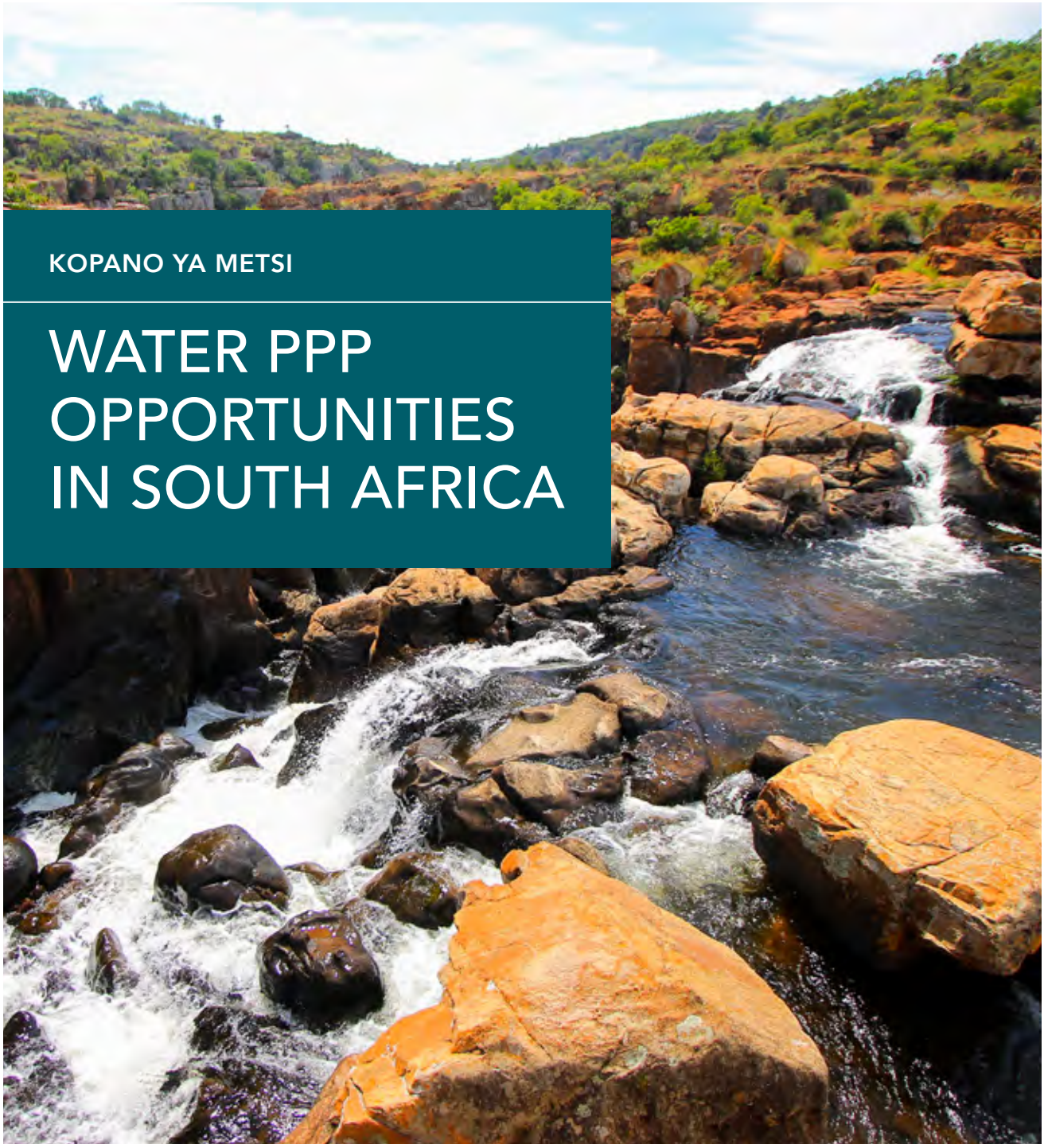
National Business Initiative

REPORT 04



KOPANO YA METSI

WATER PPP OPPORTUNITIES IN SOUTH AFRICA

SUPPORTED BY

MINISTRY OF FOREIGN AFFAIRS OF DENMARK

IN PARTNERSHIP WITH

Confederation of Danish Industry

Voluntās ADVISORY

KOPANO YA METSI

"THE WATER AND SANITATION SECTOR IS CURRENTLY NOT FINANCIALLY SUSTAINABLE"
National Water and Sanitation Master Plan, 2018[1]

WATER MANAGEMENT IN SOUTH AFRICA REQUIRES URGENT ACTION

Drought and poor water service delivery is already constraining economic growth and hampering livelihoods. The water sector funding gap is R330 billion over the next ten years, with major infrastructure refurbishment and improved maintenance required. At least a third of the municipalities delivering water services are considered to be dysfunctional. Many water institutions are not credit-worthy and accumulated municipal water debt is now over R13 billion.

The National Water and Sanitation Master Plan states that a 'turn-around towards financial sustainability is not optional' and calls for enhanced revenues, cost reductions, an analysis of alternative service delivery models and increased private sector investment.

Kopano ya Metsi ('meeting for water' in Sesotho) was initiated in 2017 by the National Business Initiative (NBI) in partnership with the Confederation of Danish Industry (DI) and Voluntas Advisory, to understand how water investment can be unlocked in South Africa.

Kopano ya Metsi speaks directly to the need to investigate alternative delivery models and ways to improve the sector's financial viability, as outlined in the National Water and Sanitation Master Plan.

THROUGHOUT ITS DURATION KOPANO YA METSI HAS SOUGHT TO UNDERSTAND 4 ISSUES:

- **How can water finance be unlocked?**
- **What is the potential role of formal Public Private Partnerships?**
- **How can municipal water management be strengthened?**
- **How can we solve for a specific challenge, wastewater treatment?**

Over a period of 18 months, Kopano ya Metsi has engaged with hundreds of water experts in South Africa through 8 major roundtables, conferences and workshops held across 4 cities (Durban, Pretoria, Johannesburg and Cape Town), as well as a series of individual meetings. Participants have included civil society partners, national government, local government, industry bodies, local government associations, researchers, private sector implementers, development banks, commercial banks and investors.
The findings of Kopano ya Metsi are a reflection of this consultation process.

www.yametsi.co.za
www.nbi.org.za

[1] DWS (2018) *National Water and Sanitation Master Plan, Volume I: Call to Action*. Version 10.1, October 2018, p48

KOPANO YA METSI REPORT SERIES

01 **UNLOCKING WATER INVESTMENT IN SOUTH AFRICA**
Paper 1 summarises the main challenges to be addressed in the water sector from a financing and investment perspective, outlines key solutions and charts a course for the future.

02 **STRENGTHENING SOUTH AFRICA'S WATER SERVICES AUTHORITIES**
Paper 2 provides recommendations on how municipal water management can be improved over time, with an emphasis on revenues, finance and institutional capacity.

03 **AN INTRODUCTION TO PPPs IN SOUTH AFRICA**
Paper 3 provides a primer on formal PPPs, introducing their main characteristics, potential benefits, key success factors and governing legal framework.

04 **WATER PPP OPPORTUNITIES IN SOUTH AFRICA**
Paper 4 assesses where the main opportunities for formal water PPPs are likely to be located at both a geographic and value chain level.

05 **PUBLIC PERCEPTION OF WATER PROVISION THROUGH PPPs**
Paper 5 considers the findings of a public perception survey conducted among urban households in 2017, including the implications for a PPP approach to water provision.

06 **BARRIERS AND SOLUTIONS TO IMPLEMENTING MUNICIPAL WATER PPPs**
Paper 6 identifies the key barriers to implementing water PPPs within local government and outlines relevant solutions to address these challenges.

07 **SOLVING FOR MUNICIPAL WASTEWATER TREATMENT**
The final paper applies the findings of Kopano ya Metsi to improving the state of municipal wastewater treatment in South Africa.

EXECUTIVE SUMMARY

This paper provides an overview of where the main opportunities for formal Public Private Partnerships (PPPs) are located in the water sector. Opportunities are identified at both a geographical and water value chain level.

The report provides an entry point for considering the municipalities and project areas where a PPP is likely to be suitable. The paper is intended to offer a high-level, national perspective and cannot substitute for in-depth project evaluation within a specific municipality. A detailed feasibility assessment is required for any effective project development to take place.

This paper highlights that the theoretical potential for water PPPs is considerably higher than is currently experienced in South Africa. This opportunity for increased private sector participation is particularly important, given that the water funding gap now stands at R330bn over 10 years and a R28bn decrease in conditional infrastructure grants was announced in the 2018/19 budget speech.

Private sector participation through PPPs is one component in addressing our infrastructure challenges. PPPs can, if carefully designed, create a channel for private capital to flow into the sector, thereby supplementing government spending and freeing up public sector resources for other purposes. The Mbombela concession, iLembe concession and Durban Water Recycling Project provide examples of existing water PPPs that have consistently performed well over long periods.

Our analysis suggests that the City of Johannesburg, eThekwini Municipality, City of Cape Town and Ekurhuleni Municipality are the most PPP suitable municipalities in the country. This short list is somewhat unsurprising given that it comprises large metropolitan municipalities with a considerable revenue base and strong levels of institutional capacity.

Equally important, however, is that 28 of the 144 municipalities assessed demonstrate good PPP potential in one form or another. This wider grouping provides a strong basis for further investigation. It is also encouraging that these 28 municipalities include Metros, secondary cities and small towns, suggesting that PPPs can be applied across a range of contexts.

Within the water value-chain itself, the major opportunities lie in desalination, wastewater treatment, water reuse and non-revenue water, followed by broader opportunities in water supply infrastructure (e.g. conventional water treatment, groundwater development).

ASSESSING THE PPP POTENTIAL OF SOUTH AFRICA'S MUNICIPALITIES

DEVELOPMENT OF MUNICIPAL PPP RANKING TOOL

An Excel-based database and filtering tool was developed to rank the PPP potential of 144 Water Services Authorities in South Africa. A Water Services Authority (WSA) is any District, Metropolitan or Local Municipality that is responsible for providing water services to end users.

The filtering tool assigns each WSA a score out of 100 based on four overarching criteria. The criteria used, and their respective weightings, are as follows:

25% DEMONSTRATED NEED

This filter looks for the WSA that is in greatest need of water investment. WSAs are assessed based on their level of non-revenue water, wastewater quality and population size

20% PPP SUITABILITY

This filter looks for densely populated WSAs with a high annual household income, in order to reduce a PPP's market risk. This is a commercially focused filter. WSAs are assessed based on their average annual household income and the size of town at a municipality's core (using municipality type as a general proxy)

25% OPENNESS TO PPPs

This filter looks for WSAs that have any prior PPP experience. WSAs are assessed based on whether a PPP is planned or has been implemented, as well as whether they have previously outsourced any water or sanitation services. Extra recognition is provided where a water PPP has previously been implemented

30% MUNICIPAL CAPACITY

This filter looks for WSAs that have the capacity to procure, manage and monitor a PPP. To identify this capability, WSAs are assessed based on their audit outcome, any documented waste of funds, the sophistication of their water pricing strategy and their Municipal Services Strategic Assessment (MuSSA) vulnerability index. A WSA's ranking within MuSSA forms the bulk of the score allocated

A detailed explanatory note outlining the criteria and ranking process used is provided in Appendix I. The key data sources employed in developing the filtering tool include the National Water Services Knowledge System (DWS), MuSSA (DWS) and Private Participation in Infrastructure Database (World Bank).

SUMMARY OF RESULTS

The findings of the WSA ranking exercise are as follows:

- 4 of the WSAs exhibit excellent PPP potential
- A further 24 of the 144 WSAs possess very good or good PPP potential
- 116 WSAs fall within the low or very low PPP potential band

As such, 28 of the 144 WSAs surveyed (19%) are theoretically suitable for water PPPs at present. With the introduction of a new suite of PPPs (and associated learnings) it may also be possible to extend into other targeted WSAs over time.

The WSAs falling within the excellent, very good and good potential bands are summarised in Table 1 below:

TABLE 1: WSAs WITH HIGHEST THEORETICAL PPP POTENTIAL

WSA	Municipality Type	PPP Suitability Score	Opportunity Ranking
City of Johannesburg	**Metro**	**78.3**	**Excellent**
eThekwini Municipality	**Metro**	**63.3**	**Excellent**
City of Cape Town	**Metro**	**62.0**	**Excellent**
Ekurhuleni Municipality	**Metro**	**61.3**	**Excellent**
Polokwane	**B1**	**50.8**	**Very good**
Breede Valley	**B2**	**50.4**	**Very good**
Witzenberg	**B3**	**50.4**	**Very good**
Mangaung	**Metro**	**50.0**	**Very good**
Overstrand	B2	49.8	Good
Saldanha Bay	B2	49.8	Good
Sol Plaatjie	B1	49.6	Good
City of Tshwane	Metro	48.8	Good
Nelson Mandela Bay	Metro	47.9	Good
Emthanjeni	B3	46.8	Good
George	B1	45.5	Good
Newcastle	B1	45.4	Good
uMhlathuze	B1	45.2	Good
Stellenbosch	B1	45.1	Good
Bitou	B3	44.5	Good
Drakenstein	B1	44.5	Good
Swartland	B3	43.7	Good
Hessequa	B3	43.5	Good
Theewaterskloof	B3	43.0	Good
Buffalo City	Metro	42.0	Good
Maluti-a-Phofung	B3	41.7	Good
Mogale City	B1	41.7	Good
Emfuleni	B1	41.3	Good
Rustenburg	B1	40.5	Good

SOURCE: Own calculations based on DWS database, and data from municipalities.co.za. Italics indicate municipalities that are currently considered dysfunctional or distressed by COGTA (COGTA, 2018 Budget Vote)

PLEASE NOTE: The above rankings are only **indicative** of theoretical PPP potential and should not be considered conclusive. For example, the above list includes 4 municipalities that are currently considered dysfunctional or distressed by the Department of Cooperative Governance and Traditional Affairs (namely Emthanjeni, Maluti-a-Phofung, Mogale City and Emfuleni). While the theoretical PPP potential of these 4 municipalities is good, their actual potential is lower at present. This discrepancy emphasises the importance of ground-truthing in project development.

The key barriers to the implementation of water PPPs in South Africa, and their associated solutions, are discussed in Kopano ya Metsi Paper 6. This paper helps elucidate why water PPPs have largely failed to materialise despite reasonable national potential.

As indicated in Table 1 above, the analysis suggests that the City of Johannesburg, eThekwini Municipality, City of Cape Town and Ekurhuleni Municipality are the most PPP suitable municipalities in the country, all of which are well-resourced metropolitan municipalities.

Nevertheless, the top ranked PPP candidates include a number of secondary cities and even municipalities with only small towns, suggesting that PPPs can be applied in different municipal contexts. The analysis further suggests that there are at least as many PPP opportunities in secondary cities as there are in large urban metros.

A summary of PPP suitability by municipality type is provided in Table 2 below:

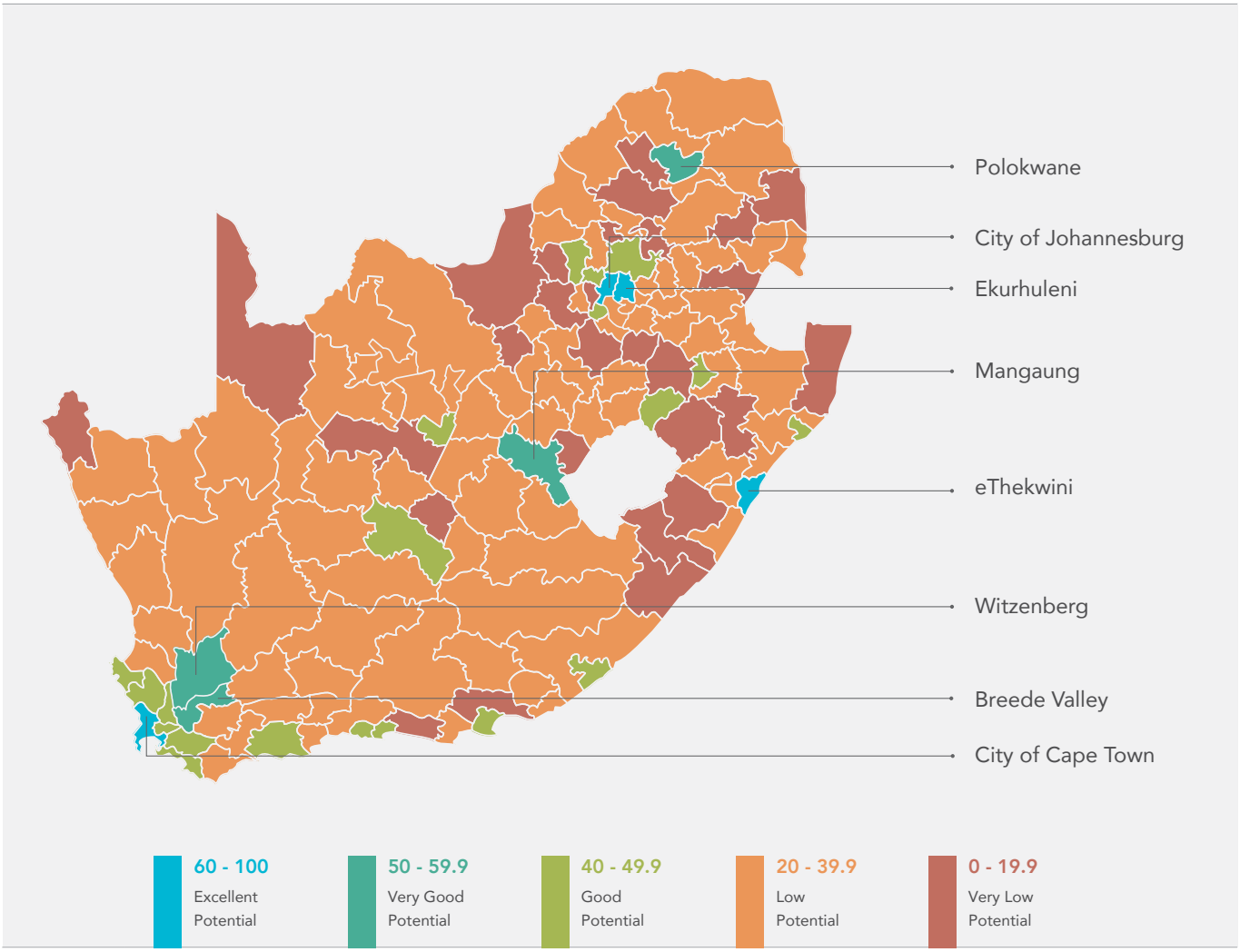
TABLE 2: PPP SUITABILITY BY MUNICIPALITY TYPE

Municipality Type	Number of PPP Suitable WSAs	% of PPP Suitable WSAs	% of Overall Municipality Type
Metropolitan municipality (A)	8	29%	100%
Local municipality with secondary city (B1)	10	36%	53%
Local municipality with large town at core (B2)	3	11%	12%
Local municipality with small towns (B3)	7	25%	7%

THE SOUTH AFRICAN WATER PPP OPPORTUNITY MAP

Figure 1 below draws a water PPP opportunity map for South Africa. The map depicts the findings of the analysis geographically, based on each WSA's ranking:

FIGURE 1: TOWARDS A WATER PPP OPPORTUNITY MAP FOR SOUTH AFRICA



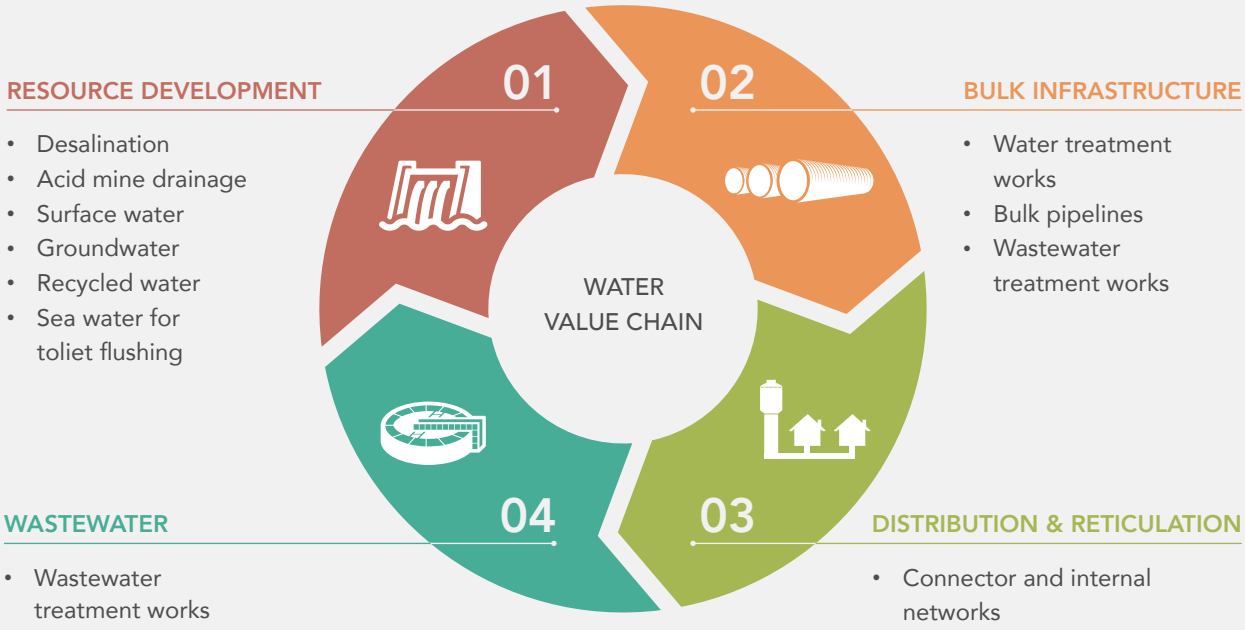
SOURCE: Own calculations based on DWS database, and data from municipalities.co.za

MAIN PPP OPPORTUNITIES IN THE WATER VALUE CHAIN

INTRODUCING THE WATER VALUE CHAIN

Figure 2 below shows a simplified water value chain, broken down into four phases.

FIGURE 2: SIMPLIFIED WATER VALUE CHAIN FOR SOUTH AFRICA



In the section that follows the main PPP opportunities per phase are highlighted.

MAJOR WATER PPP OPPORTUNITIES IDENTIFIED

Table 3 below highlights the main PPP opportunities identified within the water value chain.

PLEASE NOTE: This is not intended to be an exhaustive list, but rather focuses on the main opportunities considered to be viable based on the research and roundtables conducted under Kopano ya Metsi.

TABLE 3: MAIN PPP OPPORTUNITIES IN THE WATER VALUE CHAIN

01 RESOURCE DEVELOPMENT

Main PPP Opportunities	Example Project Types
• New dams • Desalination plants • Wastewater (water reuse) • Groundwater extraction and aquifer recharger	• Build Operate Transfer (BOT) • Build Operate Own Transfer (BOOT)

02 BULK INFRASTRUCTURE

Main PPP Opportunities	Example Project Types
• Water treatment works • Bulk water pipelines	• Build Operate Transfer (BOT) • Operations & Maintenance (O&M)

03 DISTRIBUTION & RETICULATION

Main PPP Opportunities	Example Project Types
• Non-Revenue Water (performance based contract) • Non-Revenue Water (physical losses only)	• Operations & Maintenance (O&M) • Build Operate Transfer (BOT)

04 WASTEWATER

Main PPP Opportunities	Example Project Types
• Wastewater Treatment Works: O&M Contract • Wastewater Treatment Works: O&M Contract (water reuse) • Wastewater Treatment Works: BOT Contract	• Operations & Maintenance (O&M) • Build Operate Transfer (BOT)

Drawing on Table 3 above, sector experts consistently raised desalination, any form of water reuse, wastewater treatment and non-revenue water as the major initial PPP opportunities in South Africa at present. These opportunities could be expanded upon to include for example, groundwater and conventional water treatment, over time.

CONCLUSION

South Africa has untapped potential for the development of water PPPs, both geographically and within the water value chain.

28 of the 144 Water Services Authorities assessed within this paper demonstrate good theoretical PPP potential. This grouping extends beyond the 8 Metros to include a number of secondary cities and small towns, suggesting that there is scope to employ PPPs across a range of municipality types.

However, in certain instances a PPP is not suitable, particularly where a municipality has limited capacity to undertake the procurement process required. Paper 2 of Kopano ya Metsi focuses on the strengthening of Water Service Authorities to help cater for this municipal context.

Within the water value chain, the key initial PPP opportunities lie in desalination, wastewater treatment, water reuse and non-revenue water. This is followed by broader opportunities within water supply infrastructure such as conventional water treatment and groundwater development.

Given the many challenges facing the water sector at present, it is clear that additional approaches and funding models are required. PPPs can play a meaningful role in attracting private sector investment and expertise, within contracts where the private party is required to meet certain performance standards. Private sector participation through PPPs is arguably a necessary component in addressing our current and future water infrastructure challenges.

APPENDIX I: WSA RANKING CRITERIA AND SPECIFIC INDICATORS

Criteria	Reasoning	Specific Indicators and Weighting
FILTER 1: **DEMONSTRATED NEED**	This filter looks for the Water Services Authority (WSA) that is in greatest need of water investment.	SPECIFIC INDICATORS: • **'Population':** a greater number of people increases the need for a WSA to deliver services (5) • **'Water losses %':** greater losses indicate the needs for refurbishment and heightened water infrastructure investment (10) • **'Wastewater quality':** low wastewater quality suggests deficient infrastructure within the WSA (10) • **Overall weighting:** 25/100
FILTER 2: **PPP SUITABILITY**	This filter looks for densely populated WSAs with a high annual household income, factors that reduce a PPP's market risk. This is a commercially focused filter.	SPECIFIC INDICATORS: • **'Average annual income':** This is used as a proxy for the ability to obtain an adequate collection rate (10) • **'Municipality Type':** municipalities with a large town at their core and higher densification reduce maintenance costs and enhance revenue potential (10) • **Overall weighting:** 20/100
FILTER 3: **PPP OPENNESS**	This filter looks for WSAs that have any prior PPP experience.	SPECIFIC INDICATORS: • **'Outsourced water services':** openness toward alternate water procurement mechanisms (5) • **'Outsourced sanitation & sewerage services':** openness towards alternate sanitation and sewerage procurement mechanisms (5) • **'PPPs planned and implemented':** experience a WSA already has with PPPs. Experience in water PPPs specifically is counted double (15) • **Overall weighting:** 25/100
FILTER 4: **MUNICIPAL CAPACITY**	This filter looks for WSAs that have the capacity to undertake a PPP.	SPECIFIC INDICATORS: • **'Audit outcome':** municipal capacity and skill-sets in handling financial accounts (3.33) • **'Documented waste of fund':** the level of effectiveness in the usage of the municipal budget (3.33) • **'Water Pricing Strategy':** the sophistication of the WSA pricing approach (3.33) • **'Vulnerability Index':** Based on their ranking within the MUSSA (Municipal Services Strategic Self-Assessment) for water services (20) • **Overall weighting:** 30/100

NOTES:

- The WSA database and ranking tool developed under Kopano ya Metsi is based on publicly available data only
- Not all data points exist for all municipalities, and we cannot guarantee the accuracy of the reported data
- For the benchmarking of the WSA all scores were standardised on a linear (as opposed to logarithmic) scale. The best performing WSA in each category thus gets a perfect score and the remaining WSAs are ranked relatively to that. Using a linear approach makes the data set vulnerable to the distorting effect of outliers in each category, but it also 'rewards' high-performers

National Business Initiative

The National Business Initiative (NBI) is an independent and voluntary coalition of South African and multinational businesses launched in 1995 by former President Nelson Mandela. Today we have over 100 member companies that work together towards sustainable growth and development in South Africa.

FOR MORE INFORMATION ON KOPANO YA METSI

Please visit www.yametsi.co.za or contact Alex McNamara on +27 (11) 544 6000 or AlexM@nbi.org.za

5th Floor, 61 Katherine Street, Dennehof, Sandton, 2196
PO Box 294, Auckland Park, Johannesburg 2006, South Africa
0861 123 624 (0861 123 NBI)
www.nbi.org.za
www.facebook.com/NationalBusinessInitiative
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