSH	ETH	JNB	CTN
Significant water restrictions being imposed	4	4	**4**	**4**	**4**	**4**	4	**4**
Episodes of drinking water unsafe to drink	3	2	2	**2**	2	**2**	2	**2**
Regular water supply interruptions or less frequent, lengthy interruptions	4	5	**5**	**5**	**5**	**3**	4	**4**
Significant pollution of rivers / inland water bodies (network/ wwtw issues)	4	**4**	**4**	**4**	4	**4**	4	**4**
Unsound technical decisions compromise service (critical technical skills gaps)	**4**	**4**	4	**4**	2	**2**	2	2
Unsound technical decisions compromise service (undue political interference)	4	**4**	**4**	**3**	**3**	**3**	2	**2**
Assets and service deterioration (low spending on maintenance and rehabilitation/replacement of assets)	5	**5**	5	**4**	4	4	4	3
AVERAGE RISK SCORE	4	4	4	3.71	3.43	3.14	3.14	3

Risk levels: *low (2), moderate (3), high (4) and very high (5)*

MAN = Mangaung; NMB = Nelson Mandela Bay, BUF = Buffalo City; EKU = Ekurhuleni; TSH = Tshwane; ETH = eThekwini, JNB = Johannesburg; CTN = Cape Town

Risks of episodes of unsafe drinking water are low for all metros except Mangaung with moderate risk as a result of financial, skills and capacity constraints. See section 2.3.1.

Risks of regular water supply interruptions or less frequent but lengthy interruptions are very high in Nelson Mandela Bay and high in Mangaung and Johannesburg based on the assessment of the performance metrics given in Section 2.3.2.

Risks of significant pollution of rivers and/or inland water bodies is high for all metros. See Section 2.3.3.

The risk of unsound technical decisions compromising service because of critical technical skills gaps is high in four metros: Mangaung, NMB, Buffalo City and Ekurhuleni due to the absence or very low number of registered professionals. See Section 2.6.

The risk of unsound technical decisions leading to compromises in services because of undue political interference is considered high for Mangaung, Nelson Mandela Bay and Buffalo City and moderate for Ekurhuleni, eThekwini and Tshwane, based on National Treasury interactions with the metros.

The risk of assets and service deterioration is high or very high in the case of six of the eight metros: Mangaung, Nelson Mandela Bay, Buffalo City, Ekurhuleni, Tshwane and eThekwini and moderate in the remaining two metros, based on the metrics given in Section 2.3.2.

As a result of the adjustment made, the overall risk assessment for Buffalo City and Ekurhuleni increased in relative terms compared to the other metros, and the risk assessment for Johannesburg decreased relative to the others, with the ordering for the rest staying the same. (See Table 17 versus Table 22).

3. WHY CHANGE?

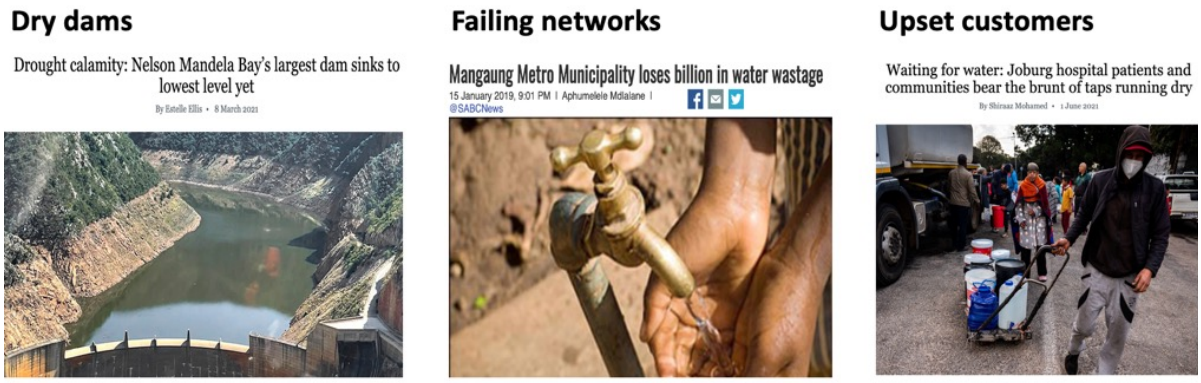
3.1 HOW POOR PERFORMANCE MANIFESTS

Declining performance and service failures in the water sector in South Africa's municipalities show up in various ways. Some examples are provided below:

- Increasing risks (and frequency) of near-empty dams and the need for more frequent and more severe water restrictions. (Cape Town in early 2018, Nelson Mandela Bay in 2018 and 2021). Low rainfall periods (droughts) are anticipated and planned for in water resources planning. These events are significantly exacerbated when decisions and implementation are delayed. See Section 2.2.
- Increasing frequency of burst water pipes and low local storage reservoir levels, with increasing frequency of water 'outages', with longer time periods for these to get rectified. (City of Johannesburg in 2021).
- Loss of a pressurised 24/7 water supply because of the need to undertake "water shedding" across the network. (Johannesburg, 2021).
- Increasing frequency of sewer spills and higher volumes of raw sewage entering rivers or inland water bodies (Emfuleni, 2021).
- Declining quality of the effluent from wastewater treatment works (Tshwane, 2021).
- Increasingly unhappy and frustrated customers (City of Johannesburg, 2021).
- Investment by customers in alternative supplies such as boreholes (Cape Town, 2017/2018, City of Johannesburg, 2021).
- Increasing use of water tankers to deliver water (in informal settlements in Cape Town, Johannesburg, other metros and more widely, 2021).[23]

23 www.news24.com/news24/southafrica/news/govt-cuts-ties-with-corrupt-water-trucking-service-providers-20210312

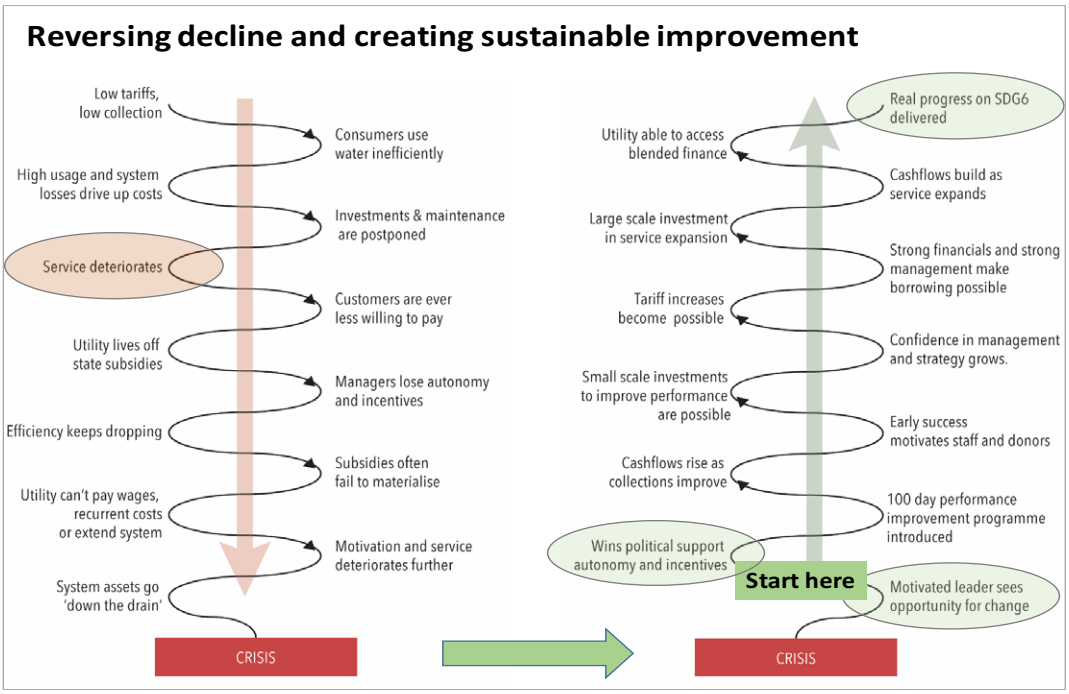
FIGURE 11: What failure looks like



- Reluctance on the part of customers to pay their water bills (eThekwini, 2021)[24].
- Reducing cash collection (Mangaung, eThekwini 2017 to 2021).
- Less money for maintenance (Buffalo City 2010 to 2021).
- Difficulties in paying salaries (Bloem Water 2020 and 2021).
- Greater reliance on subsidies (Mangaung, 2021).
- Under investment (all metros).
- Reduced staff motivation.
- Loss of skills and reduced managerial autonomy (Mangaung 2021).

These factors tend to reinforce each other and can easily turn into a downward spiral, as shown in Figure 12 (left hand side).

FIGURE 12: Characteristics of a downward spiral in the water business



24 www.iol.co.za/sunday-tribune/news/chatsworth-residents-threaten-rates-boycott-after-water-outages-8d7ac2d4-8211-49ae-8aa5-050b81c9e27f

3.2 HOW WATER BUSINESSES FAIL

Water businesses fail as a result of prolonged periods of under-investment and under-maintenance. In a context of chronic under-investment, the performance[25] of the water business will follow a curve shown in Figure 13.[26] (See Text Box 1 "At or close to a tipping point").

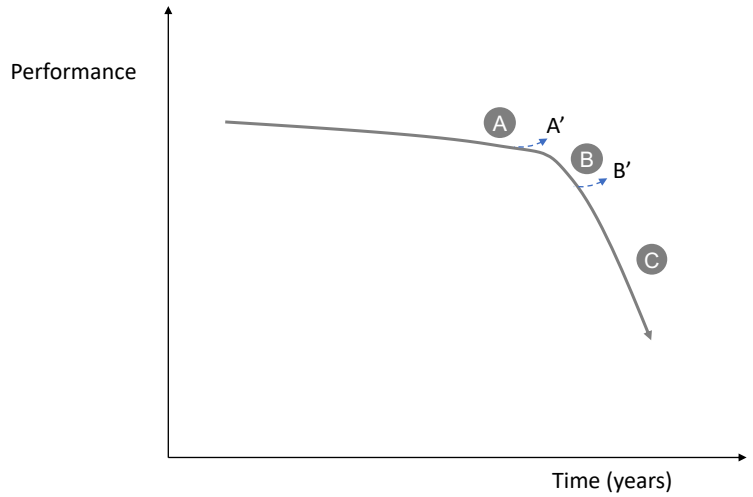
The impact of under-investment and under-maintenance can go largely unnoticed for years, with relatively modest but continuous drops in performance (Point A).

However, should under-investment and under-maintenance persist, the failure of water businesses is hastened (Point B) and to a greater, more serious scale (Point C). A key tipping point is the loss of a continuous (24/7) pressurised supply in the water network. When water is no longer provided continuously, the network is frequently repressurised and depressurised. This affects the quality and safety of drinking water (due to the negative pressure in the pipes and the opportunity for contaminants to infiltrate the network) and increases the speed of network deterioration due to the hydraulic hammer effect.[27]

It is much harder and more expensive to recover, the further along this negative performance curve a city finds itself, more so once a system has lost a continuous pressurised supply.

This performance curve can also be looked at through a financial lens. As financial performance drops, less cash is collected making it harder to maintain the network and undertake the necessary investments and maintenance, establishing a downward spiral in performance.

FIGURE 13: The performance trajectory of a water business in the context of chronic under-investment



Source: *After Baietti et al (2006)*

25 Performance in this context refers to a compositive of financial and technical performance. One such indicator is a simple global efficiency indicator. See Section 3.2.

26 Baietti, A., Kingdom, W., and van Ginneken, M. 2006. "Characteristics of Well-Performing Public Water Utilities." Water Supply and Sanitation Working Notes 9. World Bank. Washington DC.

27 Water pressure surges result when there is a sudden change in flow. These events, otherwise known as water hammers, can reduce the longevity of pipes, cause leaks or main breaks and jeopardize water quality. https://cclynch.com/4-reasons-to-monitor-pressure-in-water-distribution-systems/

3.3 LOCATING SOUTH AFRICA'S METRO WATER BUSINESSES ON AN INFRASTRUCTURE PERFORMANCE CURVE

The performance of South Africa's metros can be estimated by tracking it using a composite efficiency indicator already presented in Figure 10.[28]

The data suggests that South Africa's metros fit into three categories (as in Figures 10 and 13):[29]

- **Point A:** Metros that have experienced a long period of poor performance, and are likely to, without intervention, head towards Point B (Ekurhuleni and Johannesburg).
- **Point A':** Metros that have experienced poor performance and a crisis and have put in place a strategy and implementing a plan for turnaround water business (Cape Town).
- **Point B:** Metros that have a long period of poor performance and more recently experienced more rapid declines in financial and technical performance, therefore requiring a major intervention to turnaround the water business (Buffalo City, eThekwini, Nelson Mandela Bay).
- **Point C:** Municipalities with substantially degraded performance across a wide scope of their water and sanitation business. Mangaung is arguably already in this category. Many of the smaller municipalities in South Africa fit into this category. See Figure 14 for example.

3.4 WHY TURNING AROUND METROPOLITAN WATER BUSINESSES IS IMPORTANT

Although the metros made good progress, particularly with respect to increasing access to services, in the first decade after their establishment[30], it is increasingly evident now that the water reticulation network (through which water is distributed to customers) is becoming less reliable, resulting in more frequent and more severe unplanned water disruptions in many of South Africa's cities and towns. Whereas it was the norm for South African municipalities to provide a secure and continuous (24/7) water supply, this can no longer be taken for granted.

Serious disruptions to supply, with significant inconvenience and associated costs, have occurred even in metropolitan areas, where institutions have been deemed much stronger and more reliable compared to the smaller municipalities. Recent failures to supply water to hospitals in Johannesburg is illustrative of this risk (See Section 2.3.1). Residents in many areas have experienced water failures lasting several days or more, and prolonged water shortages have also occurred in metropolitan municipalities. Failures in municipalities that service smaller towns and more rural areas have been more frequent and intermittent supplies are now widespread (Figure 14). The chronic water shortfall in Makhanda

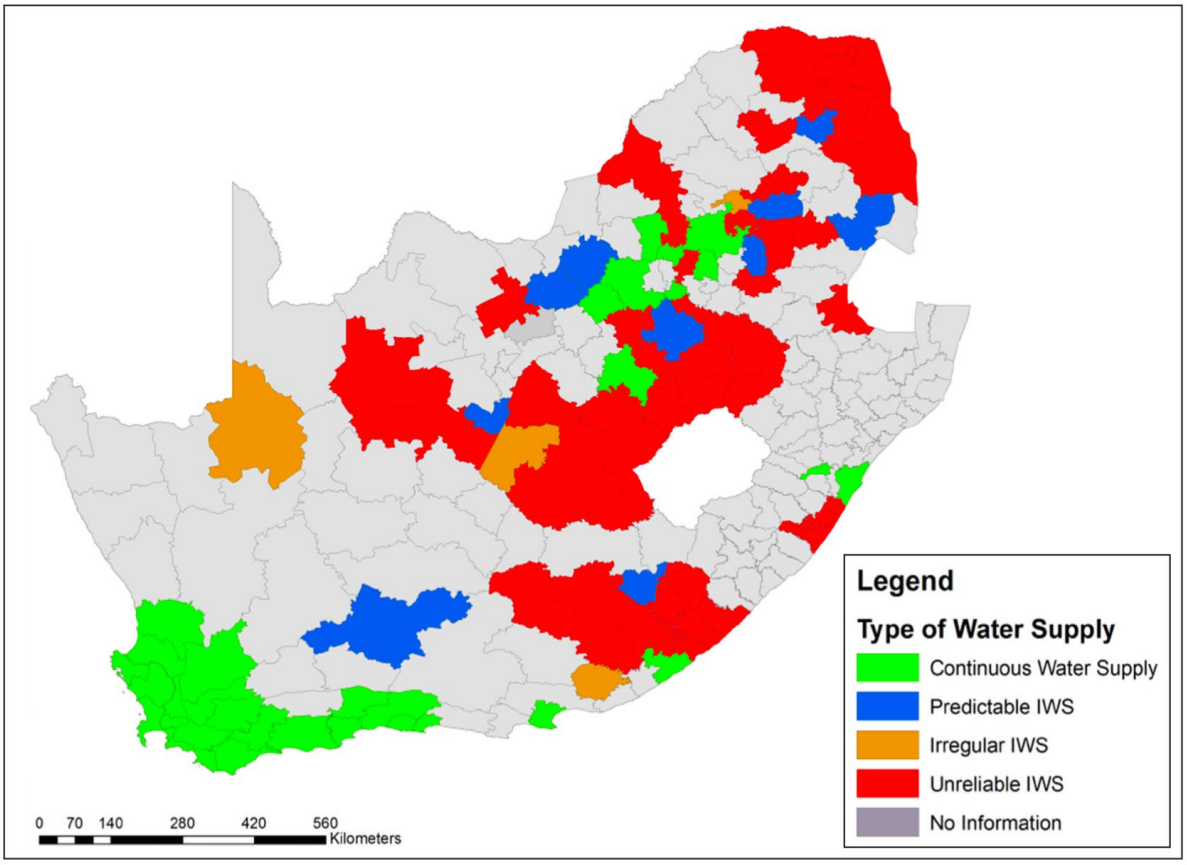
28 The composite efficiency indicator is the multiple of the percentage revenue water (100% less percentage non-revenue water) and cash collection efficiency, which is roughly the portion of water supplied that is translated into cash (money) that can be used to operate the service. See for example, Marin (2009).

29 Cash collection data for the water service in Tshwane is not available.

30 The metropolitan municipalities were created in 2000.

Municipality (Grahamstown) in the Eastern Cape is well known but it is not an isolated case.

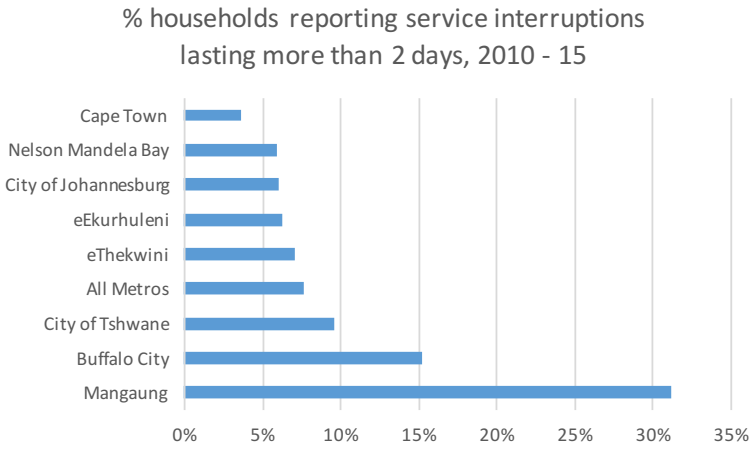
FIGURE 14: Intermittent water supply in South African municipalities



Source: *Loubser et al (2021)*

Lack of safe and reliable water was the top priority challenge identified by households in the Stats SA 2016 Community Survey. According to the Stats SA General Household Survey (2015), more than a quarter of households reported some dysfunctional service with their water supply in 2015. Households reporting water supply interruptions lasting more than two days in the metropolitan areas is shown in Figure 15. More recent data is likely to depict an increase in the prevalence of interruptions.

FIGURE 15: Households reporting service interruptions in metropolitan areas



Source: *General Household Survey (2015)*

A continuous water supply is important for health, quality of life, economic and technical service delivery reasons. Continuous pressure in the piped network prevents contamination of the water through negative pressures and avoids hydraulic shocks in the network. Discontinuous water supply is not only inconvenient, but also unsafe (due to much higher risks of contamination within the network and from local storage). In addition, the meters and the piped network deteriorate more rapidly due to the ingress of soil and from frequent hydraulic shocks resulting from a discontinuous supply.

For these reasons, a continuous 24/7 piped water supply is the norm in cities in all developed countries and has been achieved in many middle-income countries.[31] It is possible to achieve a 24/7 supply even in low-income developing countries as demonstrated in Senegal, Burkina Faso and Cambodia, for example.[32] *South Africa is an upper-middle country. The challenge is, therefore, not one of adequacy of resources or technical knowledge*.

Failure to provide adequate services is leading to the closure of businesses in smaller municipalities and deters investment and job creation. *It is thus very important that South Africa avoid moving away from a normative situation of a continuous and reliable, safe water supply in its cities.*

There are equally compelling reasons for addressing poor sewer network performance (evidenced by a high frequency of sewer spills) and poor wastewater treatment performance (evidenced by low compliance with regulated standards). See Section 2.

A turnaround in the technical performance of the water business, and in service outcomes, is not possible without turning around the financial performance of the business as the business delivers the service and its outcomes.

The economic costs of poorly performing urban water businesses are very significant. The cost of inefficiencies is likely to be more than R10 billion per year for the 8 metros.[33] The economic costs of unreliable water supplies are likely to be far larger. For example, the severe restrictions to water supply in Cape Town, exacerbated by weaknesses in water resources management, cost the South African economy several billion Rand.[34] The economic and financial benefits of municipal water business turnarounds is therefore very significant, as it will also increase water security.

31 IBNET, a global utility benchmarking database, reports 69 countries with a 24-hour supply. www.ib-net.org

32 See Heymans et al (2016) and Lee Kuan Yew SPP (2009).

33 Calculated by the author on the basis of actual versus good practice benchmark efficiencies.

34 Ziervogel, G. 2019. "Lessons from Cape Town's drought. Cities Support Programme." www.africancentreforcities.net/wp-content/uploads/2019/02/Ziervogel-2019-Lessons-from-Cape-Town-Drought_A.pdf

4. THE POLICY, LEGISLATIVE AND REGULATORY FRAMEWORK FOR WATER SERVICES

4.1 INTRODUCTION

A strong case for the turnaround of municipal water businesses has been made in Sections 2 and 3 above, whilst Sections 5 and 6 focus on the turnaround of municipal water services businesses and aspects of the enabling environment where National Treasury has the mandate to take the lead. However, it is widely recognised that the performance of water services at the municipal level also depends on the policy, institutional and regulatory frameworks within which the service is provided. These are described briefly in this section.[35]

4.2 EVOLUTION OF POLICIES, INSTITUTIONS, AND REGULATION IN SOUTH AFRICA

South Africa's substantive policy governing the provision of water services is captured in the Strategic Framework for Water Services, published in 2003. This document presented a policy update after the

35 Eberhard (2017), Boraine, Crankshaw et.al, (2006), Heymans (2006), Government of South Africa (2006).

promulgation of the Water Services Act (#108 of 1997) and reflected changes in local government legislation with the passing of the Municipal Systems Act (#32 of 2000), the Municipal Structure Acts (#117 of 1998) and the Municipal Financial Management Act (#56 of 2003).

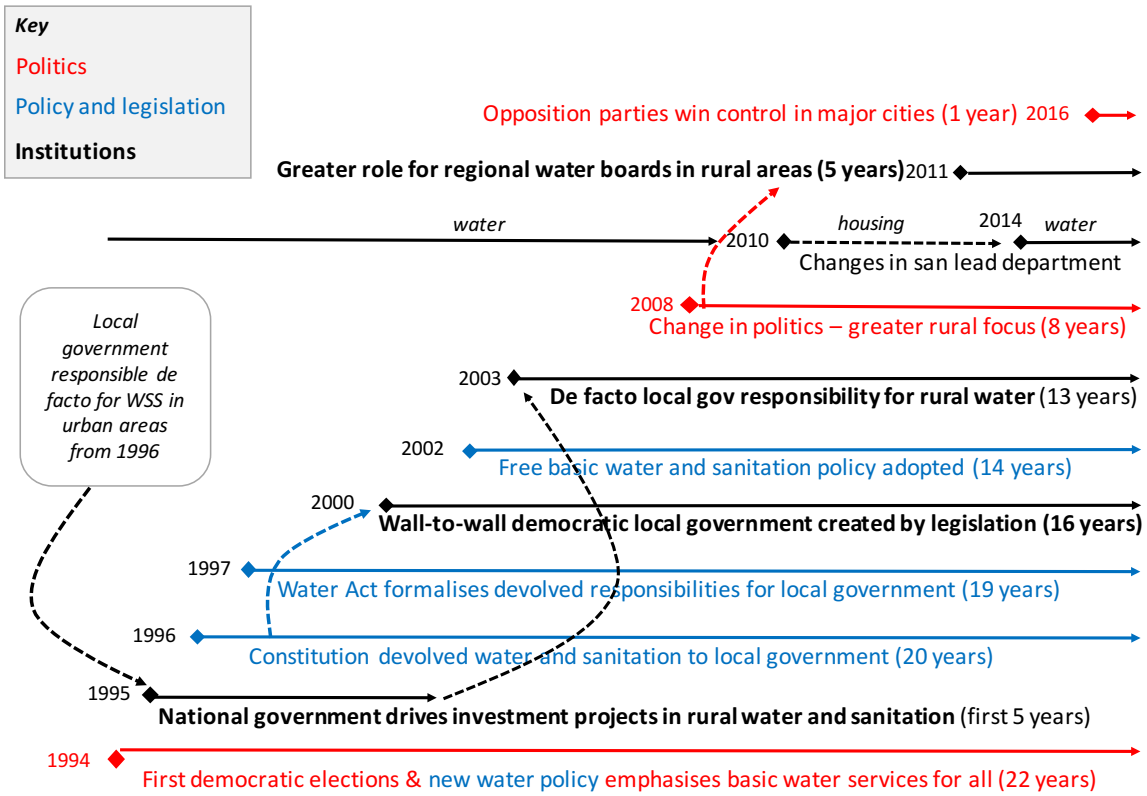
The content of the policy and legislation has been quite stable over the last 20 or so years, is well known to South Africans, and has been well recognised internationally as providing, overall, an enabling framework for the progressive realisation of the right to basic water and sanitation services. These rights are set out in the Bill of Rights in South Africa's first democratic Constitution approved in 1996. This created the basis for the development of a unified and inclusive local government system, transforming the previous system that distinguished between locations based on race. Key events in the development of South Africa's water policies and institutions are summarised in Table 17 and Figure 16.

TABLE 17: Key Events in the Development of South Africa's Water Policies and Institutions

Year	Event	Year	Event
1994	Water Policy adopted and nationally driven investment program launched, with an emphasis on meeting the basic needs of all citizens.	2003	Water services policy updated with more emphasis on performance, higher service levels and sustainability, and alignment with local government legislation.
1996	Constitution adopted, allocating water supply and sanitation services provision to local governments.	2008	Change in national politics (within ANC); mire emphasis on rural development and social transformation.
1997	Water Services Act promulgated, defining the role of national government as regulator, water boards as bulk providers, and municipalities as responsible for provision.	2009-2014	The sanitation function moved from the Water Ministry to the Housing Ministry in 2009, and then back again in 2014.
2000	Democratic local government established, local government legislation introduced, new decentralized financial framework introduced. Department of Water and Sanitation shifts its role from implementer and operator of rural schemes for local government.	2010	Department of Water and Sanitation changes emphasis from support to regulation. Drinking water and wastewater quality monitoring started with Blue & Green Drop Program. Turnaround strategy for local government approved by the Cabinet (supporting local government).
2001	Basic Household Sanitation Policy adopted, with a focus on grant-funded basic sanitation in rural areas.	2013	New water policy positions gazetted. Free water restricted to the indigent. Rationalization of water boards – fewer in number with larger service areas.
2002	Free Basic Water Policy introduced with intention to provide all poor households with a free basic supply of water (25 lcd or 6 kilolitres per connection per month).	2016	Ruling party for 25 years loses control of 3 (of 5) major cities to opposition parties.

Source: *Eberhard (2017). Note: lcd= litres per capita per day.*

FIGURE 16: Timeline of Major Events in Evolution of Water Policy, including Legislation and Institutions in South Africa (2017)



Source: *Eberhard (2017). Notes: WSS= water supply and sanitation. Gov= government. San= sanitation*

4.3 KEY POLICIES

Local government responsibility for water and sanitation services

In South Africa, the constitutional responsibility for water services lies with local government. Hence the locus of responsibility to turn a municipal water business around must rest with local government, which has a large degree of political, management and financial autonomy from other spheres of government (national and provincial), but which must operate within a policy and legislative framework set by national government.

The failed structural reforms of the electricity distribution industry in South Africa have been, in large measure, the result of the fact that these reforms could not proceed without a constitutional amendment or the buy-in from local government, neither of which was achieved.[36]

Effective reforms will need to deal with systemic poor performance on the part of municipalities in discharging their responsibilities. The national Department of Water and Sanitation recently concluded

36 www.gsb.uct.ac.za/files/TheRedsaredead.pdf

that "many municipalities, due to a lack of skills and capacity, and exacerbated by political interference, are just not able to run successful water services businesses."[37]

Free basic water and sanitation

The 1996 Constitution established a right to sufficient water and to a health living environment, placing the responsibility on government to progressively realise this right within its available resources. The Water Services Act of 1997 defined a minimum water service as 25 litres per person per day within 200 meters of a household and available for 360 days per year. The government introduced free basic water and sanitation policy in 2001 and required municipalities to adopt this policy by providing a certain basic amount of water for free to residents who otherwise could not afford to pay. The Constitutional Court declared in 2009 that the City of Johannesburg should provide 50 litres per person per day to the applicants and "similarly placed" residents of Phiri[38] in the case of "Mazibuko and Others v City of Johannesburg and Others".[39] In 2010, the United Nations General Assembly explicitly recognized the human right to water and sanitation and acknowledged that clean drinking water and sanitation are essential to the realisation of all human rights.[40]

Separation of authority and provider functions allows choice of provider

The Water Services Act of 1997 created a separation of the water services *authority* function (municipalities with executive authority to provide water services within its area of jurisdiction in terms of the Municipal Structures Act 118 of 1998) and the water services *provision* function, the legal body providing the service. This allows for municipalities to contract out the provision of the service to a third party.

Choice of service provider and public private partnerships

The Municipal Systems Act of 1998 legislated a process to be followed when municipalities wished to consider the provision of the service by an external entity, including the establishment of a municipal entity. The effect of this legislation, together with the introduction of the PPP policy and regulatory framework, was to favour direct provision of the service by municipalities, within a departmental structure. Consequently, most municipalities are both the water services authority and the water services provider.

Financing and grant framework supports basic services

Since 2000, improvements in access to water and sanitation have been financed primarily by the central government through clearly defined and predictable capital and operating grant transfers to local governments. In the early years after 1994, the national government funded water and sanitation projects through the Reconstruction and Development Program (RDP), and later through the National Community Water Supply and Sanitation Program. With the creation of a formal democratic local government in 2000, funding was reformed into a constitutionally guaranteed unconditional grant to

37 Department of Water and Sanitation (DWS). 2020. Strategic Overview of the Water Sector in South Africa 2019-2020. Unpublished.

38 An area within the City of Johannesburg.

39 CCT 39/09 [2009] ZACC 28.

40 https://www.un.org/waterforlifedecade/human_right_to_water.shtml

local governments (to support the operating costs of providing basic services), as well as conditional capital grants to support investments in municipal infrastructure, including water and sanitation. Outside of these two grant funding streams, municipalities are expected to raise revenues from tariffs and service charges so that revenue meets expenditure requirements, including the repayment of loans for investment over-and-above that funded by the national government capital grants.

Supply change management

The policies and processes regulating supply chain management (procurement) are set out in the Municipal Financial Management Act and subsidiary regulations. To prevent or minimise corruption, these processes are rigorous, but also restrictive and often time consuming, which creates some governance tensions.

4.4 INSTITUTIONAL ARRANGEMENTS

Direct provision by municipalities

There are 144 municipalities in South Africa that are responsible for the provision of water (8 metro, 21 district and 115 local municipalities). In almost all cases, water is provided as a service embedded within the municipal administration.

By law, senior executive appointments (head of directorate/department, reporting to the municipal manager) are made by the elected representatives (council) in consultation with the municipal manager for each municipality.[41] Eligible candidates must meet defined competency requirements.[42] In practice, senior management appointments are strongly influenced by the political executive (Executive Mayor and the Executive Mayoral Committee). Not all water departments are headed by a senior executive (reporting to the municipal manager)[43], and many municipalities in South Africa do not have a registered professional engineer on their staff.

Municipal-owned companies

Of the 144 municipalities that have been assigned the responsibility for the provision of water and sanitation services, only two municipalities (both large cities) have chosen to undertake the provision of the service through a municipal-owned company – namely, Johannesburg Water, in the case of the City of Johannesburg, and ERWAT in the case of the Ekurhuleni Metropolitan Municipality. The former provides retail water and sanitation services and treats wastewater, which is purchased from Rand Water, a water board, and ERWAT treats wastewater only.

These companies are subject to both national municipal legislation (Municipal Systems Act) and public

41 See Local government: regulations on appointment and conditions of employment of senior managers in terms of the Municipal Systems Act 32 of 2000. Government Gazette #37245, 21, 17 January 2014.

42 The appointment of a person as a senior manager and any contract of employment entered into between the municipality and the person appointed as a senior manager is null and void, if the appointee does not meet the prescribed skills, expertise, competences and qualifications or [if] the appointment was made in contravention of the Municipal Systems Act". (Department of Cooperative Governance [CoGTA] Circular 29 of 2016.

43 Eberhard, R. 2017. "Decentralization and the Delivery of Water and Sanitation Services in South Africa." Case Study prepared for the World Bank.

management legislation (Municipal Financial Management Act). They have Boards of Directors, manage their own administrative and staffing systems, approve budgets as well as publish annual reports and financial statements. In practice, the companies have limited independence from their parent municipalities, who are the sole shareholders. The political leadership in the municipality influences appointments (particularly of the senior management), decides on the capital budget, and may be involved in the day-to-day management decisions of these nominally independent companies. The municipality may pass-on capital and operating grants from the national government at its own discretion.

Management contracts

Johannesburg Water was established as a municipal entity through a five-year management contract in 2000 to manage water and sanitation in the City of Johannesburg.[44] Although the management contract was not extended beyond five years, the service provider remains ringfenced from the city administration. The Johannesburg Water management contract is widely considered to have been a successful contract and the evidence on financial and technical performance supports this view.

Public-private partnerships (PPPs)

In 1999, two concession contracts were awarded to manage water and sanitation in Mbombela Local Municipality[45] and iLembe District Municipality in 1999[46], both continue to operate. eThekwini entered a concession contract in 1999 whereby a private operator built and operates a treatment facility that accepts, treats and sells wastewater for industrial use.[47]

Water boards

Water boards are national state-owned entities whose primary role is to provide regional bulk water to municipalities and, in some cases, directly to industry. They are body corporates created under the Water Services Act, 1997, and are subject to the Public Finance Management Act (1999), which characterizes them as National Government Business Enterprises. Their primary income is from the sale of bulk water and are expected to be financially self-sustaining through charging tariffs and fees for services provided.. The main role of a water board is to provide regional bulk water and wastewater services by selling water to municipalities and treating wastewater from municipalities. Water boards may also undertake other activities, but only if it is *not* likely to limit the water board's capacity to perform its primary role or likely to be to the financial prejudice of itself or existing consumers. The Minister of Water and Sanitation appoints the board members and is the sole shareholder on behalf of the national government. The Minister may terminate the term of office of the Board and replace it with other Board members in terms of processes set out in the Public Finance Management Act.[48]

---

44 World Bank. 2010. "Using a Private Operator to Establish a Corporatized Public Water Utility: The Management Contract for Johannesburg Water." Water P-Notes; No. 45. Washington DC. © World Bank. openknowledge.worldbank.org/handle/10986/11700 License: CC BY 3.0 IGO."

45 Bender, P. and Gibson, J. 2010. "Case Study for the 10 years of the Mbombela (Nelspruit) Water and Sanitation Concession." South Africa.

46 saiia.org.za/saiia-toolkit/ilembe-siza-water-concession/

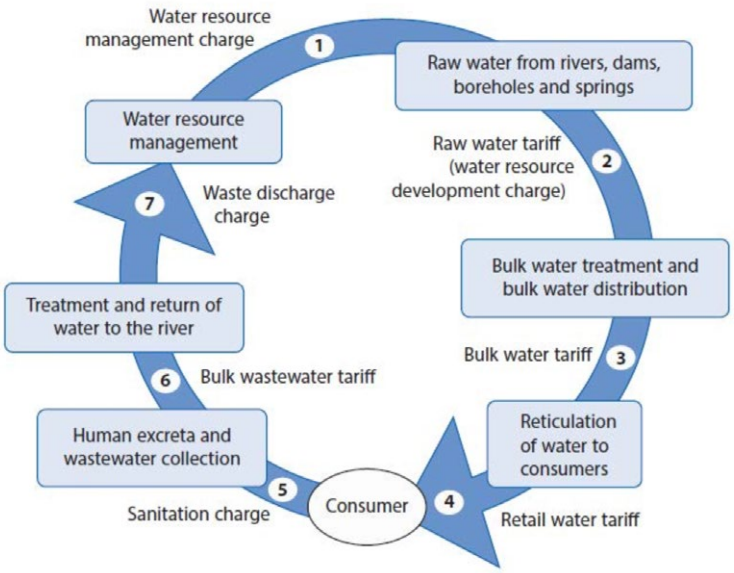
47 https://www.durban.gov.za/pages/residents/ews-services

48 A review of governance in state-owned enterprises concluded that the dismissal of the entire board of Umgeni Water buy the then Minister of Water in 2016 was in disregard of the Public Finance Management Act and the Water Services Act (Constantatos et al, 2018).

4.5 ECONOMIC REGULATION

The cost of water and sanitation services for customers in municipalities consists of a layered system of pricing as shown in Figure 17. The retail water tariff includes within it the cost of the distribution system (and related services), the cost of bulk water, the cost of raw water (infrastructure costs of storage dams and transfer pipelines) and a water resources management charge. The sanitation charge includes the cost of the sewer network, wastewater treatment and a wastewater discharge charge.

FIGURE 17: Water pricing value chain



The responsibility and authority to set these tariffs are set out in Table 18 below.

TABLE 18: Responsibilities for setting tariffs

Tariff	Responsibility to set or approve tariff	Source of authority	Relevant policies & regulations
Water resource management charge	Minister of Water and Sanitation	National Water Act	Raw water pricing strategy.
Water resource development charge	Minister of Water and Sanitation	National Water Act	Raw water pricing strategy.
Bulk water tariff	Minister of Water and Sanitation	Water Services Act MFMA & Circular 23	Section 10 regulations & bulk water contract
Retail water tariff	Municipalities	Water Services Act	Section 10 regulations Free Basic Water and Sanitation policies
Sanitation/ wastewater charge	Municipalities	Water Services Act	Section 10 regulations Free Basic Water and Sanitation policies
Waste discharge charge	Minister of Water and Sanitation	National Water Act	Raw water pricing strategy.

South Africa has two parallel systems of economic regulation of water services. The Water Boards tariffs are overseen by parliament, but the Minister of Water has a significant say over the tariff (see below). Municipality finances are regulated by National Treasury yet municipalities themselves have jurisdiction of the tariffs that they set, albeit required by National Treasury to approve a balanced and funded budget for the municipality.

Water board tariff regulation

The national Department of Water and Sanitation undertakes both the shareholder and regulation functions for water boards . The Minister must approve business plans and tariffs. The Minister must table an annual report, financial statements and an audit report in Parliament. A water board must submit, on an annual basis a business plan relating to the following five financial years; a projection of revenues, expenditures, and borrowings; and a corporate plan. There is a potential conflict of interest between the shareholder and regulation functions performed by the Department of Water and Sanitation and the Ministry.

Water boards are required by law to account for, and report on, their primary and secondary activities separately. While there is good data on revenue from the sale of water, it is not always clear how water boards have spent their money between their regional bulk water supply function and other activities.

Municipal tariff regulation

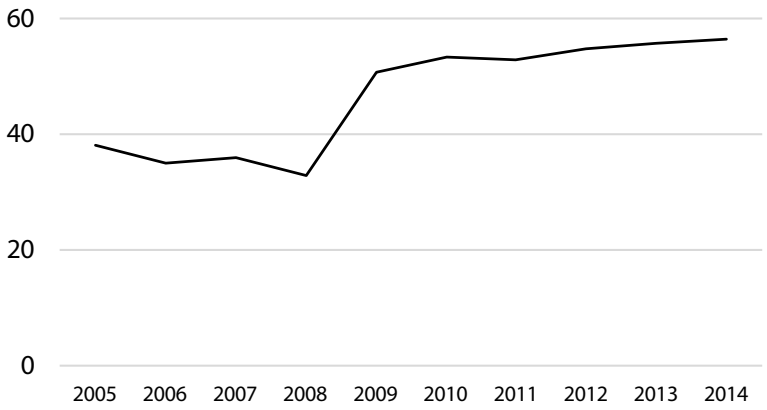
Non-delegated municipality finances are regulated by National Treasury, including the finances and tariffs for water services. The authority to set the tariff rests with municipalities, yet municipalities must adhere to national legislation and regulations when setting tariffs.

4.6 REFLECTIONS

Impact of free basic water and sanitation policies on the financial viability of the service

While the cost of implementing the free basic water and sanitation policy should, in theory, be sufficiently funded by the unconditional equitable share grant from national grant, this is often not the case in practice. Unless very well managed, free water and sanitation policies can lead to significant negative impacts of the financial performance of the municipal water services business and can have a corrosive effect on general willingness to pay for the water and sanitation services (Figure 18).

FIGURE 18: Percentage of households that do not pay anything for water



Source: *General Household Survey 2014.*

Providing water services through a company structure

In contrast to South Africa, it is common internationally for water to be provided through a separate utility structure, typically set up as a public-owned company[49], with a board of directors.[50] The reasons for this are threefold: (1) water is a capital intensive business which needs to be managed in terms of long-term outlook, (2) water needs to be managed in terms of business principles and a company structure supports this approach, and (3) a utility structure allows for economies of scale through aggregation across towns. Considering the poor and declining performance of direct water services provision by South Africa's municipalities, it may be worth considering alternatives within the framework of the constitutional right to water.

Encouraging private sector participation

There has been a strong historical aversion in South Africa to the involvement of the private sector in the provision of water and sanitation services, for ideological reasons and/or because of fears of exploitation. However, high level government policy is now in favour of encouraging private sector participation, including in the water sector.

Revisiting the direct municipal delivery model

The long-term decline in the quality of water services provided by municipalities, together with the increase in frequency and systemic nature of the failures, warrants a relook at the default direct municipal delivery model. However, any path forward will need to consider South Africa's unique history and the reasons why a direct municipal service provision model was preferred in the first place. This topic is beyond the scope of this paper, however the National Treasury's Cities Support Program will be addressing it in a separate concept note.

49 Private ownership of companies providing water to cities and towns does exist, but is relatively uncommon.

50 In many low and middle-income countries, water is provided by water utilities rather than embedded within municipal administrations. This is the case in much of Latin America (Brazil, Colombia, Mexico and Chile, for example), and most of Africa. See, for example, Ferro (2017).

Addressing management capacity constraints

The severe shortage in both management and technical skills to manage a water business effectively needs to be addressed. Management contracts offer a solution to bring in skills in a relatively short space of time. See Section 6.

Pricing reforms and the role of an economic regulator

Current tariff setting practices do not result in sufficient revenue to cover the costs required to invest in and sustain water and sanitation services. Taking available and reliable subsidies into account, tariffs need to be set at levels that ensure revenue sufficiency to efficiently cover costs through the value chain shown in Figure 17. This outcome could be facilitated through the establishment of an economic regulator for the sector. Initiatives are underway by both National Treasury and DWS to investigate the feasibility of establishing an independent economic regulator, however no final, detailed verdict has been reached.

The following interim steps are important building blocks to achieve the overall desirable outcome:

1. Finalise the DWS Raw water pricing strategy.
2. Improve processes for tariff evaluation of Water board tariffs and amending contracts between water boards and municipalities to be in line with the model contracts developed for this purpose.
3. Finalise and approve the draft revised Section 10 regulation of the Water Services Act regulating the setting of municipal water tariffs and developing associated guidelines.
4. Improve transparency in the financial performance of municipalities (see Section 6) and provide clearer guidelines to municipalities for setting tariffs.

5. AN APPROACH TO SUPPORTING THE TURNAROUND OF METRO WATER BUSINESSES

5.1 NECESSARY INGREDIENTS FOR MORE EFFECTIVE PERFORMANCE

Moving from current levels of performance, described in Section 2, towards more effective performance will require changes in some foundational components of providing effective services: creating "good enough" *governance*[51], improving *management effectiveness*, and ensuring *revenue sufficiency*:[52]

- Without sufficient revenue, a water business will not be able to operate and sustain its operations effectively because it will be starved of resources. In this context, decline is guaranteed.
- Without effective management, available resources (people and money) will not be used effectively to translate inputs into good service outcomes, there will be wastage of resources, making it more challenging to achieve revenue sufficiency; and
- Without "good enough" governance, it is unlikely that the conditions for effective management will be created or sustained.

51 After Grindle (2004) quoted in Mumssen et al (2018).

52 See, for example, Heymans et al (2016) and SECO (2016).

5.2 FINANCIAL VIABILITY AND SUSTAINABILITY ARE EXPECTED

In terms of national government policies and the inter-governmental financial framework, it is expected that water businesses in the main cities in South Africa will operate on a financially viable basis within a clearly defined grant framework which provides, firstly, capital grants to support the expansion of basic services for the poor, and secondly, operating grants to assist with the on-going operation of basic service provision to the poor.[53] Outside of this clearly defined social support, the water business should be fully funded from the tariff and the sanitation business from user charges. In the post-1994 democratic era, with this policy framework in place, South Africa has had well-performing metropolitan water businesses, generating surplus cash, and able to borrow, with well-managed non-revenue water, good cash collections and staff productivity.[54]

5.3 POLITICAL DRIVERS AND FINANCIAL INCENTIVES FOR REFORM

There is a growing recognition globally that reforms need to emanate from and work within the existing political-economy environment and "work with the grain".[55] In other words, reforms must start with "what is". In the South African municipal water context, there are three key potential drivers of change, one from within the individual municipal systems and two that are external to the individual municipal systems. Within the internal municipal domain, the initial lead could either come from the political or administrative spheres, however, ultimately there needs to be leadership within both spheres for change to have traction and to be sustained.

External drivers of change could take different forms. *Customer dissatisfaction* could become a driver of change. This could happen politically, through local government elections, where political parties that control Councils have performed poorly and are voted out of office.[56] It could also happen through activist business, consumer, or ratepayer groupings as is increasingly being seen in different ways in South African municipalities.[57] *Finance* is likely to become a strong driver of change. In the context of the declining financial performance of water business, National Treasury will be requested to provide financial support. However, providing money or facilitating access to finance without addressing the underlying causes of poor and declining performance will not be effective. In such circumstances, there is a compelling argument for National Treasury to use finance to incentivise change in the sector to address the underlying causes of poor performance and supporting the turnaround of municipal water businesses.

---

53 "The Constitution provides that each sphere of government is entitled to an equitable share of revenue raised nationally to enable it to provide basic services and perform the functions allocated to it. The equitable division of revenue takes into account the functions assigned to each sphere and the capacity of each government to pay for these functions through own receipts and revenues. The equitable share is an unconditional allocation." www.treasury.gov.za/documents/mtbps/1998/5.pdf

54 Examples are Johannesburg Water under the private management contract in the period 2001 to 2006, and eThekwini in the period 2000 to 2014.

55 Levy (2014), Andrews et al (2012), Heymans et al (2016), Mumssen et al (2018).

56 The 2021 local government election results showed a significant reduction in electoral support for the two major parties. www.reuters.com/article/us-safrica-election-idUSKCN10G2GA.

57 A court judgement in 2020 declared that the Kgetlengrivier Local Municipality was in breach of its constitutional obligations and that it had failed to supply potable water to the residents of Koster and Swartruggens. https://www.dailymaverick.co.za/article/2021-02-28-beyond-kgetlengrivier-citizen-groups-taking-over-collapsed-municipal-services-is-only-a-short-term-solution/

Considering the above, National Treasury's CSP City Water Reform initiative has adopted a theory of change that is based on two complementary drivers of change:

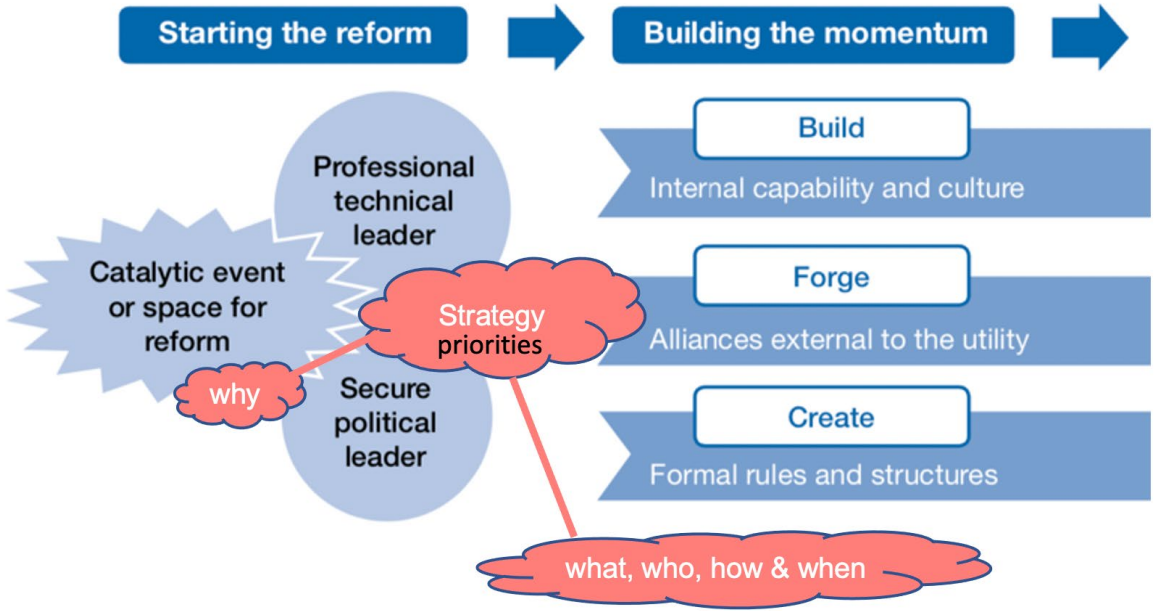
- *Political and administrative leadership at the city level*, responding to a catalytic event of some kind (providing a compelling reason to change), and combined with
- *National Treasury* led reforms to the systems of incentives, that is, a financial driver of change.

The first is a demand-driven bottom-up approach to reforms. The second is a 'top-down' system-wide approach to reform. These two approaches complement each other and are briefly described below.

5.4 BOTTOM-UP DEMAND-DRIVEN REFORMS WITH TECHNICAL ASSISTANCE

The theory of change adopted by the City Water Reform Initiative is an adaption of the change theory that emerged from a review of successful utility turnarounds in Africa, as shown in Figure 19.

FIGURE 19: Theory of change informing technical assistance to South Africa's metros



Source: *Adapted from Heymans et al (2016)*

Each element in this theory of change is briefly described below, with reference to its practical use by National Treasury in supporting the City of Cape Town to respond to its drought crisis in late 2017 and during 2018. It also summarizes many aspects of reform dynamics as captured in a 2016 World Bank report on better performing water utilities in Africa.[58]

A crisis presents an opportunity, but such an opportunity needs to be used by effective leadership at both the administrative and political levels. There is unlikely to be any real change without a recognition of the need to change. There needs to be a compelling reason for change that is fully owned by the leadership of the municipality. In Cape Town, for example, the catalytic event was the drought

58 Heymans, C., Eberhard, R., Ehrhardt, D. and Riley, S. 2016. Providing Water to Poor People in African Cities Effectively: Lessons from Utility Reforms. Washington DC. World Bank. https://openknowledge.worldbank.org/handle/10986/25115

crisis in the period 2017 and 2018. The response to the emergency comprised immediate technical assistance by National Treasury to the City to advise on crisis response.[59] The City then developed a water strategy to avoid severe consequences of a repeat occurrence.[60]

Building internal capability and creating a culture that supports good performance. The initial impetus for change needs to be followed by efforts to build institutional capacity and establish a culture that supports good performance. In the case of Cape Town, for example, the city government has used the crisis and the strategy, to initiate a process to build institutional capability. Four Directors were given a key role to lead the implementation of the Water Strategy collectively with the Executive Director for Water and Waste, and the reforms are being implemented through structured transversal programmes. A key transition to be made within the municipal water business is a shift to a customer-oriented business.

Forging external alliances. For Cape Town, the Water Strategy explicitly recognized that successful implementation of the Strategy would require effective partnerships with parties external to the City – including customers, citizen groupings, NGOs, business groupings, academics, and development finance institutions among others. Successful reforms typically build ***stakeholder coalitions*** to support the initiation and sustenance of reforms, especially to avoid predation of increasing revenue when reforms start to yield results.

Parallel with the processes, attention must be given to any changes in the formal rules that are needed to support the reforms, within the municipality and in the external environment.

5.5 SUPPORTING WHERE CITIES ARE WILLING TO LEAD

Based on the theory of change presented above and recognising that political support is essential (see text box 2 below), a leadership-first engagement model has been adopted to support the effectiveness of the technical assistance provided by National Treasury as per Figure 20.

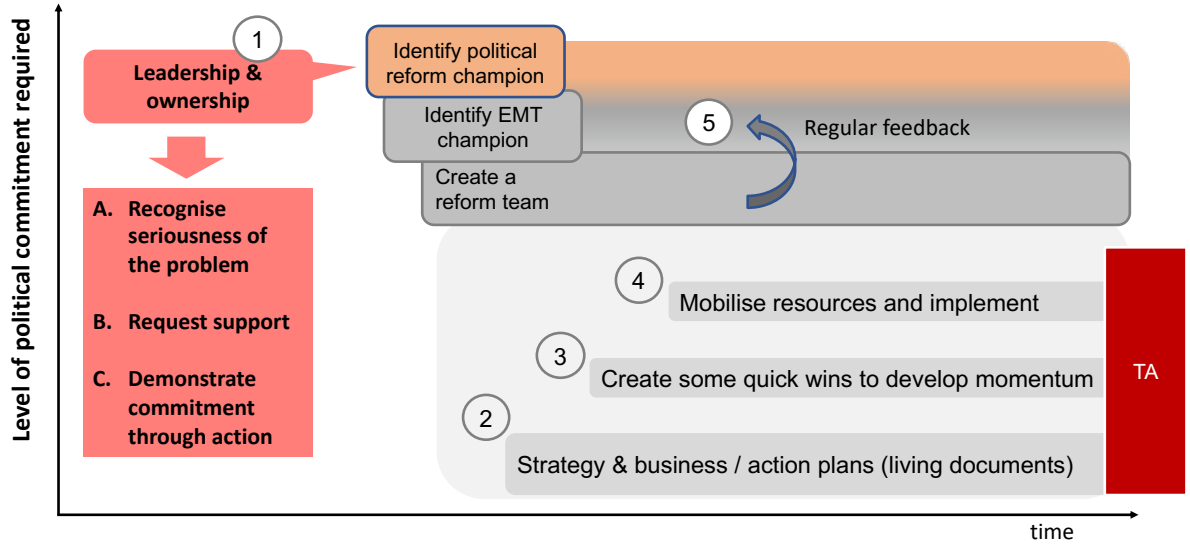
BOX 2: Political support is essential

> "All successful managing-directors received serious, explicit and continuous political support: locally (from the municipal mayor) and nationally (either from the prime-minister, as in Phnom Penh, or from ministries, as in Iasi and Nyeri). This political support allowed managing-directors to pursue reforms and expressed itself in (i) the explicit and vocal backing of unpopular decisions (such as tariff increases or a metering program); and (ii) general non-interference in the utility's management." From *Review of success stories in urban water utility reform* (SECO, 2016).
>
> "Political and technical leaders, working together…can spark reform. However, success is only possible if the balance of political economy pay-offs remains in favour of reform and – once achieved – in favour of sustained good service, even as the attractions of predation on the utility increase…. Importantly, these factors can be self-reinforcing and promote virtuous circles. Effective leaders build alliances and create meritorious business cultures, which in turn strengthen institutions, and so on." (Heymans, Eberhard et.al., 2016).

59 The World Bank, through National Treasury, provided the services of international water experts to review and advise on the City's response to the drought.

60 National Treasury provided professional expertise to support the City in the development of their water strategy. www.capetown.gov.za/general/cape-town-water-strategy.

FIGURE 20: A leadership first engagement model



Technical assistance is provided by the National Treasury's Cities Support Programme in response to a formal request made by the leadership of a municipality. The request needs to identify both a political and administrative reform champion and create a municipal reform team. This team needs to demonstrate its commitment through its actions. In response to the request, the Cities Support Programme offers technical assistance to:

- Develop a turnaround strategy and business plan.
- Advise on the implementation of the strategy and business plan, with a focus on quick wins to gain momentum.
- Assist with the mobilisation of further resources (people and money) to help with implementing the turnaround strategy.

By August 2021, the Cities Support Programme had received formal letters of requests from four metros – Mangaung, Nelson Mandela Bay, Buffalo City and eThekwini – and is continuing with its support of Cape Town. In Mangaung and Buffalo City, the Cities Support Programme has been supporting the metros to develop municipal water business turnaround strategies. Further leadership development and technical assistance support is needed on the turnaround strategy, however, slow progress and a patchy process has constrained the impact. The municipal elections in December 2021 have also affected the ability to continue effectively on the course developed in the preceding months , further slowing down progress. This leaves a lesson about finding ways to accelerate and sustain momentum, which evidently is not just a technical process, but one that requires careful procedure and due attention to the contextual constraints in each city.

Nelson Mandela Bay has found itself in the middle of a water crisis through most of 2021, and by early 2022 this has not been resolved. The distribution network has very high physical losses, estimated at 30% of the treated water produced, and while 100 percent of domestic Cape Town wastewater is treated to secondary level, only about 2% of the effluent from wastewater treatment plants is currently recycled, and only for non-potable uses. National Treasury's immediate support has been to assist the city with its emergency response and to situate this response in the context of a turnaround strategy for its municipal

water business which will form part of a broader Strategic Development Review of the municipality. The Cities Support Programme has facilitated peer learning between Nelson Mandela Bay and the City of Cape Town, in which Cape Town shared its experiences and lessons learnt from the drought response, thus making links between natural water shortfalls and management challenges. The plan is to continue with more in-depth assistance from the City of Cape Town. The Cities Support Programme has also availed an international water expert to review Nelson Mandela Bay Municipality's response to the crisis, however, a particular concern on the part of National Treasury is the timing, feasibility and long-term financial consequences of proposed investments in desalination. In addition, a senior South African advisor has been assigned to assist the Nelson Mandela Bay Municipality in practical on-the-ground assessments and responses. Since the December 2021 municipal elections, building momentum at political level in the city have been erratic, underscoring the significance of political dynamics – and of the technical-political interface. In the Nelson Mandela Bay case, not having a permanent head of the water department has been a constraint.

The Cities Support Programme is also supporting eThekwini with the review and implementation of its water strategy, including a review of its tariff structure, negotiations with the Ingonyama Trust with respect to arrangements to provide services in the Trust area, revenue enhancement and non-revenue water reduction among other activities.

Ongoing advisory support is being provided to the City of Cape Town in the implementation of its plans to execute the City's Water Strategy.

Cross-cutting advisory support within the metros cover upgrading of water and sanitation in informal settlement and support for tariff structure reviews.

National Treasury has made R10 billion available over three years to support informal settlement upgrading, as part of the Urban Settlements Development Grant. The Cities Support Programme has developed an informal settlement upgrading toolkit and is supporting municipalities to make effective use of the informal settlement upgrading grant. The City Water Reform team, working transversally with the Cities Support Programme's Human Settlements component, is supporting metros to develop fit-for-purpose strategies and improve implementation capacity.

Consultants who led the work of the World Bank in developing a global flagship report on water tariffs, have undertaken reviews of water tariff structures in eThekwini and Cape Town and will transfer knowledge on a replicable methodology to use with other municipalities.

5.6 A CASE FOR MANAGEMENT CONTRACTS

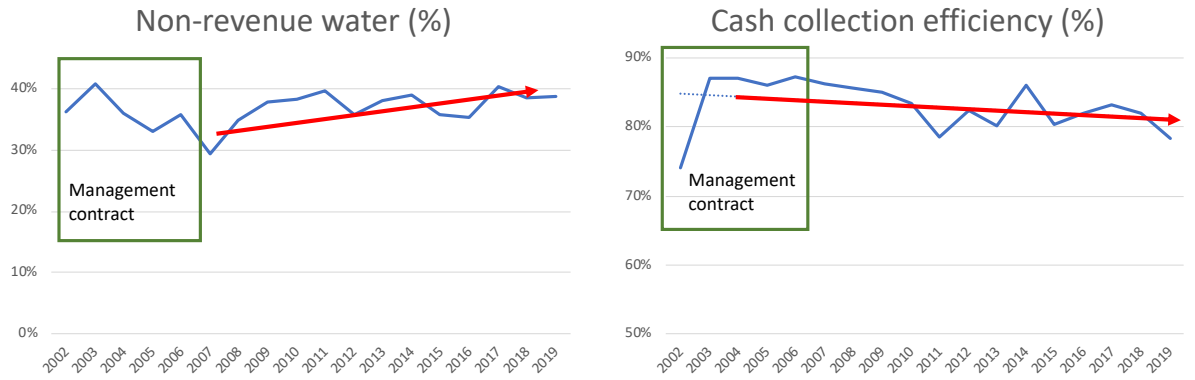
The approach set out above may be insufficient in some cases to effect the necessary changes to achieve a substantive turnaround in the performance of metropolitan water businesses. Where there is a lack of the requisite capacity to productively absorb and benefit from the technical assistance offered, it may be necessary to consider alternatives. One such alternative is the use of management contracts. The case for management contracts is made in a separate report[61] and the details are not repeated here, except to offer an example of how a management contract turned around the performance of the water business in the City of Johannesburg.

61 Concept Note: The importance of management contracts as an intervention to improve the management of water services in South Africa. February 2021. Prepared for Cities Support Programme.

The experience of the management contract for Johannesburg Water provides evidence that management contracts can be effective in turning around performance. The City of Johannesburg experienced severe financial difficulties in the late 1990s. Significant reforms were instituted to address this challenge, including the establishment of Johannesburg Water as a separate municipal owned water company, supported by a management contact with an international water operator. The performance of the water business was substantively turned around in the period 2001 to 2006. The effects of this intervention are still evident nearly 15 years later, although there has been a steady decline in performance over the last ten years.

The performance and outcomes of the contract are assessed in the report "Using a Private Operator to Establish a Corporatized Public Water Utility: The Management Contract for Johannesburg Water." (World Bank, 2010). The success was not only about the dramatic turnaround in financial performance, but also about the turnaround in technical performance and the creation of a well-performing and productive organisational culture (see Text Box 3).

FIGURE 21: Performance improvement as a result of the management contract



BOX 3: Using a Management Contract for Corporate Reorganization of Johannesburg Water

Before 2000, responsibilities for water and sanitation services in Johannesburg were spread across six separate municipal departments: four geographical departments were in charge of water distribution and sewerage networks (answering to four local councils); one department was in charge of the operation of wastewater treatment plants; and the central level of the municipality directly handled all matters related to customer relationships, revenue management, procurement, and finance. This fragmented structure had generated a "silo mentality" among the staff, with a dilution of responsibility and accountability, and customer service was notoriously poor. To remedy this situation, Johannesburg Water was established in 2000 as a new corporatized public utility responsible for water and sanitation services. The main rationale for bringing in a private operator under a five-year management contract was to establish Johannesburg Water as a viable and efficient water utility.

A key role of the private operator was to organize the newly consolidated utility, putting the proper work procedures in place and training employees. The goal was not just to design a new organization chart; it was, most important, to instil a new corporate culture focused on service

and efficiency. This was a major challenge with employees who had previously operated under an old-fashioned bureaucratic culture. Implementing such a change was a long and gradual process, in which the daily coaching by the operator staff played a major role. One example of the many measures taken to foster change was empowering line managers to take more initiative in their daily job, as long as this would benefit the quality of service to customers or result in efficiency savings. The average salary per employee went up by 23 percent in real terms during the management contract.

A major effort to promote a new generation of managers and professionals was carried out in parallel with this cultural change. The 693 promotions that occurred during the management contract mostly benefited staff members belonging to groups that previously had faced discrimination in the apartheid era. Although the total number of staff members remained fairly stable (rising from 2,500 in 1999 to 2,600 in 2006),

945 skilled employees were recruited during the management contract, largely from previously disadvantaged groups.

Source: *Marin, Mas, and Palmer 2009.*

5.7 SUPPORTING PEER LEARNING

National Treasury is working with SALGA to support and facilitate the City Water Managers' Forum, a voluntary body comprising the senior managers responsible for the management of water and sanitation in the eight metros and their nominees. The forum's primary purpose is to support the learning, effective leadership and management of the Forum members' respective water and sanitation businesses.

6. NATIONAL TREASURY-LED REFORMS TO THE ENABLING ENVIRONMENT

6.1 CHANGING THE RULES OF THE GAME, AND ASSOCIATED STRUCTURES

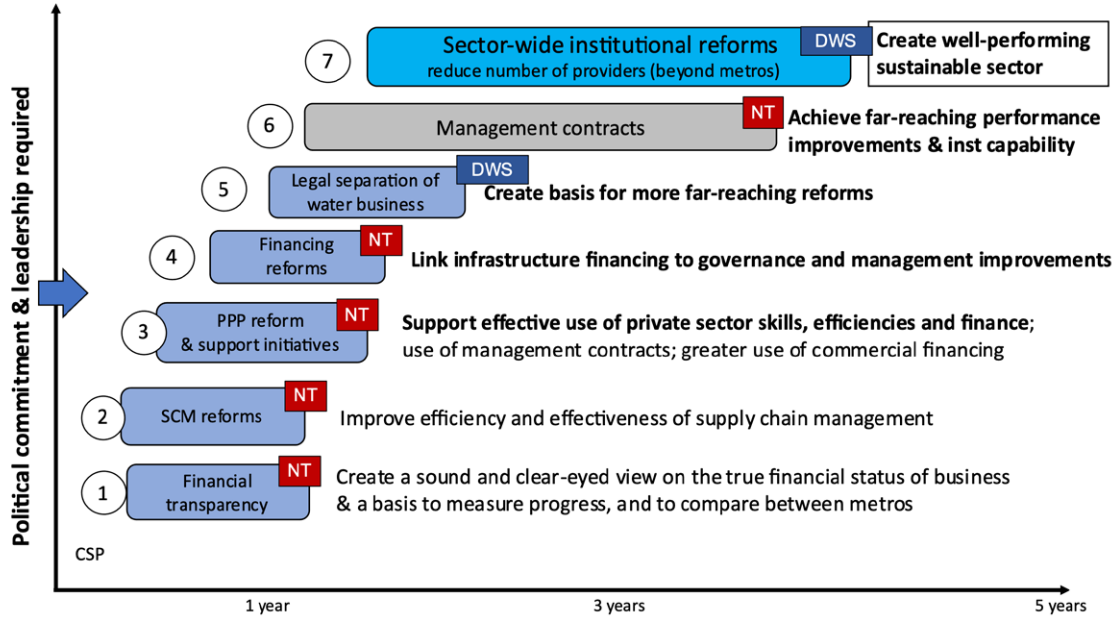
The theory of change set out in Section 4.6 recognises a need to change the rules and structures in the enabling environment to complement metropolitan water business turnaround initiatives. The systemic nature of the enduring problem of declining service performance across multiple municipalities strongly suggests that reforms to the policy, institutional and regulatory environments are imperative. A set of reforms where National Treasury has a mandate to lead are described below.

6.2 A REFORM MAP

Based on an understanding and recent analysis of the policy and institutional evolution of South Africa's water service from the early 1990s to date, a poll of City Water Managers, and adopting a 'working with the grain' philosophy[62], the City Water Reform Team has developed a pragmatic roadmap for reforms to the enabling environment, shown in Figure 22. The red flags indicate reform areas where National Treasury has a mandate to lead. The reforms of the sector-wide institutional model for service providers (items 5 and 7) are beyond the scope of this paper and are not elaborated as other government departments – especially DWS – have a leading role in such reforms.

62 Levy, B2014. Working with the Grain. New York: Oxford University Press.

FIGURE 22: Enabling environment reform roadmap and where National Treasury is able to lead



6.3 A PRAGMATIC STEPWISE APPROACH

The broad approach adopted for each set of reforms is as follows:

- Define the problem statement;
- Define the desired outcome and how this will address the problem;
- Define pragmatic interim milestones to get to the outcome;
- Test appetite for the reforms within National Treasury, identify champions within the department to lead the reform and work with them to consult on and refine the problem statement, outcomes, and milestones.
- Develop a coalition in support of the reforms within and beyond National Treasury;
- Identify stakeholders who may oppose the reforms and their interests, and implement measures to mitigate actions that might block the reforms; and
- Initiate reforms in a pragmatic and stepwise fashion, by taking the reform proposal through the necessary intergovernmental process/es for policy and fiscal reforms.

The details of each reform stream are beyond the scope of this report. The reform streams are at different stages of progress, and specifically reform streams 5 and 7 fall within the mandate of DWS and CoGTA concept notes, position papers and related materials to be appropriately produced and consulted on for each reform stream.

6.4 PROBLEM STATEMENTS AND REFORM OBJECTIVES: NATIONAL TREASURY FOCUS

A brief overview of the key problem statements and reform objectives for the main reform streams where National Treasury has a leading role are given below.

6.4.1 Financial transparency

Problem statement

Ignorance of the true financial status of these businesses leads to misdirected action or inaction resulting in large economic costs. Notwithstanding recent improvements in financial transparency (see Annexure 2), it is difficult to determine the actual financial position of, and trends in, municipal water and sanitation businesses in South Africa without access to non-public financial data, without a high level of professional expertise, and lacking considerable effort. Consequently, there is no routine analysis and reporting on the true financial state of the water and sanitation businesses, as economic entities, in South Africa. In addition, some accounting practices can obscure an accurate representation the financial performance of the water businesses. For example, the depreciation charge is a book entry that is not cash-backed meaning that there is no direct correspondence between the depreciation charge and actual expenditure on asset rehabilitation and replacement.

Desired outcomes

There are several interim steps that can be taken to improve financial transparency, including:

1. Improving the format and level of detail in the 'services dimension' reporting by National Treasury, ensuring consistency and transparency in the treatment of indirect costs (including overheads) in this reporting, and providing for the reporting of the water and sanitation as a combined service.
2. Making National Treasury reporting on the financial performance of services more accessible.
3. Ensuring that reporting by municipalities themselves on the financial performance of services matches National Treasury reporting and requiring municipalities to themselves report in a public way on the financial performance of water and sanitation.

Ultimately, the desirable outcomes are audited financial statements for water and sanitation as separate and/or combined trading services, with an income statement, balance sheet and cash flow as well as the reintroduction of a capital replacement reserve resulting in a cash-backed depreciation charge.

6.4.2 Supply chain management reforms

Problem statement

The MFMA regulations, and the implementation of supply chain management in terms of these regulations, have not proven effective in reducing corruption.[63] In response, more onerous and restrictive provisions have been introduced through regulations and directives, but have not prevented corrupt

63 See Section 2.4.3.

practices.[64] Compliance has been implemented in a tick-box approach and insufficient consideration has been given to the substantive outcomes of procurement. Paradoxically, the onerous and complex regulations, together with narrow interpretations of the regulations by the Auditor-General[65], has made it harder for honest officials to obtain good value and time-efficient procurement outcomes. A list of specific issues has been identified in engagement by National Treasury with stakeholder bodies including SAICE, IMESA, SAFCEC, SABTACO and CESA. See Annexure 6.

Desired outcomes

Desired outcomes include clarifications and, where needed, reforms to the procurement system that results in a streamlined, less onerous, and more transparent procurement process that deliver value-for-money outcomes.

The ultimate desirable outcome is a procurement system that is more streamlined, less onerous and one that places much great emphasis on substantive transparency (during the process) and on outcomes.

6.4.3 PPP reform and programmatic support for PPPs

Problem statement and context

The government's agenda is to encourage effective public-private partnerships, it is however striking that no municipal PPPs have been concluded during the last five years, and that there have been only seven municipal PPPs in total since 1999 (21 years). In recognising the challenges facing the effective use of Municipal PPPs, National Treasury initiated a review of the municipal and national PPP frameworks. The review of the Municipal PPP Framework offers a set of important and valuable recommendations to simplify and rationalize the legal and regulatory framework; strengthen institutional arrangements and accountability; streamline processes in the municipal PPP manual and provide clearer guidance; rationalize the public consultation processes; and simplify the unsolicited proposal framework.

Intended outcomes: programmatic support for municipal PPPs and management contracts

In addition to the above recommendations, dedicated programmatic support can unlock and fast-track municipal PPPs and management contracts for the delivery of services and economic recovery. The current balance of too little support combined with onerous and complex regulation results in both too few municipal PPPs as well as poor quality outcomes. The solution is to increase support and at the same time lighten the regulatory burden. The following support actions are proposed.

Steps to support intended outcomes

Agree on priority 'use-cases': The following should be considered as priority use-cases: (a 'use-case' is a specific application of the PPP model in the municipal context.) built-operate-transfer (BOT) contracts for desalination, re-use and wastewater treatment. *(Management contracts are also a priority use-case but are not considered to be a PPP in terms of the National Treasury PPP regulatory framework.)*

64 Muller, M. 2020. "Money Down The Drain - Corruption in South Africa's Water Sector." Corruption Watch and Water Integrity Network.

65 And at times pre-emptively narrower interpretations of the Auditor-General's view by municipalities

Supporting Uptake: Develop advocacy materials, as necessary, to further motivate for these use-cases for municipal PPPs. These materials should be easily communicated and understood and be specific to the various target audiences. Lobby support for these priority use-cases. This would include building allies and addressing the fears and concerns of constituencies who could place obstacles in the way of concluding well-motivated and well-designed value adding municipal PPPs.

Create a project pipeline: Projects for each priority use-case that can be implemented quickly, are likely to succeed, and show visible benefits early should be prioritised in order to build early momentum for reforms.

Develop fit-for-purpose documents and templates for each use-case: Standard documents and templates (very practical process guidelines, business case analysis, tenders, contracts, consultation documents etc) are needed for each "use-case". These need to be "ready to go" and easily applied and adapted to each specific project. (Some may be generic across use-cases.)

Create dedicated national capacity quickly, drawing on the private sector

Trouble shoot for effective and rapid implementation: There will be a need to address and remove obstacles and bottlenecks for rapid and effective closure of PPP deals for the standard priority "use-cases". The dedicated professional unit will play a key role in this function.

6.4.4 Financing reforms

Problem statement

The metro water businesses have large investment needs, while the availability of grant finance is limited. Well-performing metro water businesses can and should access loan finance to support their investment requirements, beyond the equitable share and capital grants for social infrastructure. Current mechanisms to access this finance are transaction heavy and rely on the overall balance sheet of the municipality. Consequently, too little loan finance is being used for investments in the sector. The relationship between funding/financing (whether from grants or commercial finance) and municipal water business performance is weak.

Desired outcome and interim steps

Scarce financial resources (both grants and loans) will be used much more effectively where these are linked to water business turnarounds in a context of good enough governance. Consequently, at least a portion of the financing flows in the sector should be actively linked to, and incentivize, municipal water business performance turnarounds with an emphasis on sound governance, management capability and revenue sufficiency. There is precedent for such an approach. Support to the City of Johannesburg in the late 1990s was contingent on governance reforms and the creation of Johannesburg Water was supported by a management contract and backed by an infrastructure loan.

This could involve the introduction of performance-based grants and lending, creation of utilities set up as companies with a corporate structure, loan covenants and other mechanisms to protect sound governance. This is a complex area and will require collaboration between National Treasury, Development Finance Institutions, Banks, investors and other stakeholders. Elaboration of options is beyond the scope of this report. National Treasury will work actively with key stakeholders to move this reform stream forward.

This requires a conditional grant that provides municipalities with predictable formula-based capital development funding, subject to minimum conditions being met. It would not necessarily pose a threat to local autonomy, as a performance grant could allow for local discretion in identifying and prioritizing of local WSS investments, which preferably should be ringfenced for the WSS sector. Typically, performance-based grants (PBGs) do not only offer service providers/local governments greater access to capital development resources, but they could also provide a higher grant allocation through a "performance bonus" if the local government adheres to certain good governance practices or institutional performance standards, agreed upfront with national government. The use of the capital development funds as an incentive for local governance strengthening would add value beyond the immediate benefit of more infrastructure investment alone.

Such a sector-focused transfer could also incentivize a central line ministry to undertake and promote institutional reforms. This is not the same as results-based finance (RBF) that provide grants upon documented service-delivery results, as performance grants typically aim at systemic reform and performance, as was the case with the financing provided to Johannesburg Water on the back of the management contact in the early 2000.

6.4.5 Management contracts

Problem statement

Many municipalities lack management and technical capabilities. Management contracts offer a way to address this deficit within a relatively short timeframe if they are structured well. A legal opinion obtained by National Treasury confirmed that management contracts are not a PPP as defined in the National Treasury PPP framework. National Treasury's briefing note on management contracts in the water sector emphasises that these contracts need to be established with (a) very clear and context specific objectives, (b) careful consideration of the scope of the management contract, and (c) specific consideration of the rights and obligations of the contracting parties.

Desired outcome and interim steps

National Treasury intends on working with other stakeholders with a view to identify appropriate circumstances where a management contact may be needed and would yield substantial benefits, and to support the implementation of a management contract in these instances.

7. SUPPORTING LINE DEPARTMENTS RESPONSIBLE FOR SECTOR REFORM

National Treasury's CSP City Water Reform theory of change hinges on two complementary drivers of change: (1) political and administrative leadership and accountability at the city level, combined with (2) reforms to the systems of accountability, incentives, policy directions and financial drivers of change.

To make this approach work requires a collaborative strategy and efforts with other government departments, foremost DWS and CoGTA, to improve the policy, legislative and regulatory frameworks plus institutional oversight and support to make water services function effectively and sustainably. At the same time as focusing on the priorities as identified in section 6 of this report that are directly within its mandate, National Treasury will work collaboratively with other key stakeholders including DWS and CoGTA with the view to improve sector outcomes and ensure that limited government grants achieve maximum benefits.

The reforms proposed in Section 6 above require at least three foundational interventions: systemic reform to make governance more accountable and outcome focused; improving management effectiveness in building and maintaining services affordably; and ensuring revenue sufficiency.

Responsibility for water and sanitation services rests with local government, but many municipalities have fallen short in this mission, both in terms of serving customers reliably and safely.

As part of this process, greater technical transparency is important. Notwithstanding recent improvements,

including the National Treasury's MFMA Circular 88 and the re-initiation of the DWS Blue, Green and No-drop regulatory initiatives, a robust, consistent and useful set of time-series data on the key technical performance indicators of the water and sanitation services functions of metropolitan municipalities does not yet exist.

As discussed earlier, a culture that supports good performance must be created through internal reconfiguration that holds departments, political heads and officials accountable for specific functions and tasks, as well as making their water businesses customer-oriented, technically competent, and financially sustainable. It is also important to forge external alliances with stakeholders such as households; businesses and other customers; citizens and non-governmental entities; technical experts; and development finance institutions among others. Such stakeholder coalitions would add momentum and legitimacy to governance and institutional, policy and financial reforms.

As an interim step towards better reporting on technical performance, the City Water Managers Forum – reinvigorated by the CSP and Salga and including the heads of metros' water departments – could manage a process for City Water Managers to develop, refine and agree on compliance and performance indicators in addition to related contextual data for later adoption as part of more formal regulatory processes such as Circular 88 and the Blue, Green and No Drop initiatives.

If or when a sector economic regulator is established, the regulator could publish accessible comparative performance data showing how water services providers compare to their peers and to benchmarks, highlighting how these have changed over time.

Water services providers could be required to publish an annual set of audited compliance and performance indicators for water and sanitation that provide insight into the performance of the water services provider over time, as is typically the case for regulated public entities.

There have been calls for a reassessment of the institutional arrangements for water service providers, which currently are municipal departments. This is due to the poor and declining performance of direct water services provision by South Africa's municipalities, as depicted in earlier sections of this report. The time may be right now to consider alternatives, noting that South Africa's arrangements are not the norm. Internationally, water services are typically provided through a company structure, rather than by a department within a municipality. There are sound reasons for this:

- Water is an infrastructure intensive business. A well-designed company structure creates strong and direct accountability of a (suitably skilled) multi-disciplinary management team, with a single executive leader responsible for all aspects of the business, and accountable to an independent board of (suitably skilled) directors. The company operates within an clear mandate of the owner/shareholder in terms of a performance agreement and with managerial autonomy related to the day-to-day operations of the business.
- There is full financial transparency with separately audited financial statements consisting of an income statement, balance sheet and cash flow statement. Tariff determination processes are made explicit, usually with the involvement of an independent economic regulator.
- Company structures work well where there is sound governance, however a company structure, per se, does not guarantee good governance.[66] National Treasury is investigating options for linking the need for commercial finance to support investments in urban water infrastructure with mechanisms to protect the governance of a publicly owned company structure to support the turnaround of municipal water businesses.

66 See, for example, "SOE Governance Unmasked: A learning journey" (Constantatos et al, 2018).

8. THE WAY FORWARD

This report provides a view on the current state of the water business in South Africa's metropolitan municipalities, the challenges that the water business faces in the city and the wider enabling environment, and a reform agenda to address the inefficiencies that are so evident in the water business.

National Treasury recognises that turning the municipal water business around is a critical step in addressing broader issues of water insecurity, and thus ensure water resilience for citizens. Moreover, ensuring that municipalities can invest in the maintenance and expansion of their networks, plan for and adapt to shocks as well as deliver services, is a key enabler of economic growth essential to address the stark levels of unemployment, poverty and inequality that the country faces.

In support of the implementation of this reform agenda:

Metropolitan municipalities are encouraged to take up the support offered within the framework set out in this report to turnaround and improve the performance of their water businesses and to build water resilient cities. National Treasury's Cities Support Programme will outline, implement, adjust, and deepen its support to metropolitan municipalities in line with the framework and approach set out in this report, and communicate on progress through Operation Vulindlela.

The **Cities Support Programme and National Treasury** will collaborate and engage with other government departments and stakeholders as deemed appropriate to take the reforms to the enabling environment forward. In early 2022, DWS embarked on a wide-ranging dialogue with water sector stakeholders – including the metros – on sector transformation and escalating the recovery of the sector. This new sector-wide drive offers an important entry point for locating the urban water reform agenda within the broader sector reform context, together with other ministries, departments and spheres of government.

DFIs are encouraged to support the reform initiatives set out in this report, and to add to the dialogue in collaboration with the key national departments as well as the provincial and local spheres of governments.

REFERENCES

Andrews M., Pritchett, L., and Woolcock, M. 2012. "Escaping Capability Traps Through Problem-Driven Iterative Adaptation (PDIA)." *Centre for Global Development Working Paper 299*. Centre for Global Development. Washington DC. June.

Baietti, A., Kingdom, W., and van Ginneken, M. 2006. "Characteristics of Well-Performing Public Water Utilities." *Water Supply and Sanitation Working Notes 9*. World Bank. Washington DC.

Bender, P. and Gibson, J. 2010. "Case Study for the 10 years of the Mbombela (Nelspruit) Water and Sanitation Concession." South Africa.

Berg, S. 2013. "Best Practices in Regulating State-Owned and Municipal Water Utilities." *ECLAC Project Document*.

Boraine, A. Crankshaw, O. Engelbrecht, C. and Gotz, G. 2006. "The State of South African Cities A Decade after Democracy." *Urban Studies*: Vol. 43, No. 2, 259– 284.

Constantatos, O. and Sankar, T. 2018. "SOE Governance Unmasked: A Learning Journey." *Future Growth*.

Davis, J. 2005. Private-sector Participation In The Water And Sanitation Sector. *Annual Review of Environment and Resources* 2005 30:1, 145-183.

Department of Water and Sanitation (DWS). 2020. *Strategic Overview of the Water Sector in South Africa 2019-2020.* Unpublished.

Eberhard, R. 2018. "Securing South African's Urban Water Future." *Cities Support Programme*. National Treasury.

Eberhard, R. 2017. "Decentralization and the Delivery of Water and Sanitation Services in South Africa." Case Study prepared for the World Bank.

Fall, M. Marin, P., Locussol, A. and Verspyck, R. 2009. "Reforming Urban Water Utilities in Western and Central Africa: Experiences with Public Private Partnerships."Volume 1. Impact and Lessons Learned.

Ferro, G. 2017. Literature Review: *Global Study on the Aggregation of Water Supply and Sanitation Utilities.* Washington DC. World Bank.

Grindle, M. 2004. "Good Enough Governance: Poverty Reduction and Reform in Developing Countries." *Governance.* 17 (4): 525–48 LC/W.542, United Nations Economic Commission for Latin America and the Caribbean. Santiago, Chile.

Government of South Africa. 1998. "The White Paper on Local Government." Government Printer.

Heymans, C. 2006. "Local Government Organization and Finance: South Africa." In: Shah, A., Ed., Local Governance in Developing Countries. The World Bank. Washington DC. 47-92.

Heymans, C., Eberhard, R., Ehrhardt, D. and Riley, S. 2016. *Providing Water to Poor People in African Cities Effectively:* Lessons from Utility Reforms. Washington DC. World Bank. https://openknowledge.worldbank.org/handle/10986/25115

Lee Kuan Yew SPP. 2010. "Ek Sonn Chan and the transformation of the Phnom Penh Water Supply Authority."

Levy, B2014. *Working with the Grain*. New York: Oxford University Press.

Córdoba, C. L., Saltiel, G., Sadik, N. and Penalosa, F. P. 2021. "The Utility of the Future Diagnostic Assessment and Action Planning Methodology — Working Paper." World Bank. Washington DC.

Loubser, C., Chimbanga, B. M. and Jacobs. H. 2021. 2021. "Intermittent Water Supply: A South African Perspective." *Water SA* 47(1). January 2021.

Marin, P. 2009. *Public-Private Partnerships for Urban Water Utilities:* A Review of Experiences in Developing Countries. World Bank.

Muller, M. 2020. "Money Down The Drain - Corruption in South Africa's Water Sector." *Corruption Watch and Water Integrity Network*.

Mumssen, Y., Saltiel, G. and Kingdom, B. 2018. "Aligning Institutions and Incentives for Sustainable Water Supply and Sanitation Services: *Report of the Water Supply and Sanitation. Global Solutions Group, Water Global Practice, World Bank."* World Bank. Washington DC.

National Treasury. 2021. *Operation Vulindlela Summary Booklet*. Presidency of South Africa and National Treasury.

National Treasury. 2021. "The Importance of Management Contracts as An Intervention to Improve the Management of Water Services in South Africa."

OECD. 2016. "Principles on Water Governance." www.oecd.org/governance/oecd-principles-on-water-governance.

SECO. 2016. *Review of Success Stories in Urban Water Utility Reform*.

van Ginneken, M., and Kingdom, B. 2008. "Key Topics in Public Water Utility Reform." *Water Working Note* 17. World Bank. August 2008.

World Bank. 2010. "Using a Private Operator to Establish a Corporatized Public Water Utility: The Management Contract for Johannesburg Water." Water P-Notes; No. 45. Washington DC. © World Bank. openknowledge.worldbank.org/handle/10986/11700 License: CC BY 3.0 IGO."

World Bank. 2017. "Helping Countries Combat Corruption: The Role of the World Bank."

Zaveri, E., Russ, J., Khan, A., Damania, R., Borgomeo, E., and Jägerskog, A. 2021. "Ebb and Flow, Volume 1: Water, Migration, and Development." World Bank.

Ziervogel, G. 2019. "Lessons from Cape Town's drought. Cities Support Programme." www.africancentreforcities.net/wp-content/uploads/2019/02/Ziervogel-2019-Lessons-from-Cape-Town-Drought_A.pdf

ANNEXURE 1: WATER SECURITY BALANCES IN SELECTED METROS

FIGURE 23: Water resources outlook – eThekwini (Mgeni water system)

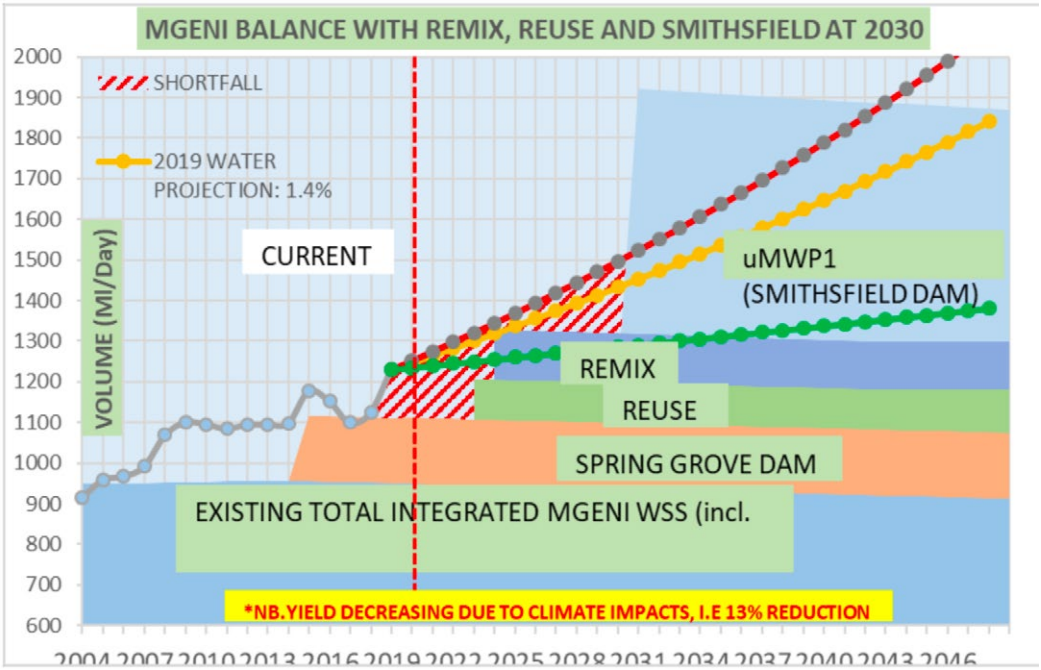


FIGURE 24: Water resources outlook – Buffalo City

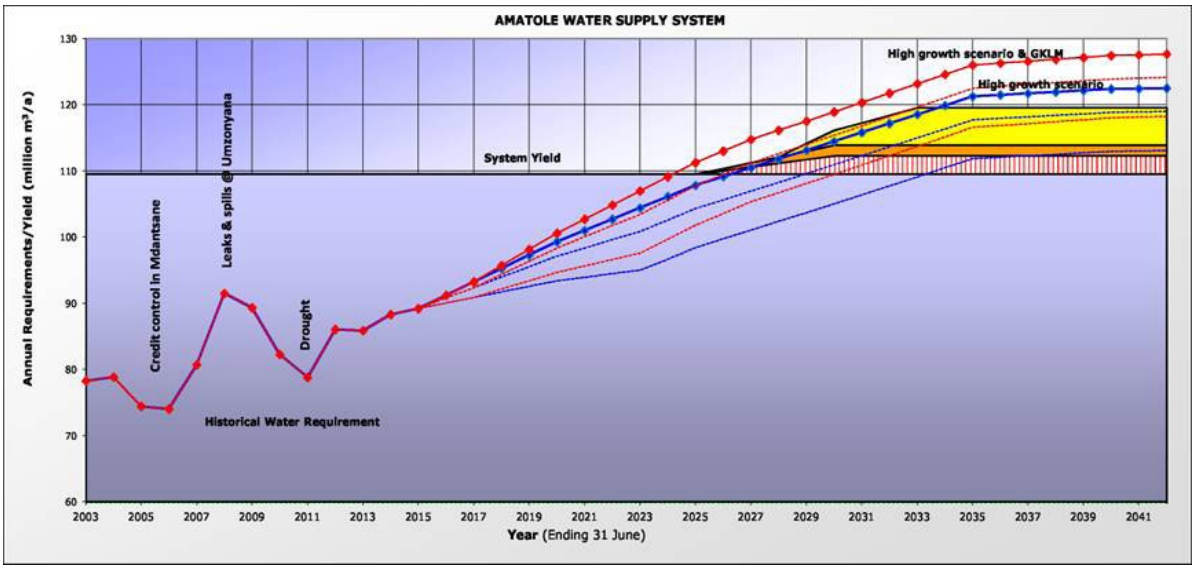


FIGURE 25: Water resources outlook – Ekurhuleni

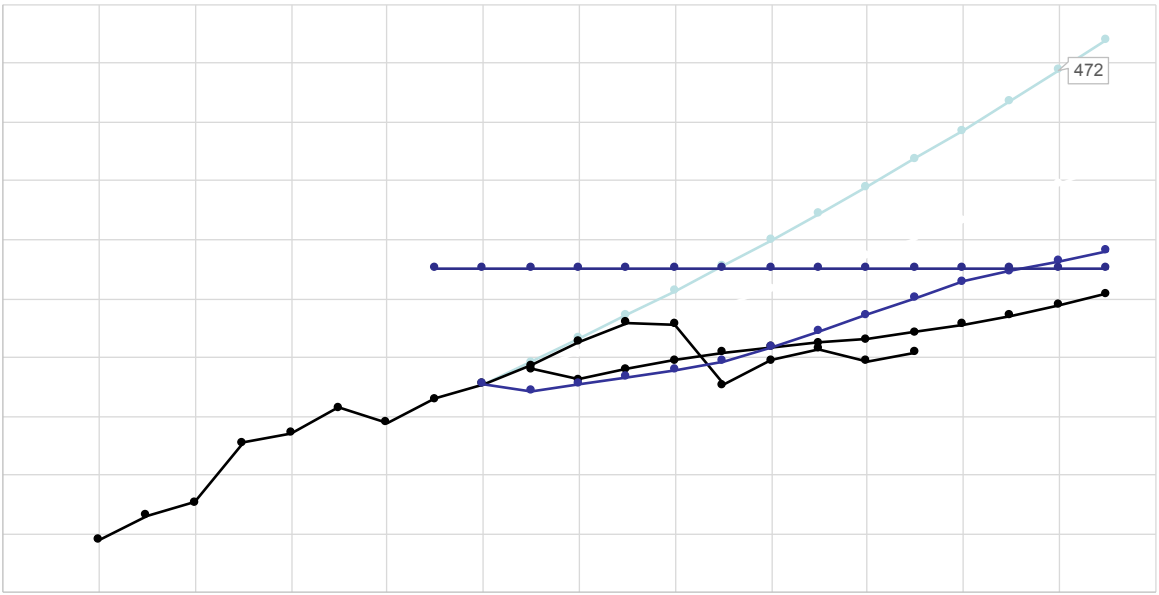
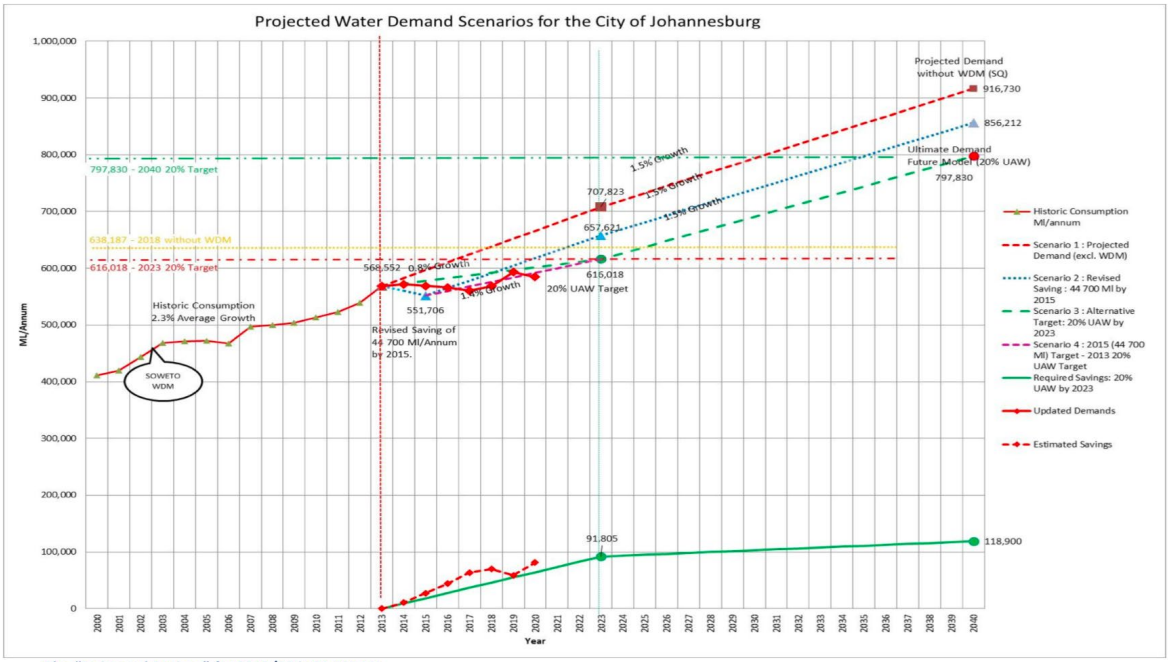


FIGURE 26: Water resources outlook – Johannesburg



The "Estimated Savings" for 2019/20 is 81 565 ML.
This is the difference between Scenario 1 (if we had done nothing in WDM) and the Actual demand ending 2019/20 i.e. 666 042 less 584 477.

FIGURE 27: Water resources outlook – Mangaung

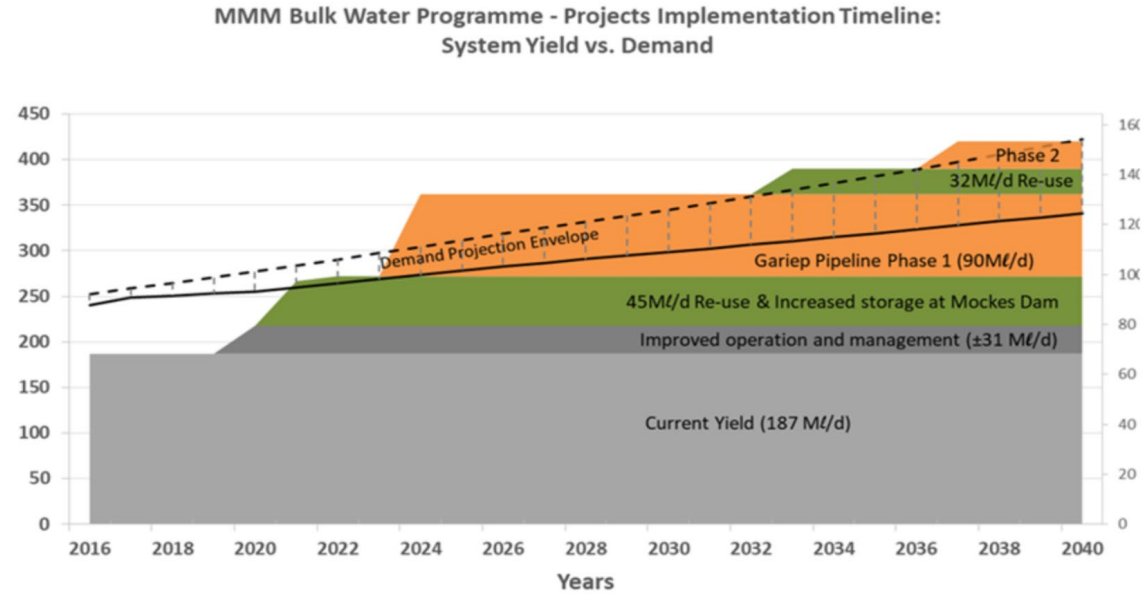
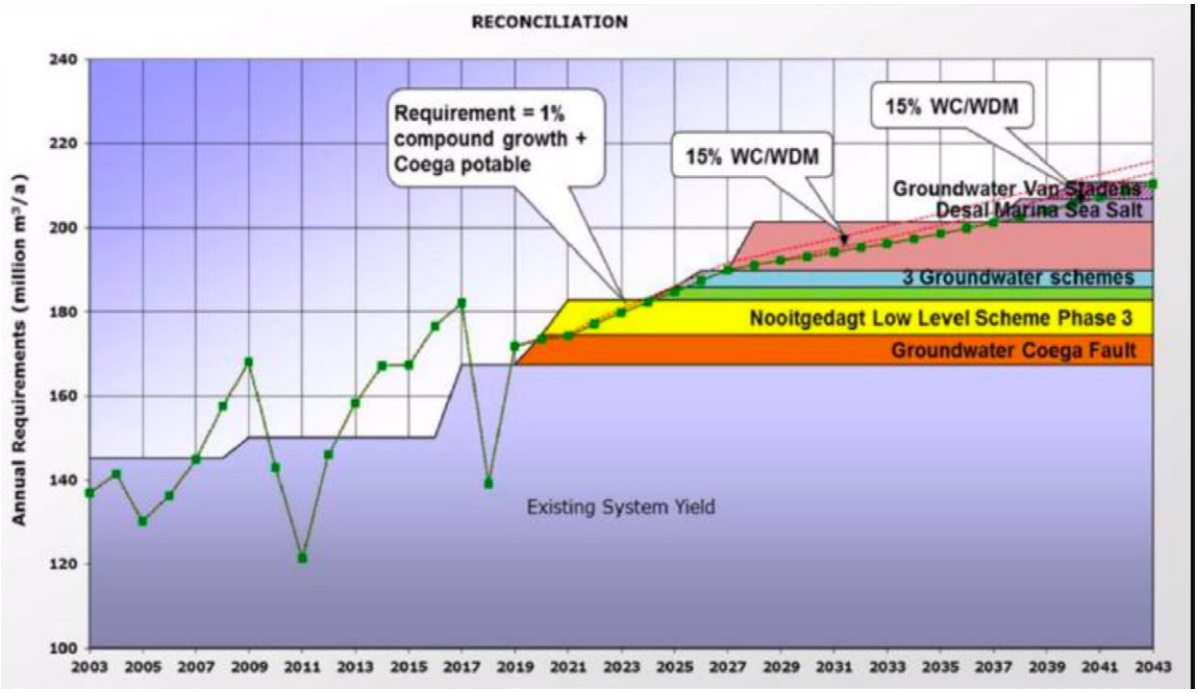


FIGURE 28: Water resources outlook – Nelson Mandela Bay



ANNEXURE 2: A NOTE ON FINANCIAL TRANSPARENCY

National Treasury has made important strides in increasing the transparency and accessibility of municipal finances to the public, which has been augmented by initiatives such as Municipal Money and the introduction of a reform for municipalities to use a municipal standard chart of accounts, or *m*SCOA.[67] Municipal budgets and audited financial statements (together with Annual Reports and other related documents) are available on the National Treasury website.[68] Municipalities are required to make their budgets available for public scrutiny and to publish their tariffs (both proposed tariffs as well as those implemented). Municipal Money accesses this information and presents it on a website in a more accessible format.

However, until recently, the scope for scrutiny of the municipal *water and sanitation business* was very limited.[69] Municipalities are required to report (in their financial statements) on the revenue from service charges for water and sanitation, and on the water and sanitation debtor position, but were not required, and did not report on expenditure as this related to the water and sanitation business. It was therefore not possible to view the actual financial performance of the water and sanitation business, though municipal budgets were published.

National Treasury itself received data from municipalities that showed both revenue and expenditure by service, including "exchange transactions" between the water and sanitation businesses and the rest of the municipality. However, the treatment of these exchange transactions was not consistent across municipalities, limiting the value of analysis across municipalities. This was particularly true in terms of how (or if) overhead costs were allocated to services. There were also problems with the reliability of data at a service level, and municipalities have (until recently) not been using a standard chart of accounts. Nevertheless, the data reported to National Treasury made it possible to undertake timeseries analysis of key data elements (such as employee costs, for example) with a reasonable level of confidence and to track direct operating surplus (revenue less expenditure, not considering exchange transactions). This data was able to yield some important insights which are summarised later in this report.

National Treasury introduced a requirement to use a standard chart of accounts, enabling it to have direct access to the detailed municipal accounts through data transfers.[70] National Treasury has recently published service level financial reports for the first time on its website.[71] This is an important first step towards greater financial transparency at the service level, but further reforms on necessary to improve both the accessibility and useful of this information.

---

67 municipalmoney.gov.za

68 mfma.treasury.gov.za/Documents/Forms/AllItems.aspx

69 This is the case for almost all municipalities in South Africa, where the water and sanitation service is operated as an internal service within the municipality. Some exceptions exist: for example, water and sanitation is provided by a municipal entity (Joburg Water) in the City of Johannesburg. Joburg Water reports separately on its finances and produces annual reports (johannesburgwater.co.za/resource-centre/).

70 These were called the mSCOA reforms. See http://mfma.treasury.gov.za/RegulationsandGazettes/MunicipalRegulationsOnAStandardChartOfAccountsFinal/Pages/default.aspx

71 Aggregate data (across municipalities) by service ("service dimensions") was published by National Treasury on the mfma.treasury.gov.za website for the first time in November 2020, and included 2019/20 pre-audit outcomes, but is not easy to find.

ANNEXURE 3: DATA ON FREE BASIC WATER

Municipalities are required to provide a minimum basic amount of 6 kl per month per household to poor households (or 25 litres per person per day) at no cost to the household. This is based on:

- constitutionally enshrined socio-economic rights, supported by constitutional court judgements,[72]
- government's free basic water policy,[73] and,
- regulations gazetted in terms of the Section 10 of the Water Services Act.[74]

The metros apply a municipal property value and/or an income criterion as the basis for providing a free basic water allowance for households access piped water on premises. The number of households qualifying for a free water allowance is shown in Table 20.

TABLE 19: Free basic water tariffs and number of households qualifying for free basic water (2020/1) – water on premises

	Property value	Registered as indigent	Free water Allowance (kl)	# qualifying households
Johannesburg	All	Yes (added benefit)	6 (10/12/15)	1 769 000
Ekurhuleni	< 750 000	Yes (added benefit)	6 (9)	392 000
Cape Town	< 400 000	Yes	10.5	270 000
Tshwane	< 150 000	Yes	12	551 000
eThekwini	< 250 000	No	6	334 000
Buffalo city	No	Yes	6	43 000
Mangaung	No	Yes	6	--
NMB	No	Yes [1]	8	--

Notes: *[1]Combined household income less than twice government welfare pension.*

In addition, municipalities typically provide water from communal standpipes within informal settlements at no cost. The total estimated number of households benefiting from free water is shown in Table 21, together with the estimate volume of free water provided.

72 Chapter 2 of the Constitution of South Africa provides that: "Everyone has the right to have access to sufficient food and water." For a discussion of the Constitutional court judgement on this right, see, for example, www.erudit.org/en/journals/cd1/1999-n59-cd4010/045722ar/.

73 See, for example, https://www.researchgate.net/publication/250061489_Free_basic_water_-_A_sustainable_instrument_for_a_sustainable_future_in_South_Africa.

74 The national regulations in terms of Section 10 of the Water Services Act states that "The quantity of water forming the basic minimum standard is defined as being either 25 litres per person per day or 6,000 litres per household per month.

TABLE 20: Number of households receiving free basic water and estimated free basic water volume

	Qualifying households free basic water on premises	Households with free communal water	Households receiving free water	Households receiving free water % of total
Johannesburg	1 796 000	156 000	1 925 000	100%
Ekurhuleni	392 000	123 000	515 000	40%
Cape Town	270 000	180 000	450 000	35%
Tshwane	551 000	116 000	667 000	56%
eThekwini	334 000	178 000	512 000	43%
Buffalo city	43 000	74 000	117 000	48%
Mangaung		48 000		
NMB		12 000		

Notes: *[1]Based on the free water allowance for qualifying households and 25 lcd for people accessing communal water in informal settlements, assuming a household size of 3.*

ANNEXURE 4: REVENUE REQUIREMENTS AND EFFICIENT COSTS

Water tariffs and other services charges need to be set at appropriate levels such that the combination of billed revenues and reliable operating grants are sufficient to meet required (efficient) costs, including overheads.

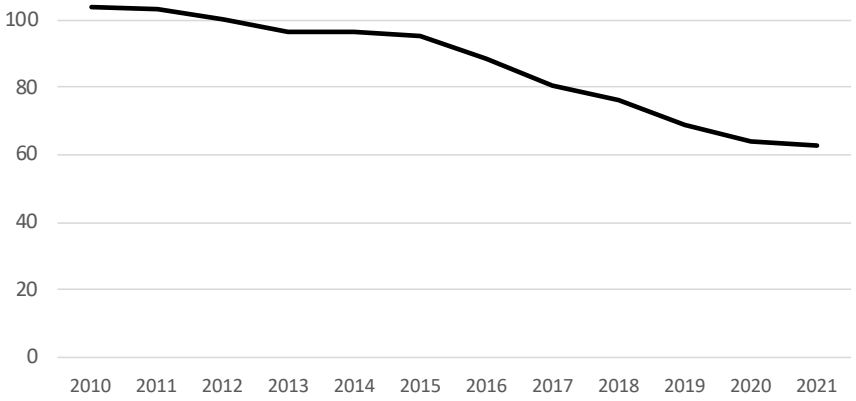
The determination of revenue requirements for infrastructure intensive businesses, such as water and sanitation, is typically undertaken by an economic regulator (with a dedicated team of professionals) and is a key building block for setting or approving tariffs.[75] In South Africa, however, it is not straight forward to assess revenue sufficiency for water and sanitation for the following reasons:

- **Capital costs account for a major share of expenses**. Water is a very capital-intensive business (much more so than electricity), therefore the nature and level of capital expenditure play a very large role in determining costs. Water tariffs and revenue requirements need to be assessed in light of an appropriate and efficient capital investment programme.
- **Depreciation** of existing assets is a major expense. The use of historic costs as the basis for calculating depreciation, and excluding grant funded assets from the calculation, results in serious underfunding of the service because asset replacement costs far exceed historic costs. Depreciation provisions are also not cash-backed, meaning a depreciation charge on the income statement does not necessarily translate into the availability of cash to use to invest in the rehabilitation and replacement of assets.
- **Provisions for uncollected customer debt** (debt impairment) is a large and growing portion of the expense. Most of the metro municipalities have become increasing inefficient at collecting revenues. Uncollected debt needs to be provided for, but provisions are not always sufficient. An efficient business should be collecting 95% of its billed revenue. In this case, uncollected debt places a 5% additional burden on paying customers. In the case of a revenue collection efficiency of 70%, the additional burden on paying customers (to achieve cash neutrality) is 43 percent. The full scale and extent of this problem is shown in Section 2.4.6.
- **Staff costs** in municipalities have increased at above inflation levels each year for at least a decade and it is very likely that staff costs have become inefficient in relation to staff productivity. While staff numbers have grown, there has been a loss of management and technical capability with suitable and sufficient experience over time.
- **Overhead costs** are not treated consistently between metros. In some cases, no overhead costs are allocated to the water service in the municipal accounting for the service's net revenue. In other cases, overhead costs may be inefficient, placing an unwarranted burden on the service. See Table 15.
- **Maintenance expenditure is** too low. In a context of a budget squeeze between allowed revenue and required expenditure, the result is typically the deferral of maintenance, particularly *proactive*

75 South Africa does not have an economic regulator in the water sector. While National Treasury is effectively the financial regulator of municipal finances, its role with respect to regulating the finances of the major trading services has been limited.

maintenance. The very low rate of sewer jetting, and the increasing phenomena of sewer pump station failures, in the context of very high rates of sewer spills, is illustrative of this phenomenon which also applies more broadly across the service (See Section 2.3.3). Another example is the decline in the budget for operating and maintenance costs in Buffalo City, which decreased by over 40% in real teams over a period of 11 years (Figure 29).

FIGURE 29: Operating & maintenance budget for Sanitation Buffalo City (R million, 2020 Rands)



- **Fictional surpluses** will provide a misleading picture of the true financial situation in a municipality. The case of Nelson Mandela Bay is illustrative. Nelson Mandela Bay is in the middle of a severe water crisis (at the time of writing this report) and the water and sanitation service is chronically underfunded. At the same time, the municipality budgeted for a very large surplus (35% of revenue, 56% of expenses) in the next financial year (2021/2) which will be used to fund other costs and services in the municipality. The budget is also based on a revenue collection rate of 85% which is unrealistic given the fact the revenue collection for the service in the current year is only 46%.
- **Complex tariff schedules and low levels of transparency make the evaluation of tariffs difficult**. Tariffs have evolved over time to cater for different interest groups. Nelson Mandela Bay has, for example, a water tariff schedule that is ten pages long, with about 200-line items. This phenomenon is not unique. Before the drought, the City of Cape Town had many customer categories, each with a slightly different tariff. These were collapsed into a single tariff during the drought, showing that this level of complexity is unnecessary. There is also no comparative reporting on tariff levels between metros, for example, on overall average effective tariffs and on the costs for a small set of prototypical customers.[76]
- **Clear rules for revenue determination do not exist**. While municipalities are required to approve a balanced budget, this stipulation does not apply at the level of individual trading services. Sector regulations do not offer sufficient clarity. The existing Water Services Act Section 10 regulations (2007) state that "a water services authority may not allocate more than 15% of water revenue received from water sales to functions other than water supply and sanitation services, until such time as all persons within the area of jurisdiction of the water services authority have been provided at least a basic water supply service." (Section 4(5)). Draft regulations (2015), first developed in 2011 but not yet promulgated, state that revenue requirements should provide for a net surplus of a minimum of 6% per year on revenue.

76 Global Water Intelligence, for example, publish an international comparative survey of water tariffs based on a single prototypical residential customer using 15 kl per month. See www.globalwaterintel.com/products-and-services/market-research-reports/tariff-survey-2020.

ANNEXURE 5: PERCEIVED RISKS

The metros were asked to assess perceived risks over the next five years and these are reported in Table 22.

TABLE 21: Perceived risks as reported by municipalities

Metro self-perceived risk (over next 5 years) of …	MAN	NMB	JNB	TSH	BUF	ETH	CTN	EKU
Significant water restrictions being imposed	4	4	4	3	3	2	2	3
Episodes of drinking water unsafe to drink	3	2	2	2	2	1	1	1
Regular water supply interruptions (or less frequent but lengthy interruptions)	4	5	4	3	2	3	1	2
Significant pollution of rivers / inland water bodies as a result of a failing sewer network or poor performance of wastewater treatment works	4	3	4	4	3	3	3	2
Unsound technical decisions compromise service as a result of critical technical skills gaps	3	3	2	2	1	1	2	1
Unsound technical decisions compromise service as a result of undue political interference	4	2	2	2	1	1	1	1
Deterioration in assets and service quality as a result of inadequate spending on maintenance and rehabilitation/replacement of assets	5	4	3	4	5	4	3	3
AVERAGE RISK SCORE	3.86	3.29	3	2.86	2.43	2.14	1.86	1.86

Key: *Risk level: 1: very low, 2: low, 3: mod, 4: high, 5: very high*

MAN = Mangaung
NMB = Nelson Mandela Bay
BUF = Buffalo City
EKU = Ekurhuleni
TSH = Tshwane;
ETH = eThekwini
JNB = Johannesburg
CTN = Cape Town

Source: *National Treasury Benchmarking process, March to June 2021*

ANNEXURE 6: PROBLEMS WITH THE SCM SYSTEM IDENTIFIED BY STAKEHOLDERS

The following (non-exhaustive) list of problems have been identified by stakeholders.

- The current system frequently results in procurement process delays and litigation, with very long timeframes, many years in some cases, between initial bid specification and the signing of a contract.
- The regulatory framework has been drafted with standard goods in mind, such as the procurement of stationary, and the framework is not suited to contracting for the design, construction and operation of large, complex infrastructure projects. For example, contingencies are a standard mechanism for dealing with uncertainties inherent in such projects, but the use of contingencies is interpreted in some cases as fruitless and wasteful expenditure by the Auditor-General. Progress in developing a bill for public sector infrastructure procurement is stalled.
- Bid documents, contracts and service level agreements are often poorly specified due to a lack of suitable skills within a municipality or because technical officials do not have the time to participate in key processes or have been excluded from processes incorrectly considered to be administrative in nature.
- The application of current supply chain management policies and processes often leads to the award of contracts to contractors who are not qualified to perform the work to the required standard, resulting in poor service outcomes. This is exacerbated by inadequate contract management and the lack of monitoring and enforcement of contractors' performance.
- The requirement that 30% of the value of a contract is sub-contracted to designated groups has resulted in numerous projects being delayed or stopped, with local actors illegally holding a construction project to ransom for "their share" of a construction project, negatively affecting service outcomes.
- Municipalities are required to undertake additional processes which can be time consuming and process heavy if they enter into a contract of more than three years. Consequently, municipalities often enter into three-year contracts in cases where this is sub-optimal and where a longer contract time period would result in better value for money. An example of this is the contracting period for waste collection contracts that do not allow for the optimisation of the value and depreciation of vehicles during the contract period. Five-year contracts would result in lower contract prices compared to three-year contracts.
- Various pieces of national legislation conflict with each other (for example, BBBEE requirements) and it is not clear which take precedence. This increases the risk of litigation and makes procurement processes more prolonged and more costly.

ANNEXURE 7: KEY POINTS FROM THE SOUTH AFRICA WATER TARIFF REVIEW

The National Treasury has been concerned about the parlous financial state of most of South Africa's municipal water and sanitation departments. The PIR exercise thus included a study of water tariffs in two South African metros (eThekwini and Cape Town). The city-specific analyses are not for public consumption, as they contain private customer data that both cities classified as confidential. However, a chapeau note was shared with National Treasury and discussed at a briefing with senior officials.

The tariff study's scope was limited to analysing a subset of domestic customers, focussed only on water, and limited to tariff design. Tariff simulations tested the distributional and other impacts of different tariff structures, while keeping the revenue collected constant.

Financial viability will only be achieved if several complementary actions are taken, and it is important to set the results of the study of eThekwini and Cape Town in this broader context. Generalising to other municipalities, the importance of a city-specific approach to tariff-setting is emphasized, through applying a standard 'simplified' method to tariff-setting, which should be developed for municipalities to use. To achieve financial viability, there are several complementary dimensions to be addressed:

1. **Water business turnaround:** The priority for all municipalities is to improve basic efficiencies (reduce non-revenue water, improve cash collections) and ensure adequate and effective spending on maintenance and asset rehabilitation and replacement. Without this, unit water costs (and hence tariffs) will need to be significantly higher than they ought to be.

2. **Financial transparency:** A necessary step to setting water tariffs is for water and sanitation

   finances to be separately accounted for with an income statement, cash flow and balance sheet. This will make it possible to properly understand the financial performance of the water business, and to determine its revenue requirements.

3. **Economic regulation:** The most important component of the tariff setting process is to ensure revenue sufficiency, considering National Treasury grants. A regulator should help municipalities to determine revenue requirements and to set an appropriate average tariff level (based on a standard economic regulatory approach).

4. **Tariff design:** Within the above context, tariffs structures for different categories of customers need to be designed to meet key objectives (efficiency, equity, sustainability). This requires tariffs to reflect the costs of each tariff category, but also to tackle the trade-offs between objectives. Design may include provision of cross-subsidies between tariff categories. The recommendations are principally on how the tariff design methodology can be improved, highlighting that municipalities should routinely use actual billing data to test the efficiency and distributional implications of their water tariffs, and undertake periodic major tariff reviews which include:

- A detailed analysis of the distribution of demand within and between different customer categories and projections over the tariff-setting period.
- Assessing the cost of supply to understand the structure of costs and potential for efficiency improvements, including associated investments which might be required.
- Identifying the revenue required over the planning period and hence the average tariff.
- Tariff structure design for each customer category.

The study emphasizes that national policy, which requires municipalities to implement increasing block tariffs (IBTs), should be revised, as an IBT structure is not the panacea it is commonly assumed to be and is not always the best option. It also calls for regulatory oversight, i.e., that a regulator should periodically review municipal water tariffs and their efficiency, distributional and sustainability impacts, feed this analysis back to municipalities, and assist municipalities to improve their tariff designs. It explains why a detailed cost of service study covering all categories of customers would be needed before a radically new tariff structure is introduced. This would be an opportunity to consider possible 'tariff complements' to achieve specific objectives and ensure that new tariff structures are carefully timed and accompanied by utility performance improvements and extensive stakeholder engagement.