



Water

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2019

Market Intelligence Report

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GreenCape

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Cover image courtesy of Jane Reddick



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List of abbreviations and acronyms

AADD	Annual Average Daily Demand
B-BBEE	Broad-based Black Economic Empowerment
BOT	Build-Operate-Transfer
C&I	Commercial and Industrial
CCCI	Cape Chamber of Commerce and Industry
CoCT	City of Cape Town
CSAG	Climate System Analysis Group
DEADP	Department of Environmental Affairs and Development Planning
DLG	Department of Local Government (Western Cape Government)
DWA	Department of Water Affairs (now DWS)
DWAF	Department of Water Affairs and Forestry (now DWS)
DWS	Department of Water and Sanitation
EME	Exempted Micro Enterprise
GA	General Authorisation
GDP	Gross Domestic Product
GTAC	Government Technical Advisory Centre
GVA	Gross Value Add
ILI	Infrastructure Leakage Index
MFMA	Municipal Finance Management Act No. 56 of 2003
MIR	Market Intelligence Report
MLD	Megalitres (million litres) per day
NBR	National Building Regulations
NRW	Non-Revenue Water
NWA	National Water Act
PPP	Public Private Partnership
QSE	Qualifying Small Business Enterprise
RFQ	Request for Quotation
SANS	South African National Standard:
SIV	System input volume
VAT	Value Added Tax
WCWDM	Water Conservation and Water Demand Management
WCWSS	Western Cape Water Supply System
WC	Western Cape
WCG	Western Cape Government
WEF	World Economic Forum
WMA	Water Management Area
WRC	Water Research Commission
WUL	Water Use Licence
WWF	World Wide Fund for Nature
WWTW	Waste Water Treatment Works

Conversions:

1 Megalitre = 1 million litres = 1 000 000 litres = 1 000 kl = 1 000 m³

Executive summary

This market intelligence report (MIR) is aimed at investors interested in the South African urban water sector, with particular emphasis on the Western Cape region.

Water scarcity has been a key driver for investment in the Western Cape water sector due to severe drought conditions and expected longer-term water constraints in the region. This year's report draws on market demand trends observed during the drought, and looks at the emerging longer-term investment opportunities linked to water scarcity. The report focuses on insights relating to the four key urban water markets in South Africa:

- **Commercial and industrial businesses**
- **Residential**
- **New property developments**
- **Municipalities**

Based on population and economic growth projections, South Africa could have a 17% gap between supply and demand by 2030. Not all areas will be equally affected, with severe shortages expected in key industrial areas, e.g. Gauteng, Mpumalanga, KwaZulu-Natal, and the Western Cape.

In the Berg River management area (which includes Cape Town), the future water supply deficit is projected to cost the region more than R146 billion and almost 650 000 jobs per year by 2040 if no new water resources are developed. Overcoming water scarcity is clearly a major challenge in South Africa. At the same time, it represents substantial opportunities for investors and businesses in the water sector, as summarised below.

Summary of market opportunities

Market	Market size indicators	Main opportunities	Key market segments
Industrial & commercial (Section 4.1)	<ul style="list-style-type: none"> R14bn spent on municipal water & sanitation services in SA (2018) 	<ul style="list-style-type: none"> Metering & monitoring Water efficient technologies Reuse and alternative water treatment systems Brine management solutions 	<ul style="list-style-type: none"> SA industrial market: food & beverages sector gross fixed capital formation ~R14bn by 2021
Residential (Section 4.2)	<ul style="list-style-type: none"> 7.4m households collectively spent R22bn on municipal water & sanitation services in SA (2018) 	<ul style="list-style-type: none"> Water efficient devices Alternative water systems 	<ul style="list-style-type: none"> 3.5m households in SA earning >R200k per annum
New property developments (Section 4.3)	<ul style="list-style-type: none"> R2.1bn spent on wet services (2018) No. of green buildings certified increased from 4 (2010) to ~100 (2018) 	<ul style="list-style-type: none"> Metering & monitoring Water efficient technologies Reuse and alternative water treatment systems 	<ul style="list-style-type: none"> City of Cape Town, Tshwane and Johannesburg: ~50% of the private sector market
Municipal (Section 4.4)	<p>SA's largest water market:</p> <ul style="list-style-type: none"> R30bn p.a. water & sanitation infrastructure budget (2017) Further R17bn p.a. needed 	<ul style="list-style-type: none"> Water augmentation (e.g. wastewater reuse & desalination) Non-revenue water reduction (R6.3bn p.a. in lost revenue in SA) 	<p>Metros and large municipalities, e.g.:</p> <ul style="list-style-type: none"> Cape Town's R5.8bn (417MLD) new water programme eThekweni's planned 385 MLD reuse and desalination PPPs

The following are some of the key drivers and risks to these opportunities:

- As the **risk of water scarcity** increases, the demand for water solutions increases. Conversely, demand drops during periods of improved water security.
- Water tariffs** affect the business case for investment in water technologies, and in some cases are too low to drive demand. However, future tariffs are likely to maintain an upward trend.

While the municipal sector represents the largest opportunity for investors, there are a few barriers specific to this market. They relate to **access to funding, capacity constraints, procurement processes, and cost recovery**.

Overall, there are good prospects in the Western Cape, and more widely in South Africa, for investment in technologies that would advance resilience to drought and adaptation to longer-term water scarcity.

What's new?

Readers of last year's MIR are encouraged to read this year's report in full, as the market intelligence has been updated substantially.

The 2018 report focused on the various water technology investment opportunities opened up by the recent drought in the Western Cape. This year's report draws on market demand trends observed during the drought, and looks at emerging longer-term investment opportunities linked to water scarcity in South Africa.

The report focuses on insights relating to the four key urban water markets: **commercial and industrial businesses, households, new property developments, and municipalities.**



1

Introduction and purpose

This market intelligence report (MIR) has been compiled by GreenCape's Water Sector Desk. It is aimed at investors interested in the South African urban water sector, with particular emphasis on the Western Cape region.

Water scarcity has been a key driver for investment in the Western Cape water sector due to severe drought conditions and expected longer-term water constraints in the region. This year's report focuses on water technology investment opportunities linked to water scarcity within the four key urban water markets in South Africa: **commercial and industrial businesses, households, new property developments, and municipalities.**

The report provides a **sector overview** (Section 2), which outlines the issue of water scarcity in both the South African and Western Cape context. This is followed by an overview of **policies and regulations** (Section 3) that are relevant to water technology investment **opportunities and**

barriers (Section 4). The final sections focus on **finance and incentives** (Section 5), gives an overview of the **Western Cape as Africa's growing greentech hub** (Section 6), and explain **GreenCape's work within the green economy** (Section 7).

While the report focuses on urban water use, there is a strong link between agricultural and urban water use, particularly in water-constrained contexts. For investment opportunities in the agricultural sector, including technology opportunities for improved water efficiency, please consult the 2018 and 2019 [Agriculture Market Intelligence Reports](#)¹, as well as the [GreenAgri](#)² portal.



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¹ www.greencape.co.za/market-intelligence/

² www.greenagri.org.za/



2

Sector overview

Water scarcity is a major challenge in South Africa that also represents a substantial opportunity for investors and businesses in the water sector.

2.1. South African context

The 'water crises' challenge was ranked by the World Economic Forum (WEF) as the third highest risk for doing business in South Africa in 2017, and is also one of the top risks globally (WEF 2017). South Africa is ranked as the 30th driest country in the world. It is a highly water-stressed country, with extreme climate and rainfall fluctuations (WRI 2015). Despite being a water-scarce country, consumption is around 233 litres/capita/day (l/c/d), compared to the international benchmark of around 180 l/c/d (DWS 2017a)³. South Africa has a reliable yield (i.e. supply from current infrastructure) of around 15 billion kl/year (at 98% assurance of supply – or 2% annual probability of supply failure), of which the majority is from surface water (68%) and return flows that support surface water (13%), as shown in Figure 1 (DWS 2017a).

Current water usage is ~15-16 billion kl/year, and in many water supply systems water usage exceeds the reliable yield (DWS 2017a). This essentially means that whilst water supply sources can meet this increased usage, supply assurance drops to below 98%, i.e. the annual probability of supply failure increases to above 2%. As shown in Figure 2, agriculture is the largest water use sector (62%), followed by municipalities (27%), which include residential, commercial, and industrial users supplied by municipalities (DWS 2017a). (Note: The relative proportion of municipal and agricultural use differs between provinces and municipalities, depending on settlement patterns and local economy).

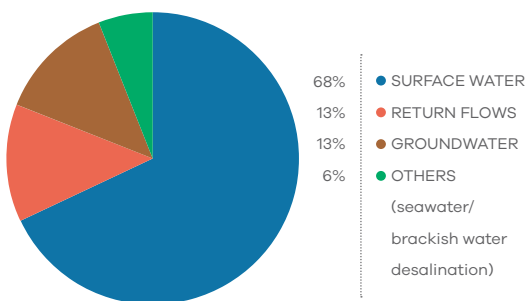


Figure 1: Water sources in South Africa

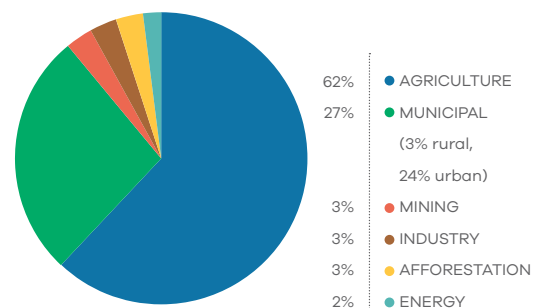


Figure 2: Water use in South Africa by sector

³ These figures are based on the system input volume divided by the population served. The system input volume includes commercial and industrial demand, and water losses through infrastructure leaks.

Based on population and economic growth projections, water demand in South Africa is estimated to be 17.7 billion m³ in 2030. This means that South Africa could have a 17% gap between supply and demand by 2030 (2030 WRG 2009). Not all areas will be equally affected, as shown in [Figure 3](#) (McKinsey and Company 2010), with severe shortages expected in key industrial areas, e.g. Gauteng, Mpumalanga, KwaZulu-Natal, and the Western Cape.

SA's water demand is expected to exceed supply by 17% by 2030. Over the next ten years ~R90 billion per year will be needed for water and sanitation infrastructure to keep up with the growing demand.

Size of gap

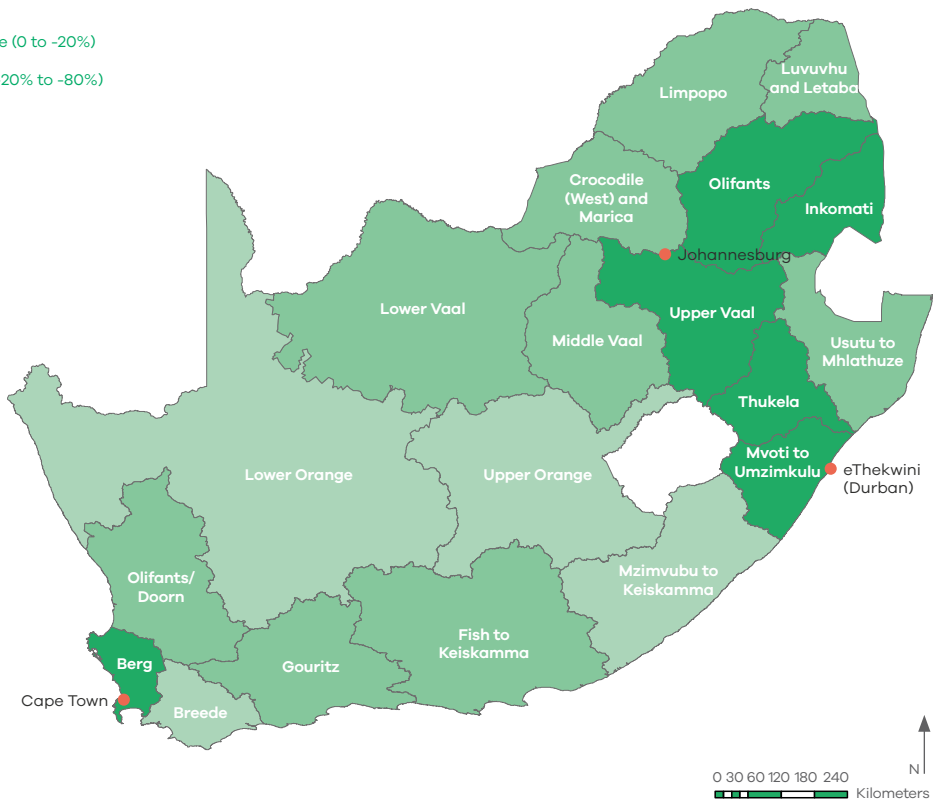


Figure 3: The gap between existing water supply and projected demand by 2030 in South African catchment areas

In order to address water scarcity and provide reliable water and sanitation to all people, businesses, and industries in South Africa, it is estimated that ~R90 billion per year of investment is needed in water and sanitation infrastructure over the next 10 years (DWS 2017a). This includes refurbishing and upgrading existing infrastructure, and new infrastructure to support

population and economic growth. However, with a budgeted funding of only R56.6 billion in 2017, there are significant shortfalls in available funding for infrastructure within the public sector (i.e. R33.3 billion in 2017), as shown in [Table 1](#) (DWS 2017a). This represents a significant opportunity for investors, as outlined in [Section 4.4](#).

Table 1: Required and available public sector funding for water services infrastructure in 2017

Water Services Infrastructure Elements	Required funding (R bn)	Budgeted funding (R bn)
Municipal water infrastructure	27.8	17.1
Regional bulk (potable) infrastructure	10.1	7.4
Regional bulk (non-potable) infrastructure	7.0	4.0
Water resources infrastructure	25.5	14.9
Total water infrastructure	70.4	43.4
Sanitation infrastructure	19.5	13.2
Total water services infrastructure	89.9	56.6
Funding shortfall (2017)	33.3	37%

2.2. Western Cape context

The Western Cape Province, in the south-west corner of South Africa, falls predominantly within two water management areas (WMAs), the Breede-Gouritz and the Berg-Olifants (Figure 4). Irrigation to support agriculture constitutes the main water use in these two WMAs, followed by urban water use.

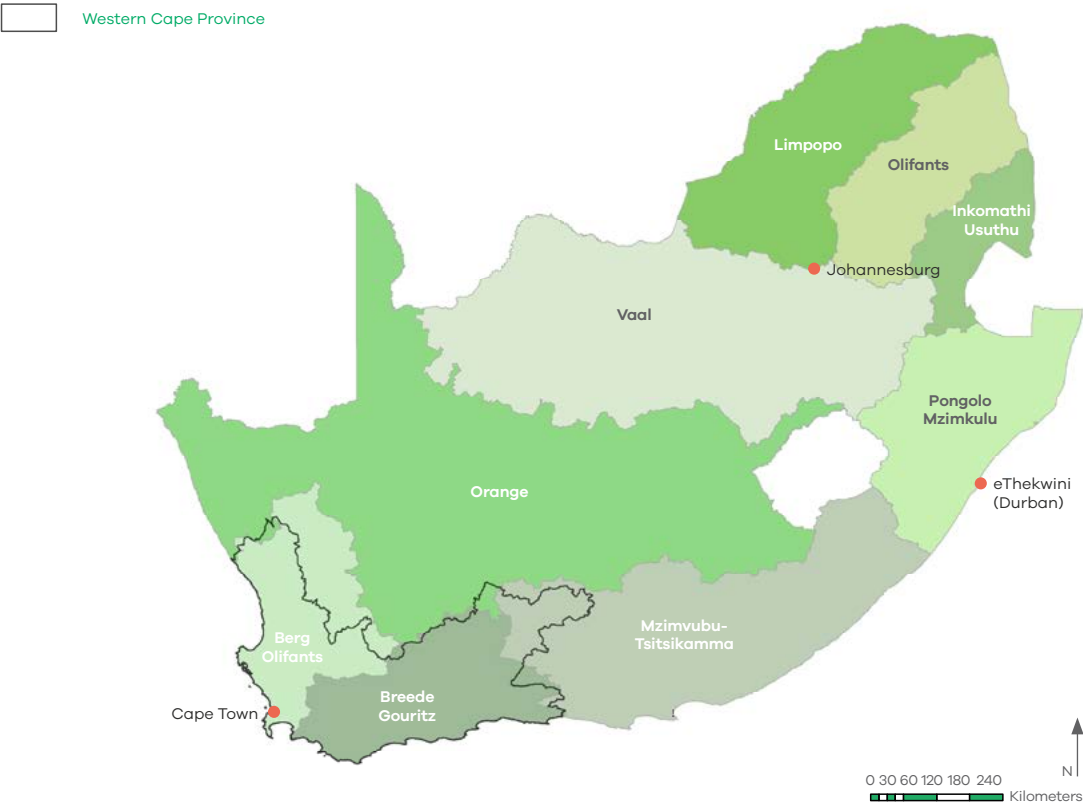


Figure 4: Water Management Areas in South Africa (Western Cape outlined in black)

The province has been affected by the recent drought, and water scarcity continues to pose a significant challenge in many parts of the province. The Western Cape Government regularly assesses the risk level of each municipality. For more up-to-date information, please consult the [Western Cape Government website](https://www.westerncape.gov.za)⁴, which provides the risk status of towns and municipalities in the province, as shown in Figure 5 (accessed in October 2018).

2.2.1. Western Cape Water Supply System

The Western Cape Water Supply System (WCWSS), which supplies water to several municipalities within the Berg-Olifants WMA, is one of the most important supply systems in the country. It supplies water to a region that produces 84% of the province's gross domestic product (GDP) and approximately 11% of national GDP (Quantec 2017).

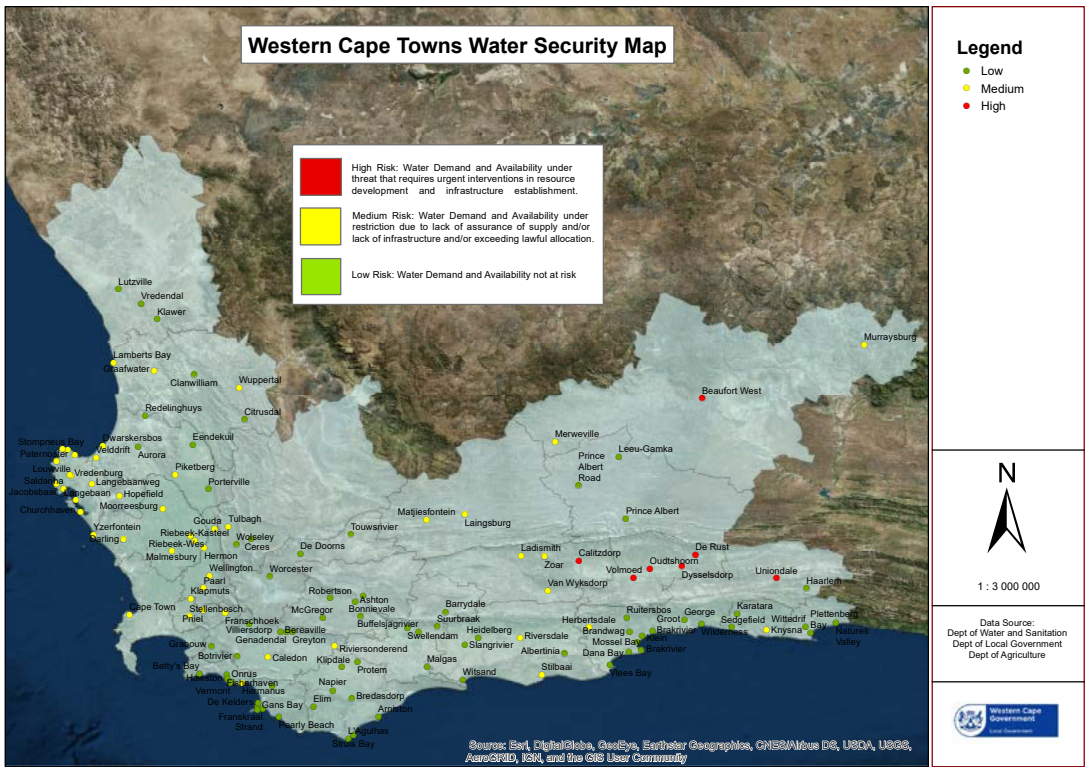


Figure 5: Drought status of Western Cape municipalities (accessed in October 2018)

⁴ <https://www.westerncape.gov.za/general-publication/latest-western-cape-dam-levels>

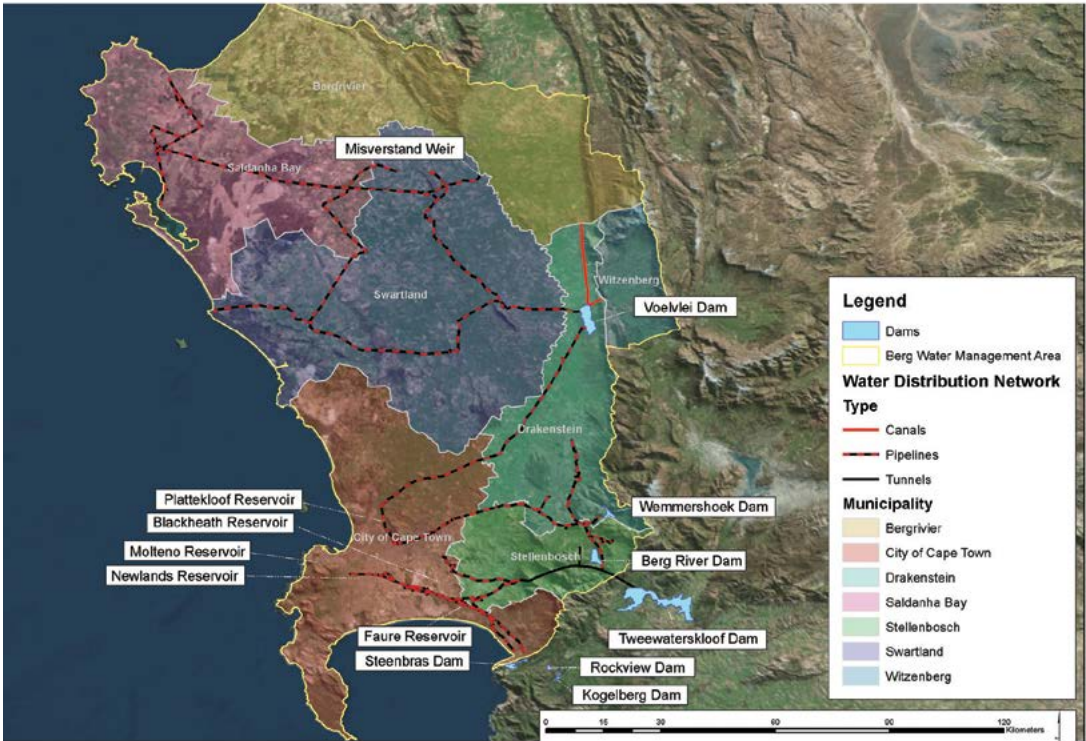


Figure 6: Municipalities supplied by the Western Cape Water Supply System (WCWSS)

As shown in Figure 6, the WCWSS is a complex, interlinked system of dams, pipelines, and distribution networks. The system supplies water to CoCT, West Coast District Municipality (which supplies water to Swartland, Saldanha Bay, and Berggrivier local municipalities), Stellenbosch Local Municipality, and certain agricultural users.

In 2014/15 (pre-drought) the total annual consumption within the WCWSS was estimated to be 547 million kl (m^3). The total water allocation for the system is 609 million m^3 per year, which is allocated to various end users (Figure 7).

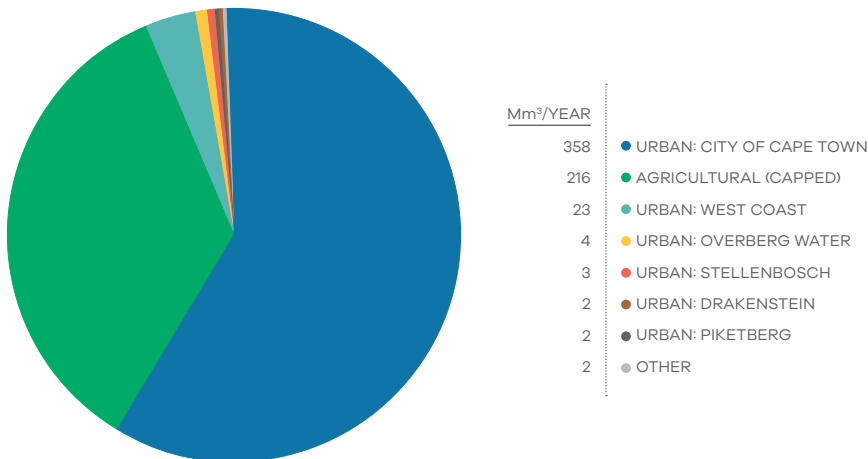
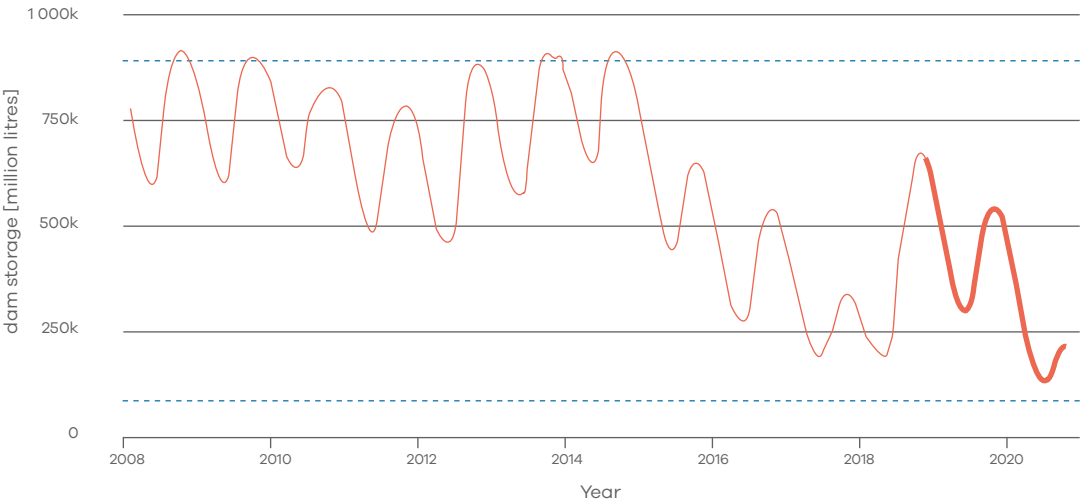


Figure 7: Overview of WCWSS allocations by type

Approximately two-thirds of the allocation is for urban use (including residential, commercial, and industrial use), and the remainder is allocated for irrigation, which is used in the summer months (DWS 2015). Even without making provision for the ecological reserve, the total allocations exceed the revised system yield of 545 million kl per year (DWS 2018). There are no further opportunities to build additional large dams to augment the supply (DWS 2015). Consequently, even prior to the drought, the system was considered to be constrained.

The drought, which is linked to below-average rainfall, particularly in 2016 and 2017, has placed additional strain on the WCWSS. In March 2017 and April 2018 the WCWSS dams reached their lowest levels in recorded history (~20% of capacity), narrowly avoiding the need for extreme water rationing. By the end of the 2018 hydrological year (31 October 2018), the WCWSS dam levels had recovered to ~75%. Future projections indicate that even if demand returns to 2015 (pre-drought) levels and rainfall remains at 2016-2017 levels (lowest in recorded history), the dams are unlikely to fail to meet demand before the end of 2020 (Figure 9, CSAG 2018).



Most recent value on: 30 Oct 2018

Data: City of Cape Town, Figure: © Climate System Analysis Group, University of Cape Town

Figure 8: Historical water stored (thin line) and projected future storage (thick line) in the six largest dams in the WCWSS, assuming 2015 demand and 2016-2017 rainfall⁵

2.2.2. Long-term planning

The climate projections for the Western Cape indicate a warming trend as well as **as projected drying in many areas**, with longer time periods between increasingly intense rainfall events (DEADP 2014). It also remains to be seen whether the drought represents a 'step-change' in the rainfall patterns (such as was experienced by Perth in the 1970s), or whether the decrease in average annual rainfall will occur gradually.

Water scarcity will continue to be a challenge for the Western Cape, and presents a 'new normal' of which government, business, and citizens have to be aware.

⁵ To model various scenarios, visit: <http://cip.csag.uct.ac.za/monitoring/bigsix.html>

Population and economic growth will place an additional burden on water supply systems, which in turn will have a negative impact on the province and consequently the country's economy, and particularly the contribution of the agricultural sector ⁶. Water scarcity will continue to be a challenge for the Western Cape, and presents a 'new normal' of which government, business, and citizens have to be aware.

In the Berg water management area (which includes areas supplied by the WCWSS), water demand is expected to grow by 45% by 2040 due to population increases and climate change (GreenCape analysis). Barring any additional allocations or augmentation schemes, the water supply deficit is forecast to be ~300 million kl (m³)

per year by 2040. As shown in [Figure 10](#) (GreenCape analysis), the supply deficit in 2025 will be most keenly felt in the agricultural sector, accounting for 87% of the total deficit. However, this picture changes dramatically by 2040, with an almost even split between the supply deficit of the urban and agricultural requirements, driven largely by population growth in the City of Cape Town. This future water supply deficit is projected to cost the region more than R146 billion and almost 650 000 jobs per year by 2040 if no new water resources are developed ([Figure 11](#)) (GreenCape analysis). The opportunity costs for CoCT, at R100 billion per year, far outstrip any other municipality; therefore it represents a key market for investment in the region.

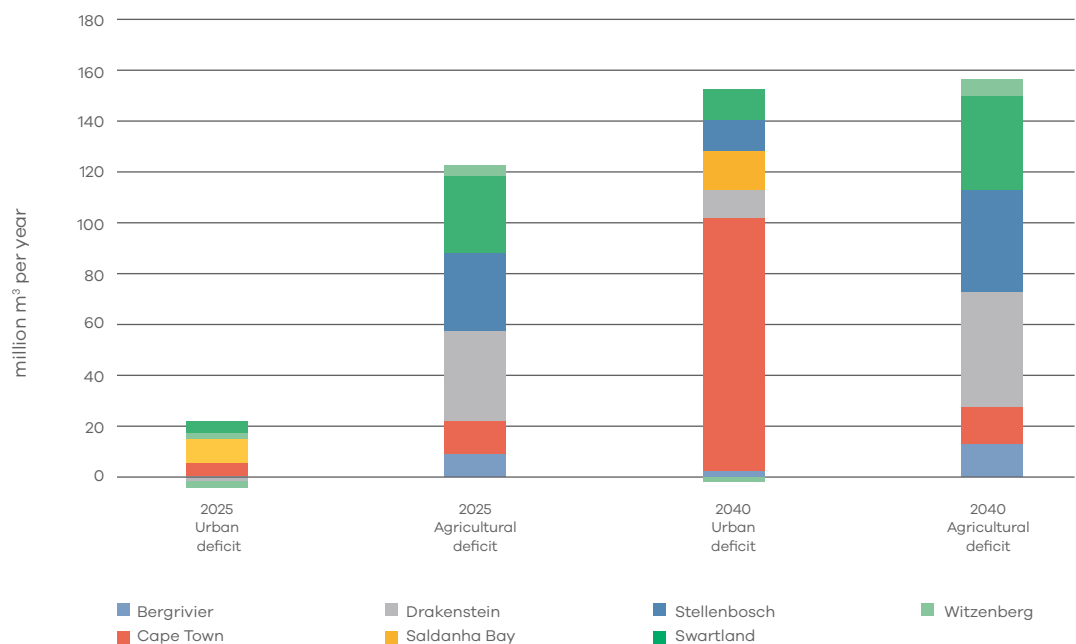


Figure 9: Projected urban and agricultural supply deficit in the Berg water management area

⁶ The GVA of agriculture in the Western Cape is ~R19 billion (22% of South Africa's agricultural GVA) and export revenues exceed R40 billion per year. Around 216 000 people are employed in primary agriculture and 250 000 in agri-processing in the province (Jacobs 2017).

Planned water augmentation projects for the WCWSS.

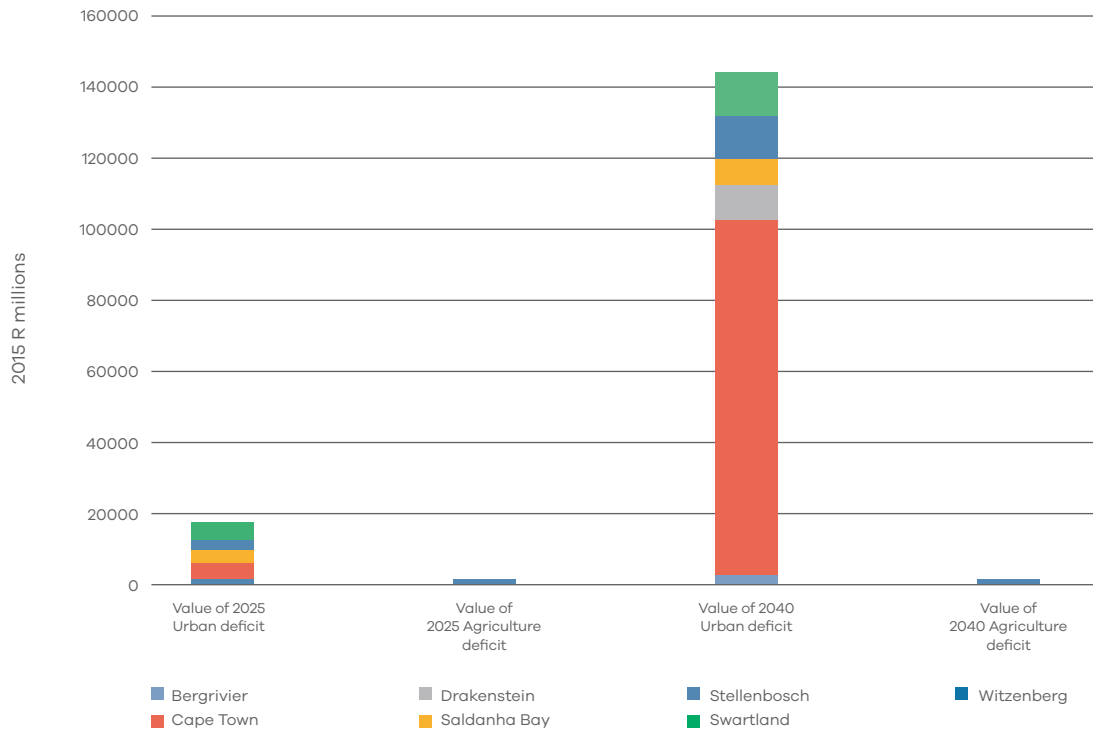


Figure 10: The projected value of future water supply deficits in the Berg water management area.

In order to address future water constraints, reconciliation studies are conducted to reconcile the gap between future demand and supply. The WCWSS reconciliation strategy study was completed in 2007, and annual status updates are produced by DWS.

The draft annual update for 2018 compares several future water balance assessment scenarios. Figure 11 presents the scenario considered to be the most realistic base scenario without additional water conservation and demand management interventions, and assumes a projected 2% p.a. growth rate in water demand (DWS 2018). Dashed lines show water

demand projections under different scenarios (Scenario 1 being applicable to the graph). Solid fills show the planned water supply interventions, along with their height (or stacked thickness) indicating the estimated yields for the different interventions. These interventions include potable water reuse (from wastewater treatment plants), groundwater development (new resources and artificial recharge), and large-scale permanent seawater desalination. In this regard, long-term plans have been in place for several years, but many of the planned projects are now being brought forward and re-assessed in light of the drought. Section 4.4.2 outlines in more detail some of the planned projects for the WCWSS.

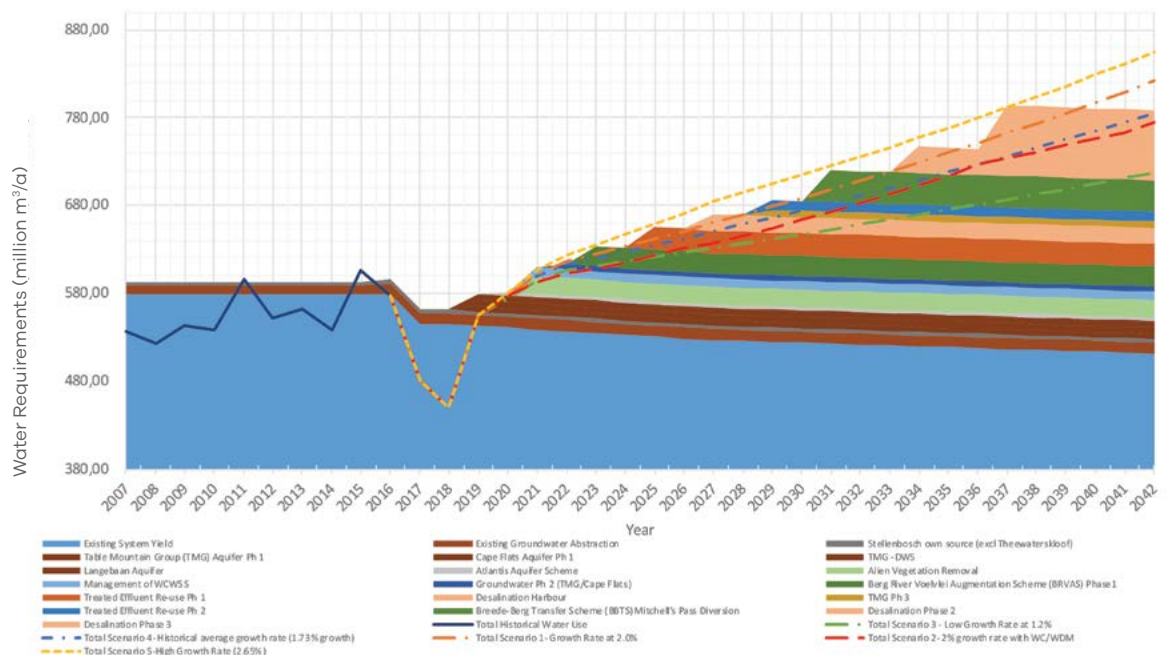


Figure 11: WCWSS planning scenario reconciliation of supply and demand
(A larger version of this figure is available on request)





3

Policies and regulations

This section provides an overview of the regulatory environment in the urban water sector⁷.

3.1. National legislation

3.1.1. The National Water Act

The **National Water Act, Act No 36 of 1998 (NWA)** regulates and protects water resources (including surface water and groundwater) and has effectively transferred all water ownership to the state. Water is a national competence, and the primary responsible authority is the Department of Water and Sanitation (DWS).

The NWA regulates 11 different ‘uses’ of water, such as taking water from a resource, storing water, and discharging waste or effluent into a water resource. It is particularly relevant to alternative water supply projects, including **ground water use**. Residents who fall under

Schedule 1 of the NWA are allowed to use groundwater on their properties for reasonable domestic use without a licence⁸. Businesses that want to use groundwater must either register the use(s) under a general authorisation (GA) with DWS (which typically takes a few weeks), or must apply for a water use licence with DWS (which takes up to 300 working days). In order to qualify for GA registration, the user must comply with all the conditions listed in the relevant GA. For example, in the case of the GA for the Taking and Storing of Water (published 2 September 2016), one of the conditions limits the volume of water that can be abstracted per year. [Figure 13](#) shows the maximum groundwater abstraction rates for the Western Cape for this GA⁹.



⁷ The section does not comprehensively cover all relevant legislation; it highlights key information that may be useful to potential investors.

⁸ Municipalities may still require registration of boreholes or well points – see [Section 3.2.3](#).

⁹ In addition to these limits, no more than 40 000 m³ may be taken in terms of the general authorisation per year on a property, regardless of location.

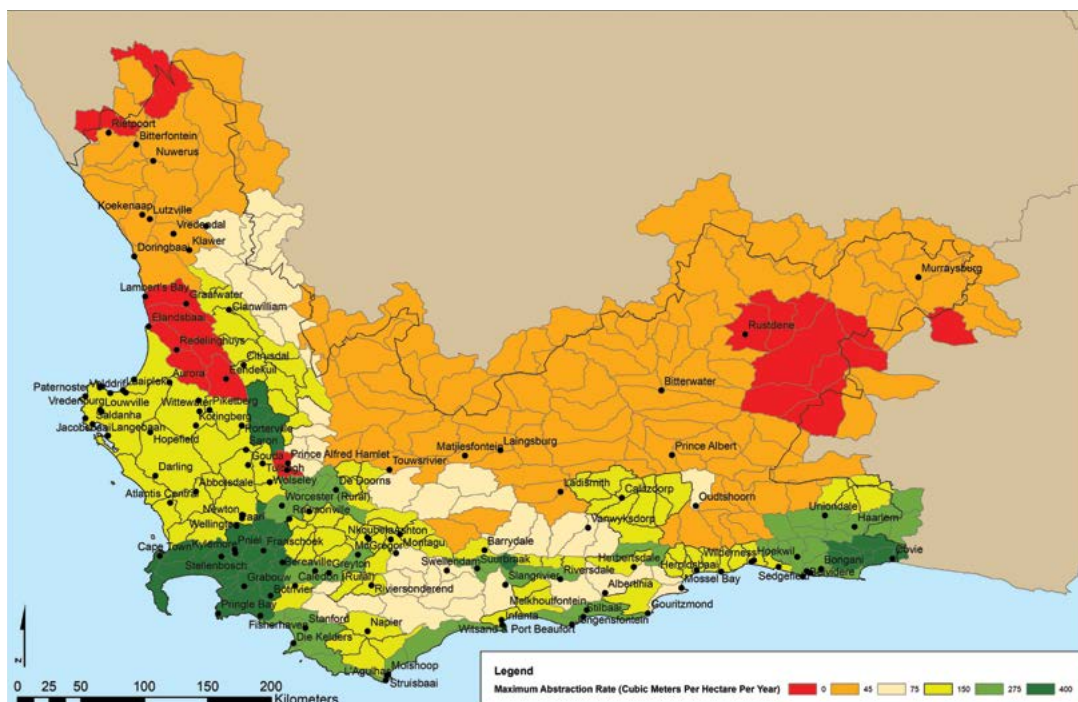


Figure 12: Maximum groundwater abstraction rates permitted under the General Authorisation for Taking and Storing Water (2016)

Seawater desalination does not require permission from DWS for abstraction, provided it is not located in an estuary or river mouth. Similarly, discharge of brine to the ocean does not require permission from DWS. However, a coastal water discharge permit is required from the [Oceans and Coasts Branch](#)¹⁰ of the Department of Environmental Affairs.

3.1.2. The National Building Regulations and Building Standards Act

In terms of design and construction, water systems must be consistent with the National Building Regulations (NBRs) under the **National Building Regulations and Building Standards Act**, Act 103 of 1977, which governs all building and construction work in South Africa. At present, the NBRs do not include provisions relating to **water efficiency** or **alternative water supply**; however, the Department of Trade and Industry (dti) has initiated the process to include these aspects. It is unclear how long this process will take, but draft water efficiency standards are being developed that will be released for public comment in 2019.

3.1.3. National Environmental Management: Waste Act

Under the national norms and standards for disposal of waste to landfill, from August 2019 liquids can no longer be sent to landfill in SA. From 2021 this will also apply to brine or waste with a high salt content (>5%) and a leachable concentration for total dissolved solids of more than 100 000 mg/l.

3.1.4. Other key national legislation and standards

Other key national laws and regulations that may be relevant to projects in the water sector include:

- **Water Services Act**, Act 108 of 1997 (relevant to the regulation of water and sanitation services provided by municipalities);
- **South African National Standard for Drinking Water** (SANS 241: 2015);
- **National Environmental Management Act**, Act 107 of 1998 (relevant to environmental authorisations); and
- **Industrial Policy Action Plan** (highlights water and sanitation as a key sectoral focus area).

¹⁰ www.environment.gov.za/branches/oceans_coast

It should be noted that during emergency situations (e.g. disasters due to drought) certain authorisations can be fast-tracked or are no longer required.

Further information can be obtained from the responsible authorities.

3.2. Municipal by-laws and tariffs

Municipalities have the constitutional competence to enact laws (known as by-laws) in respect of water and sanitation services.

The Department of Water Affairs and Forestry (DWAF), as it was known at the time, developed model water services by-laws for municipalities. The model by-laws included provisions to empower municipalities to prevent wasteful use of water, impose water restrictions, require large users to submit annual water audits, and specify standards relating to the quality of fittings. The by-laws contained general clauses relating to water efficiency, but left the specifics to the municipality to decide. Several municipalities have developed water by-laws based on these model by-laws.

Municipal by-laws also include provisions relating to the discharge of wastewater and industrial effluent to sewer. Such provisions may include

the maximum discharge limits for various water quality parameters, and the requirement for an industrial discharge permit. Wastewater that exceeds the water quality limits may incur surcharges, or denial of a permit to discharge to sewer.

3.2.1. Water restrictions

The national Department of Water and Sanitation (DWS) is responsible for imposing restrictions on different user categories in catchments facing water supply constraints. Municipalities then pass these restrictions on to their water users. Restriction levels impose volume limits, time limitations, and bans on certain types of water use in order to decrease demand during periods of water insecurity. Restriction levels and their requirements vary from municipality to municipality. Most municipalities have up to five restriction levels – the higher the restriction level, the greater the limitations imposed. Water restrictions are currently in place in most of the municipalities in the Western Cape. Up-to-date information can be found on the Western Cape Government website¹¹. Refer to the 2018 Water Market Intelligence Report¹² for an overview of how water restrictions have progressed in CoCT.

3.2.2. Water tariffs

Municipalities either purchase untreated raw water taken directly from dams, springs, rivers



¹¹ www.westerncape.gov.za/general-publication/latest-western-cape-dam-levels

¹² <https://www.greencape.co.za/market-intelligence/>

and boreholes, or purchase bulk water that is usually treated to a potable standard from bulk water providers, e.g. Water Boards. The CoCT and other municipalities in the WCWSS purchase raw water from DWS-owned dams and then treat the water in municipality-owned facilities. In 2015/16, raw water charges (which include water management and infrastructure charges, and a water research fund levy) averaged R1.98/kl nationally (DWS 2017a). The bulk water tariffs averaged R7.44/kl, varying from R4.18/kl to R15.86/kl. The tariff would depend on various factors, such as the availability of water, water quality and distance of distribution (DWS 2017a).

Municipalities then distribute potable water to their consumers and charge a retail tariff. Revenue from water sales accounts for around 13% of municipal operating revenue (DWS 2017a).

Each municipality is responsible for setting its own tariffs, in terms of which it may differentiate between users. In general, most municipalities have separate tariffs for residential, commercial and industrial water users, and will provide a free basic allowance of water to indigent households. In South Africa, around 56% of households do not pay for water and sanitation services (in 2015), because they are either unable (indigent) or unwilling to do so (StatsSA 2016a).

Municipalities generally use a rising block (stepped) tariff structure, where R/kl tariffs increase as usage increases. However, in some cases a fixed volumetric rate (R/kl) applies, e.g. CoCT's commercial and industrial water and sanitation tariffs. In addition, the tariffs are often linked to **restriction levels**, with tariffs increasing as restrictions increase. Table 2 and Table 3 outline the water and sanitation tariffs (excluding fixed charges and surcharges) for various metros under minimum restriction levels¹³. CoCT's tariffs for Level 5 (L5) restrictions are included for comparison with their Level 1 (L1, minimum restrictions) tariffs. Sanitation charges are often based on an assumed discharge rate that is linked to water consumption. For example, in Cape Town the residential sewage volumes are by default assumed to be 70% of the water consumed. Table 4 outlines the default percentages applied in each metro. For the latest tariffs, refer to the metro websites.

Table 2: Water tariffs for selected metros (minimum restriction levels in place) for FY 2018/19

		Cape Town L1		Cape Town L5		eThekweni		Tshwane L1		Ekurhuleni		Johannesburg	
		Monthly use (kl)	R/kl	Monthly use (kl)	R/kl	Monthly use (kl)	R/kl	Monthly use (kl)	R/kl	Monthly use (kl)	R/kl	Monthly use (kl)	R/kl
Residential	Step 1	0-6	12.85	0-6	21.19	0-6	18.63	0-6	10.55	0-6	10.21	0-6	8.28
	Step 2	6-10.5	17.13	6-10.5	34.43	6-25	22.01	7-12	15.05	7-15	16.82	6-10	8.79
	Step 3	10.5-35	22.78	10.5-35	52.39	25-30	29.30	13-18	19.77	16-30	20.60	10-15	15.00
	Step 4	>35	39.39	>35	300.00	30-45	45.21	19-24	22.87	31-45	25.63	15-20	21.83
	Step 5					>45	49.73	25-30	26.14	>45	31.60	20-30	29.98
	Step 6							31-42	28.25			30-40	33.22
	Step 7							43-72	30.23			40-50	42.42
	Step 8							>72	32.37			>50	45.19
Commercial & Industrial	Step 1							0-100000	22.28	0-5000	22.06	0-200	38.39
	Step 2	Not stepped	22.78	Not stepped	37.50	Not stepped	29.12	10001-100000	21.14	5001-25000	22.41	>200	40.49
	Step 3							>100000	19.70	>25000	23.38		

¹³ The residential tariffs are for non-indigent, single dwelling houses (post-paid). The sanitation charges exclude any industrial effluent surcharges if effluent exceeds discharge limits. Sanitation charges apply to an assumed sewage discharge volume that is linked to water consumption, as shown in Table 4.

Table 3: Sanitation tariffs for selected metros (minimum restriction levels in place) for FY 2018/19

		Cape Town L1		Cape Town L5		eThekweni		Tshwane		Ekurhuleni		Johannesburg	
		Monthly water use (kl)	R/kl of sewage	Monthly water use (kl)	R/kl of sewage	Monthly water use (kl)	R/kl of sewage	Monthly water use (kl)	R/kl of sewage	Monthly water use (kl)	R/kl of sewage	Property size (m²)	R (Res) or R/kl (C&I)
Residential	Step 1	0-6	11.29	0-6	16.93	0-6	3.25	0-6	7.46	0-6	14.68	0-300	194.67
	Step 2	6-10.5	15.05	6-10.5	30.25	6-25	5.41	7-12	10.07	7-15	11.74	301-1000	378.95
	Step 3	10.5-35	20.47	10.5-35	45.15	25-30	10.35	13-18	12.97	16-30	4.99	1001-2000	573.29
	Step 4	>35	34.62	>35	108.09	30-45	16.08	19-24	12.97	31-45	4.59	>2000	826.02
	Step 5					>45	17.94	25-30	12.97	>45	3.13		
	Step 6							31-42	12.97				
	Step 7							43-72	12.97				
	Step 8							>72	12.97				
Commercial & Industrial	Step 1									0-5000	9.21		
	Step 2	Not stepped	20.47	Not stepped	30.29	Not stepped	8.21	Not stepped	8.31	5001-25000	4.90	Not stepped	28.70
	Step 3									>25000	3.19		

Table 4: Percentage of water used that is assumed to be discharged to sewer

		Cape Town L1		Cape Town L5		eThekweni		Tshwane L1		Ekurhuleni		Johannesburg
		Monthly use (kl)	%	Monthly use (kl)	%	Monthly use (kl)	%	Monthly use (kl)	%	Monthly use (kl)	%	
Residential	Step 1	Not stepped	70%	Not stepped	70%	0-6	95%	0-6	98%	Not stepped	100% (TBC)	Fixed (post-paid)
	Step 2					6-25	75%	7-12	90%			
	Step 3					25-30	75%	13-18	75%			
	Step 4					30-45	65%	19-24	60%			
	Step 5					>45	60%	25-30	52%			
	Step 6							31-42	10%			
	Step 7							43-72	1%			
	Step 8							>72	1%			
C&I	Not stepped	95%		95%		90%		80%		100% (TBC)		100% (TBC)

Figure 13 (GreenCape analysis) compares the cost to households for 15 kl of water per month under CoCT’s Level 1 (L1, minimum restrictions) and Level 5 (L5) restriction tariffs. The figure also compares these costs to those in other metros in SA.

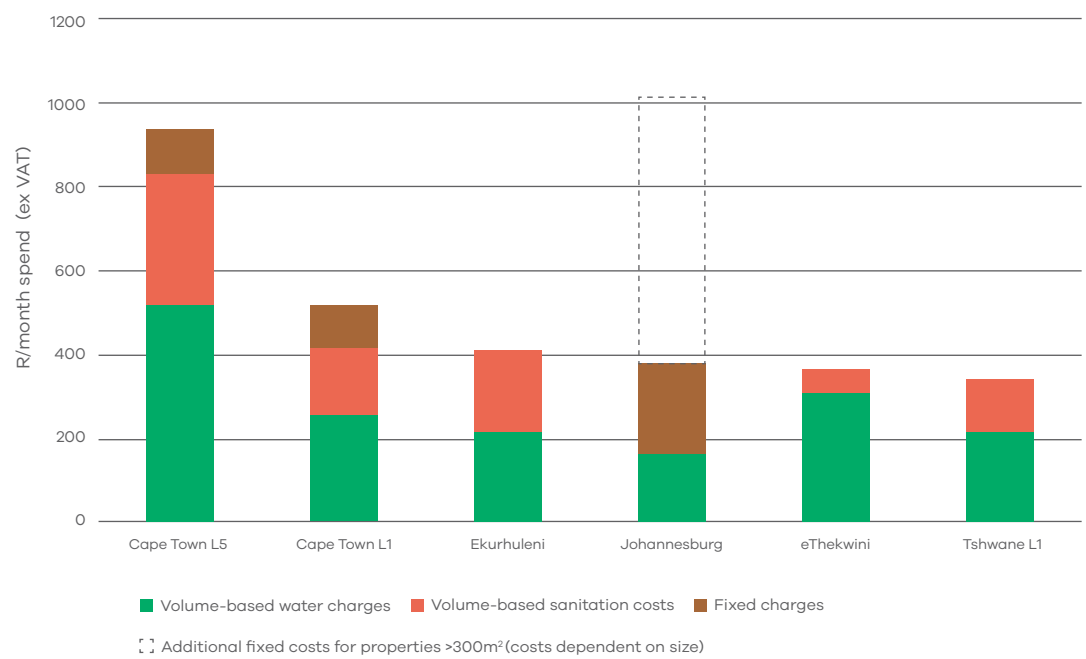


Figure 13: Comparison of monthly household water costs for 15 kl/month in 2018/19 across various metros¹⁴



¹⁴ The residential tariffs are for non-indigent, single dwelling houses (post-paid). With the exception of CoCT’s Level 5 (L5) tariffs, the tariffs are for the minimum level of restrictions.

Figure 14 (GreenCape analysis) compares the cost to commercial and industrial companies for 20 kl of water per day, across various metros.

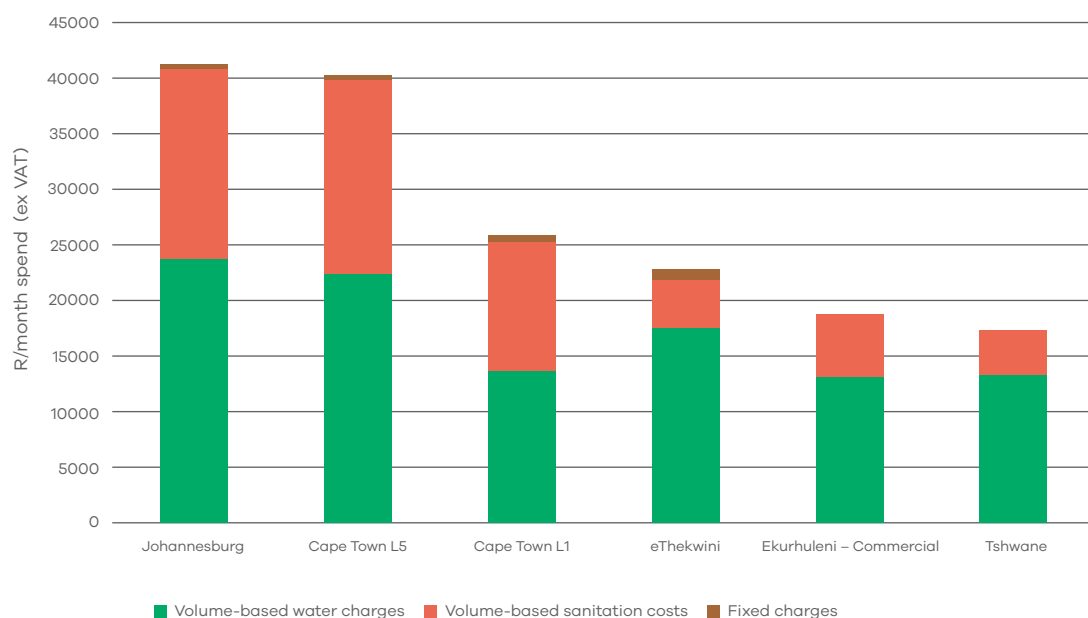


Figure 14: Comparison of monthly costs for commercial and industrial businesses for 20 kl/day in 2018/19 across various metros¹⁵

The tariffs are also linked to the principle of cost recovery of water provision. As municipalities diversify their water supplies to include more expensive water sources, such as seawater desalination, the additional costs will have to be recovered through increased tariffs. Consequently, water tariffs are set to continue to increase in the future. [Figure 23](#) shows that CoCT's water tariffs are on an upward trend, and their planned water augmentation projects ([Table 8](#)) will likely drive further tariff increases. CoCT's future water tariffs are expected to become more predictable over the next 2-3 years.

3.2.3. Alternative water use

In order to address the absence of national standards for the installation of alternative water systems (such as greywater, rainwater and groundwater systems), CoCT has developed

As municipalities diversify water supplies, including more expensive water sources such as desalinated seawater, these additional costs will have to be recovered through rising tariffs.

¹⁵ Surcharges, e.g. industrial effluent surcharges if effluent exceeds discharge limits, are excluded. With the exception of CoCT's Level 5 (L5) tariffs, the tariffs are for the minimum level of restrictions.



summary [installation guidelines](#)¹⁶. The guidelines outline the required measures to protect the municipal supply and the water users within the property, in line with the CoCT's Water Amendment By-law 2018. They also highlight that approvals are required from the CoCT for all plumbing installations for alternative water systems.

The Water Amendment By-law stipulates that only municipal potable water can be used for drinking, ablution and culinary purposes. However, businesses and residential developments can use alternative water for these purposes if they enter into a contract

All new developments in Cape Town are required to implement water savings measures or alternative water systems, as well as sub-metering in multi-unit properties.

with CoCT to become a Water Services Intermediary. The contract outlines various conditions that must be adhered to, including water quality monitoring and compliance.

The CoCT Water Amendment By-law also requires that all new developments install water-saving measures or alternative water systems, as well as sub-metering of multi-unit properties.

3.3. Municipal procurement

Municipal procurement is regulated by the Municipal Finance Management Act No. 56 of 2003 (MFMA) and its regulations, including the Municipal Supply Chain Management Regulations (2005). These regulations specify the minimum requirements, but municipalities are allowed to apply stricter standards. National Treasury also sets further requirements. The MFMA outlines the competitive procurement processes, and unsolicited bids are not encouraged.

As stipulated by National Treasury (2017), for projects worth more than R30 000, but less than R50 million (incl. VAT), the price contributes 80 points of the total score and the Broad-based Black Economic Empowerment (B-BBEE)¹⁷ status contributes 20 points. For projects above R50 million, the price contributes 90 points and B-BBEE status 10.

Municipalities can also specify prequalification criteria to limit the competition to certain groups. These groups include companies with higher

¹⁶ <http://cct.gov.za/bC2nV>

¹⁷ More information on B-BBEE and procurement can be found here: www.greencape.co.za/assets/Uploads/Wesgro-B-BBEE-Info-Sheet-2018.pdf

B-BBEE scores, exempted micro enterprises (EMEs¹⁸) and qualifying small enterprises (QSEs)¹⁹.

3.3.1. City of Cape Town procurement

Companies wishing to do business with CoCT must first register with the City's supplier database and the national Central Supplier Database (CSD). For goods and services less than R200 000, CoCT publishes Requests for Quotations (RFQs) on its [procurement portal](#)²⁰. Companies must first register as a supplier and then register on the portal.

For goods and services exceeding R200 000 (VAT included), a formal bidding (tender) process is required. Companies must be registered as a supplier and registered on the [tender portal](#)²¹ where tenders are advertised. Tenders are also advertised in local newspapers. For tenders valued at more than R10 million there is a more extensive process, including additional documentation requirements.

For more information on the procurement processes, please visit the [CoCT website](#)²². The list of tenders received by the City, and their prices, can be viewed [here](#)²³.

3.3.2. Procurement in emergency situations

Section 55(2) of the Disaster Management Act (2002) states that 'if a local state of disaster has been declared...the municipal council concerned may...make by-laws or issue directions, or authorise the issue of directions, concerning... emergency procurement procedures'. These powers may be exercised only to the extent that it is necessary for the purpose of assisting and protecting the public, providing relief to the public, protecting property, preventing or combating disruption, or dealing with the destructive and other effects of the disaster.

New Technology Platform

CoCT has set up a New Technology Platform to gain an understanding of innovative water technologies in the market. It gives companies the opportunity to present their products and services to government in a fair manner. For information on how to submit information to the committee, please contact Water.NewTechnology@capetown.gov.za.



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¹⁸ Enterprises with an annual turnover of less than R10 million, or recently formed or incorporated entities that have been in operation for less than one year.

¹⁹ A business with an annual turnover of more than R10 million but less than R50 million.

²⁰ <http://web1.capetown.gov.za/web1/procurementportal>

²¹ <http://web1.capetown.gov.za/web1/TenderPortal>

²² <https://goo.gl/zAjjhj>

²³ <http://www.capetown.gov.za/Work%20and%20business/Doing-business-with-the-city/Tenders-RFQs-and-supply/Tenders-received>



4

Opportunities and barriers

Water scarcity is a major challenge in South Africa that also represents a substantial opportunity for investors and businesses in the urban water sector.

In this section, investment opportunities and associated drivers and risks are discussed in relation to the four key urban water markets in South Africa: i.e. **commercial and industrial** (Section 4.1), **residential** (Section 4.2), **new property developments** (Section 4.3), and **municipalities** (Section 4.4).

While there is some overlap in the technologies that target these markets, the realisable market opportunities are predominantly determined by policies and regulations, and the cost of water in each market segment. Furthermore, the

distribution or procurement channels for water technologies and service providers are fairly distinct between the markets. Investors and water technology providers interested in specific market segments can find the relevant information on each of these markets in the summary table (Table 5), and detailed analysis in the sections below.

The focus of the market information is on the Western Cape, but where readily available, information for elsewhere in the country is provided.



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Table 5: Summary of market opportunities

Market	Market size indicators	Main opportunities	Key market segments
Industrial & commercial (Section 4.1)	<ul style="list-style-type: none"> R14bn spent on municipal water & sanitation services in SA (2018) 	<ul style="list-style-type: none"> Metering & monitoring Water efficient technologies Reuse and alternative water treatment systems Brine management solutions 	<ul style="list-style-type: none"> SA industrial market: food & beverages sector gross fixed capital formation ~R14bn by 2021
Residential (Section 4.2)	<ul style="list-style-type: none"> 7.4m households collectively spent R22bn on municipal water & sanitation services in SA (2018) 	<ul style="list-style-type: none"> Water efficient devices Alternative water systems 	<ul style="list-style-type: none"> 3.5m households in SA earning >R200k per annum
New property developments (Section 4.3)	<ul style="list-style-type: none"> R2.1bn spent on wet services (2018) No. of green buildings certified increased from 4 (2010) to ~100 (2018) 	<ul style="list-style-type: none"> Metering & monitoring Water efficient technologies Reuse and alternative water treatment systems 	<ul style="list-style-type: none"> City of Cape Town, Tshwane and Johannesburg: ~50% of the private sector market
Municipal (Section 4.4)	<p>SA's largest water market:</p> <ul style="list-style-type: none"> R30bn p.a. water & sanitation infrastructure budget (2017) Further R17bn p.a. needed 	<ul style="list-style-type: none"> Water augmentation (e.g. wastewater reuse & desalination) Non-revenue water reduction (R6.3bn p.a. in lost revenue in SA) 	<p>Metros and large municipalities, e.g.:</p> <ul style="list-style-type: none"> Cape Town's R5.8bn (417MLD) new water programme eThekweni's planned 385 MLD reuse and desalination PPPs

4.1. Industrial and commercial markets

4.1.1. Market overview

Commercial and industrial (C&I) businesses reliant on municipal water and sanitation services in SA collectively spent an estimated R14 billion on these services in 2018. This represents an opportunity for investors and technology providers to offer solutions to offset these costs, and to de-risk supply.

The recent drought opened up the C&I market in the Western Cape. While there is continued demand for innovative solutions in the province, the broader opportunities lie in other metros

across Southern Africa, many of which face significant water challenges (see Section 2). This section highlights some of the market demand trends observed during the drought, which provide valuable insights into investment opportunities in the rest of South Africa.

In the City of Cape Town, commercial water use averaged ~2.1 million kl/month before the drought (July 2015) and by February 2018 had dropped by ~10% to ~1.9 million kl/month. Industrial water use dropped by 30% over this period, from ~800,000 kl/month to ~500,000 kl/month (CoCT 2018a). In 2018, commercial and industrial businesses in Cape Town spent an estimated R2.5 billion on municipal water and sanitation charges,

compared to ~R1 billion in 2015 (GreenCape analysis)²⁴. Future annual costs (under minimum restriction levels), are likely to fall in-between these two values, as new water augmentation projects will increase tariffs above pre-drought levels.

Figure 15 shows a breakdown of the 300 largest commercial water consumers in Cape Town, based on annual average daily demand (AADD) during the drought, as of March 2018 (GreenCape

analysis, CoCT data). Commercial companies AADDs range between ~18 and 600 kl/day, and the combined usage is ~16 600 kl/day (16.6 MLD), which is ~25% of the total water consumed by all commercial users in the City. The majority of the 300 largest commercial users use less than 80 kl/day, with only 43 sites using more than this. These 43 sites account for ~7 500 kl/day (7.5 MLD) or ~11% of the total commercial water demand in Cape Town.

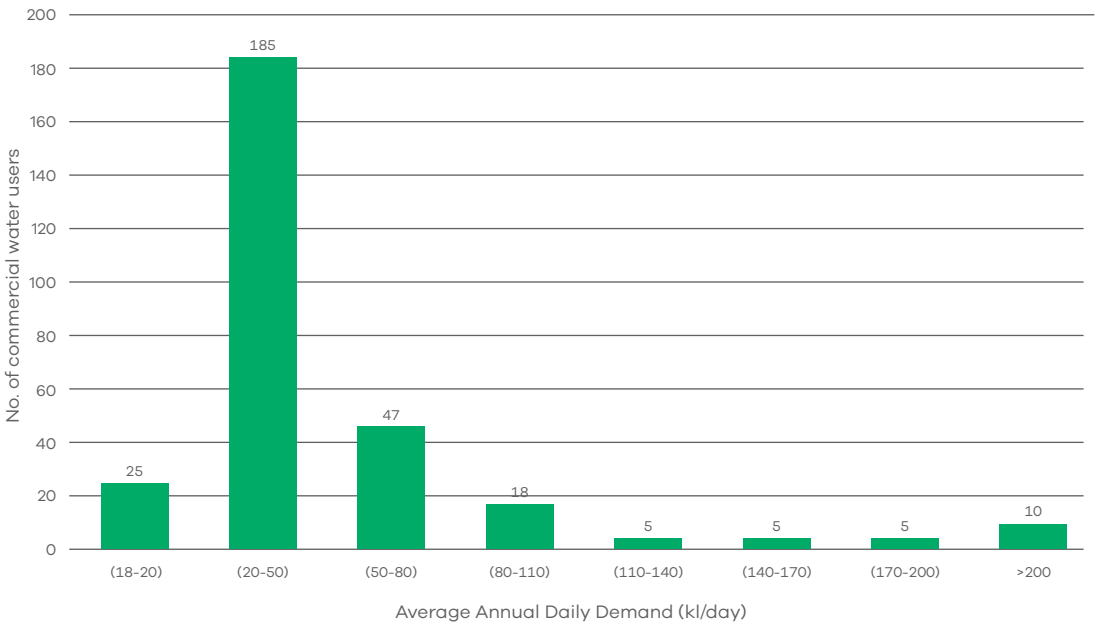


Figure 15: Commercial water use in Cape Town (top 300 users), based on annual average daily demand as of March 2018

Figure 16 shows a breakdown by property type of the annual average daily demand of the 300 largest commercial water users in Cape Town (GreenCape analysis, CoCT data). The numbers show the number of sites that fall under the relevant property type. Note that some of the properties in the warehouse/workshop category might be considered industrial businesses, but have been classified as commercial water users by CoCT.

²⁴ These costs only relate to volumetric charges (R/kl including VAT) paid for water and sanitation in the course of the year. They exclude all other water and sanitation charges, such as wastewater surcharges and fixed charges. It was assumed that sanitation volumes are calculated as 95% of water consumed onsite, which is the default for businesses in CoCT. It was assumed that the C&I water usage remained at the February 2018 consumption levels throughout 2018, and the July 2015 levels throughout 2015.

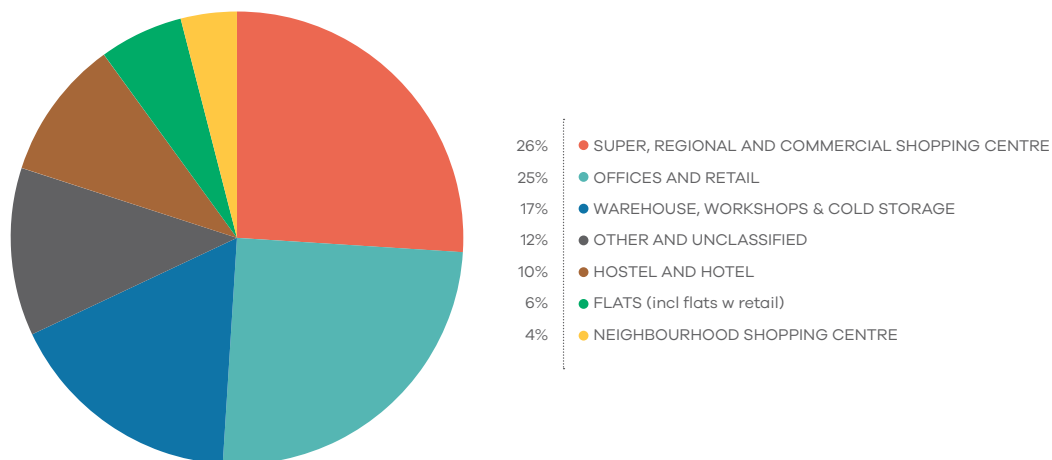


Figure 16: Breakdown of the annual average daily demand (as of March 2018) by commercial property type for the top 300 commercial consumers, collectively using 16 600 kl/day (16.6 MLD)

Similarly, [Figure 17](#) shows a breakdown of the annual average daily demand (as of March 2018) of the 300 largest industrial water consumers in Cape Town (GreenCape analysis, CoCT data). Industrial companies have AADD range between 9.7 and 1 640 kl/day, and their combined usage is ~18 300 kl/day (18.3 MLD). It accounts for more than 90% of the total industrial water use in CoCT²⁵. The majority of industrial companies use less than 70 kl/day, with only 44 sites using more. These 44 sites account for roughly 10 500 kl/day (10.5 MLD) or around half of the total industrial water demand in Cape Town.

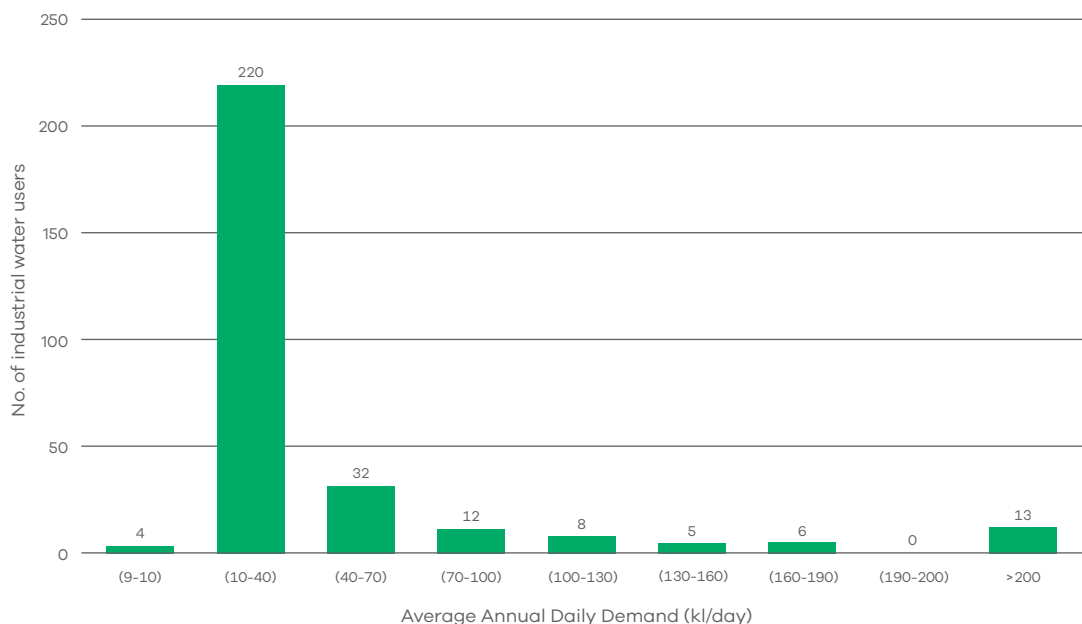


Figure 17: Industrial water use in Cape Town (top 300 users), based on annual average daily demand as of March 2018

²⁵ The annual average daily demand (as of March 2018) for all industrial water users in Cape Town is estimated to be 20 000 kl/day, based on data provided in CoCT 2018a.

Figure 18 shows a breakdown by property type of the annual average daily demand (as of March 2018) of the 100 largest industrial users in Cape Town (GreenCape analysis, CoCT data)²⁶.

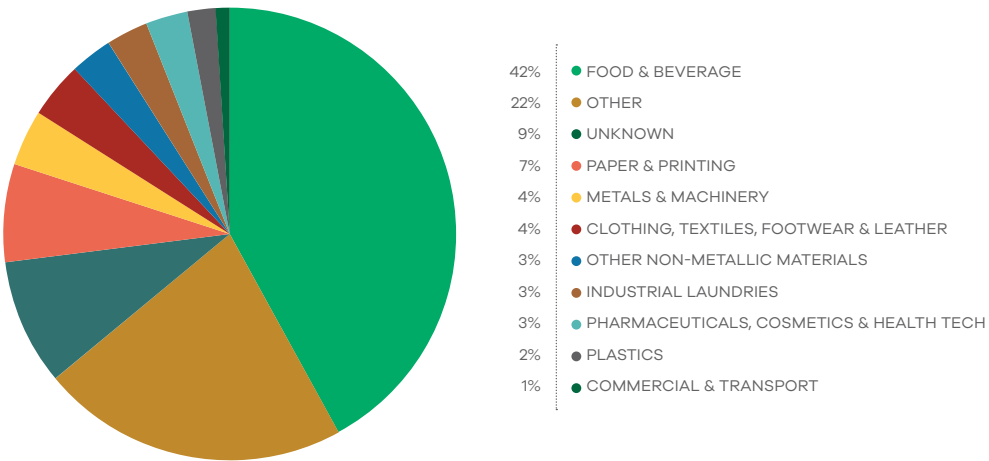


Figure 18: Breakdown of the annual average daily demand (as of March 2018) by industrial property type for the top 100 industrial consumers, collectively using ~14 800 kl/day (14.8 MLD)

Food and beverage companies are a key market for water technologies and services in Cape Town. This sector, and more broadly the agro-processing sector, is also a major water user in other municipalities in the Western Cape and other metros in South Africa, as shown in Figure 19 (GreenCape analysis, DLG data) and Figure 20 (WRC 2010).

Food and beverage companies, and the broader agro-processing sector, is a key market for water technologies and services in SA, with a steadily growing Gross Fixed Capital Formation and industrial action plans supporting growth.

²⁶ 'Other' includes mixed use, naval, power generation and petroleum products.

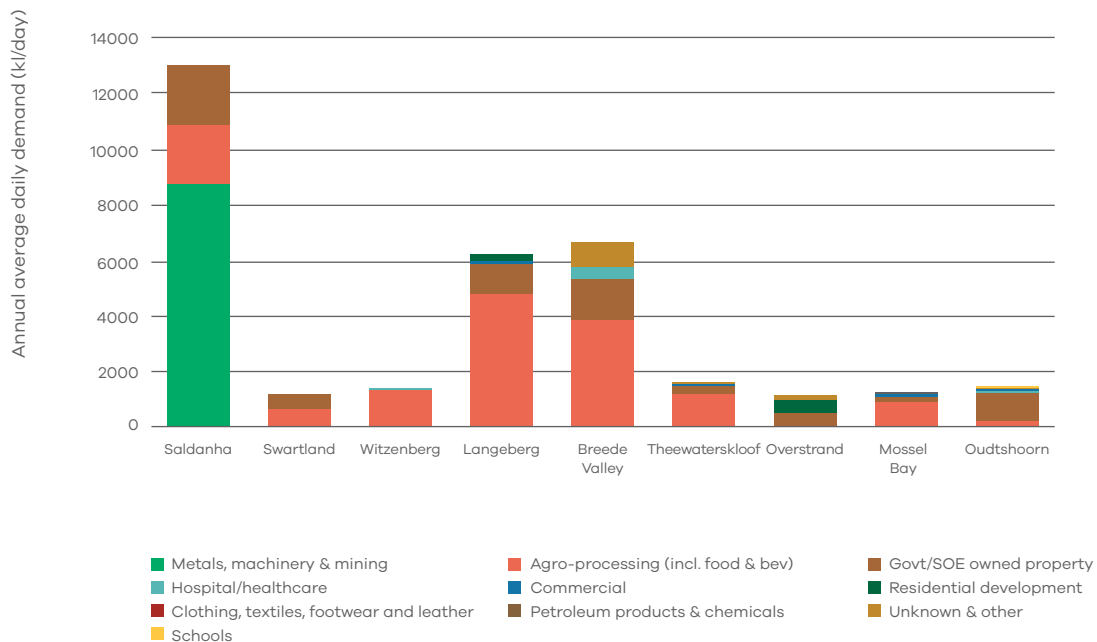
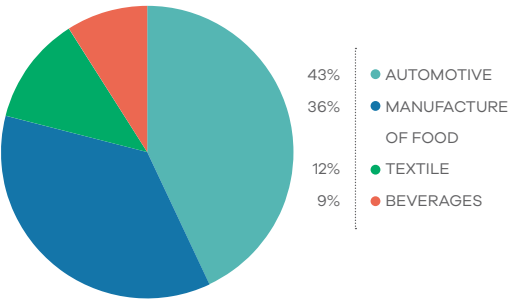


Figure 19: Indicative sectoral breakdown of the top 10 water users in selected WC local municipalities²⁷

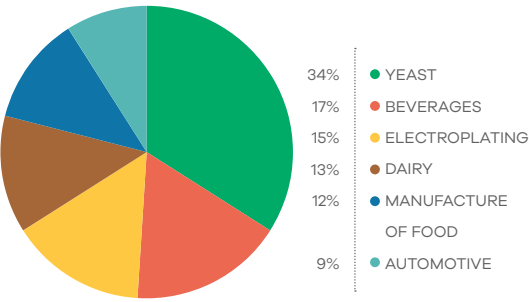


²⁷ Witzenberg municipality only had data for the top nine users. In most urban areas in the Western Cape, households are collectively the largest water user group. However, in the case of Saldanha Bay municipality, industrial and commercial water users are the largest user group (~60%).

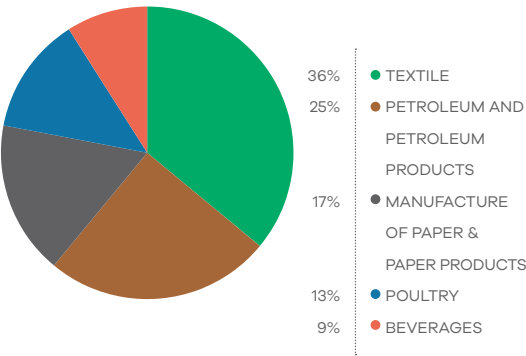
Buffalo City



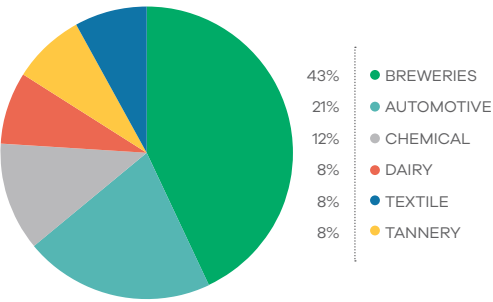
City of Johannesburg



eThekweni



Nelson Mandela Bay



Tshwane

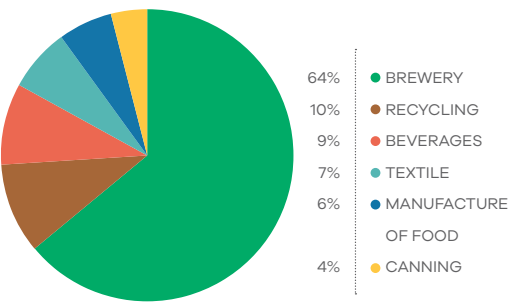


Figure 20: Sectoral breakdown of the top 80% of industrial water users in selected SA metros, based on volume consumed

Within the industrial market the food and beverage sector is a significant water user, and this market is expanding. Nationally, product sales have increased from around R110 billion in Q2 2010 to R130 billion in Q2 2018 in constant 2018 ZAR (StatsSA 2018a). Figure 21 shows that the gross fixed capital formation (GFCF)²⁸ for the food, beverages and tobacco sector has increased since the 1970s and is projected to continue increasing. Conversely, the GFCF of the textiles industry has steadily declined over this period (Quantec 2018a).

Agro-processing (which includes food and beverages) is also a key sector earmarked for national growth and development in various policies and mandates, including the Industrial Policy Action Plan. In the Western Cape, the gross value add (GVA) of the food and beverage sector was ~R27 billion in 2017, which is roughly a third of the total manufacturing GVA for the province (Quantec 2018b). Accordingly, the food and beverage sector represents a key market within the industrial sector for investment in water technologies and services.

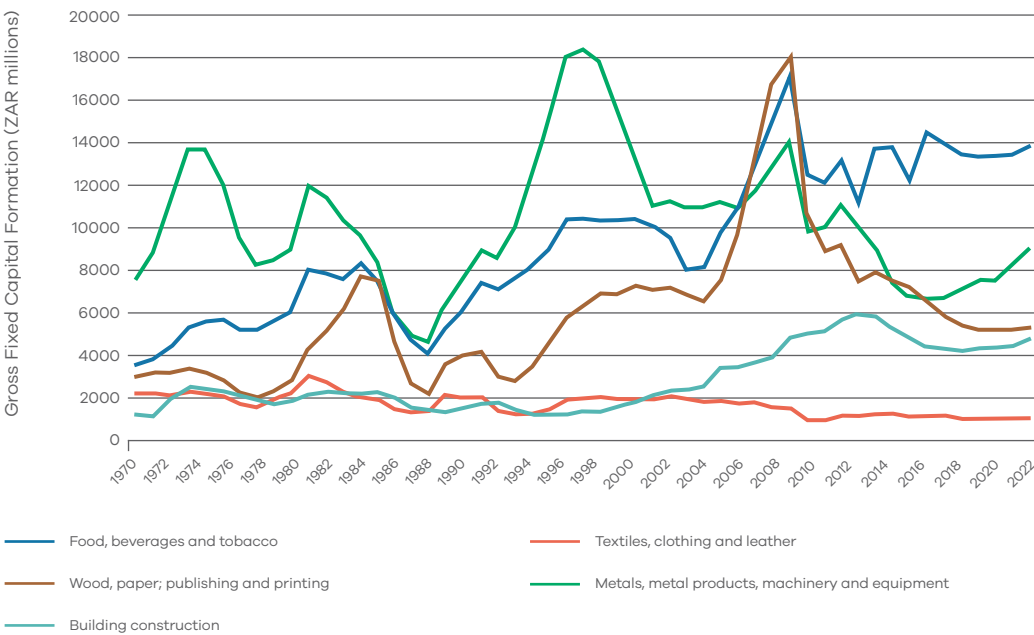


Figure 21: Gross Fixed Capital Formation of selected sectors in SA (ZAR million)

²⁸ The gross fixed capital formation is the net increase in physical assets (investment minus disposals) within the measurement period.

4.1.2. Opportunities

Globally, there is a shift towards improved water management in businesses. For example, of the 2 025 large international companies that reported water risks to CDP²⁹ in 2017 (representing US\$20.3 trillion in market capital), 987 (or ~50%) now monitor and report on water consumption, compared to 594 (or ~30%) in 2015 (CDP 2018). This provides opportunities in the commercial and industrial (C&I) markets for water technologies and services.

In the Western Cape, demand from the commercial and industrial sectors has been largely driven by the drought. By 2018, industrial and commercial businesses in Cape Town had

reduced their consumption by around 30% and 10% respectively, compared to pre-drought levels (CoCT 2018a). These businesses have generally invested in technologies and services in four key areas:

- **improved monitoring and metering systems** for water quality and use;
- **water efficient devices;**
- **wastewater reuse schemes;** and
- **alternative water systems.**

A survey of 58 WC-based companies highlighted that they had collectively invested around R120 million³⁰ in these water-saving measures in 2017/18, as shown in [Figure 22](#) (GreenCape analysis).

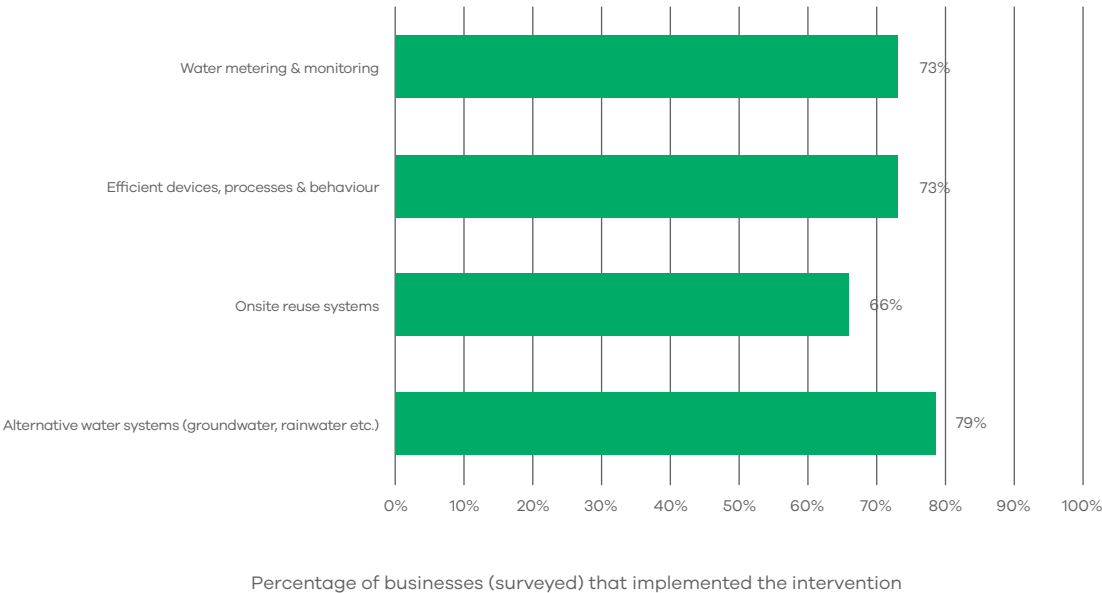


Figure 22: Water management solutions implemented by the businesses surveyed

²⁹ CDP, formerly Carbon Disclosure Project, runs a global disclosure system to manage environmental impacts.

³⁰ Twenty of the 58 respondents either did not disclose their investment or did not make any investments.

The companies that invested in **smart (online) water metering** solutions reported significant savings and quick paybacks, due to the ability to readily detect leaks. Demand for smart technologies is increasing, allowing companies to better monitor their water usage, back-up storage levels, and quality of alternative water supplies across multiple sites.

Water efficient products, such as low-flow tap aerators and showerheads, and waterless hand sanitizers have been widely adopted by businesses in the Western Cape. Many of the companies that have invested in water metering and efficiency measures in their WC operations have experienced the financial benefits and are installing these devices at other sites nationally.

During the drought, investment in **onsite reuse systems** focused predominantly on lower cost opportunities that are quick to implement, such as reusing high quality wastewater for applications where lower quality water is acceptable. In the food and beverage sector, substantial savings were achieved by companies who invested in systems to reuse the final-stage rinse water from their cleaning in place (CIP) processes in the first-stage rinse.

Basement water (the seepage of water into a basement), which traditionally is continuously pumped out of the building and discharged to the sewer or stormwater system, is increasingly being viewed as a resource for reuse within the building.

While full-scale onsite treatment and **reuse of industrial effluent** is possible, industrial companies showed relatively limited interest in this solution during the drought, predominantly due to the costs, timeframes, and project complexities compared to other options.

Instead of full-scale reuse, companies generally preferred to explore alternative water sources that could provide consistent supply, even in the event of municipal shortages. In general, rainwater harvesting systems were overlooked due to the intermittent and unreliable supply, **whilst groundwater abstraction and treatment systems** were generally viewed as priority investments. However, in many cases, the use of groundwater was not feasible due to poor water quality. Saline groundwater requires treatment by reverse osmosis, which increases the costs and results in brine (wastewater) that can be

difficult to dispose of. Often municipalities will not permit brine to be discharged to sewer or to stormwater if the water quality discharge limits are exceeded (see [Section 3.2](#)). In addition, liquids and saline wastes can no longer be sent to landfill from 2019 and 2021, respectively (see [Section 3.1.3](#)). Thus there is a need for cost-effective **brine management solutions**.

4.1.3. Drivers and risks

Supply risks: In the Western Cape, the drought with its impact on surface water availability has necessitated businesses to invest in measures to reduce their dependence on municipal supply. Businesses became aware of the potential risks to their operations. According to a survey conducted by the Cape Chamber of Commerce and Industry in January 2018, 79% of businesses saw the drought as a threat to their business (CCCI 2018).

Businesses initially responded by focusing on solutions that could provide alternative water sources in the event of municipal supply shortages. Investment decisions were often based on the potential financial and operational losses associated with running out of water, rather than traditional payback models based on savings. As a result, projects that would have previously been considered financially unviable became significantly more feasible. During this period, businesses invested in a wide range of interventions, with a strong focus on groundwater solutions.

Once Cape Town dam levels began to recover in mid-2018, commercial and industrial businesses shifted their focus from immediate drought response measures to longer-term solutions with a sound business case. Accordingly, technologies such as smart metering, water efficient devices, and onsite reuse systems continue to be of interest to this market. As shown in [Figure 9](#), it is unlikely that the dams supplying the City of Cape Town will reach critical levels before 2021, which means that businesses in the short to medium term are expected to focus on financially viable solutions rather than emergency measures. The drought has created an awareness among businesses of their vulnerability to these risks; thus it is unlikely that even in more secure water periods, the demand for water technologies and services will return to pre-drought levels.

It is expected that other areas of South Africa will experience similar patterns in demand for water solutions, linked to water availability risks (see [Figure 3](#) for vulnerable areas).

Business case: Although the business case is linked to the potential costs associated with supply risks, it is also driven by **water and sanitation tariffs**, which differ from municipality to municipality. In the case of CoCT, the commercial and industrial water tariffs are a fixed R/kl rate (i.e. they are not stepped, like domestic tariffs) that doubled in February 2018, such that they were 3.7 times the February 2015 tariffs (see [Figure 23](#)). These increases significantly improved the financial viability of many projects, as demonstrated in [Table 6](#).

The drought has highlighted businesses' vulnerability and even in water secure periods it is unlikely that demand for water technologies and services will return to pre-drought levels.

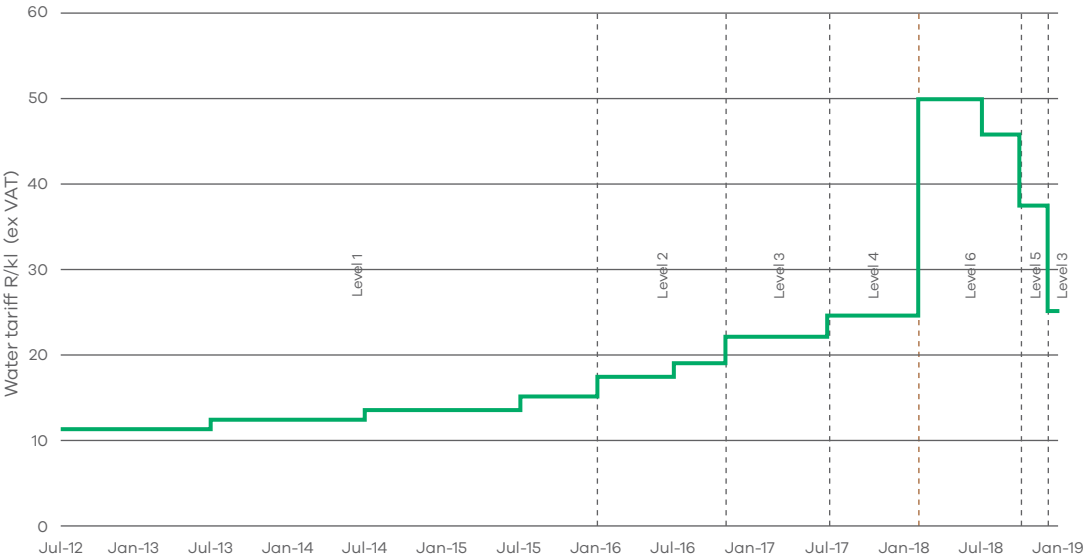


Figure 23: CoCT commercial and industrial water tariffs (R/kl, real) and their associated restriction levels

While the tariffs have increased, they are linked to restriction levels (as outlined in [Section 3.2.2](#)). It means that the tariffs (and hence the business case) are dependent on the water supply risk level.

[Table 6](#) shows sample business cases for the various solutions that may benefit an industrial company using 200 kl/day and producing an

inorganic effluent, e.g. a textiles company. Notably, certain investments, e.g. smart metering, are financially viable, regardless of the restriction level. Conversely, some interventions, e.g. rainwater harvesting, might shift from having acceptable payback periods under higher restriction levels, to potentially being considered unviable under minimum restriction levels.

Table 6: Capital cost of solutions and savings for a medium-sized manufacturing facility in Cape Town³¹

Solution	Capital cost	Reduction in municipal water usage (per solution)	Net Savings per year (Level 1 restrictions)	Net Savings per year (Level 6 restrictions)
Smart water metering	R156 000	5%	R145 000	R330 000
Inorganic effluent reuse	R4 060 000	70%	R1 213 000	R3 770 000
Treated effluent	R2 102 000	50%	R883 000	R2 713 000
Rainwater harvesting	R2 260 000	44%	R353 000	R 844 000

The table demonstrates that the restriction levels have an impact on the business case for water technologies, and therefore will affect demand.

As described in [Section 3.2.2](#), the tariffs are also linked to the principle of cost recovery of water provision. As municipalities diversify their water supplies to include more expensive water sources, such as seawater desalination, the resultant additional costs will need to be recovered. Future tariffs are therefore likely to maintain an upward trend.

4.1.4. Barriers

Licensing and permitting: As outlined in [Section 3](#), obtaining the licences and permits needed to use alternative water can be a complex and lengthy process, particularly in the case of groundwater. These regulatory challenges can deter investment in water solutions.

Property leasing: Commercial tenants often expect the landlord to take responsibility for water efficiency measures, and vice versa. Moreover, it can be difficult for the landlord or the lessee to recoup the full long-term returns on an investment in these technologies. This is often less of an issue in industrial properties, when lease periods are typically longer, and efficiency investments are often directly related to the production processes.

Agro-processing, food and beverage companies (which represent a sizeable share of the industrial market across South Africa – see [Figure 21](#)) are often reluctant to consider alternative water sources due to product requirements, high health and safety standards, and public perception. An outbreak of listeriosis in South Africa in 2017 has further prioritised health concerns in this sector, although this was not linked to water quality.

³¹ ‘Treated effluent’ is the onsite upgrading of treated effluent (treated wastewater from municipal wastewater treatment works) to potable standards for reuse.

4.2. Residential market

4.2.1. Market overview

Nationally, households account for the largest portion of municipal water and sanitation sales (~60%), equating to ~R22 billion in 2018. With municipal water sales rising steadily over the

past decade (Figure 24, StatsSA 2018b), and many areas facing future water constraints, there is a growing residential market for cost-effective water technologies and services. Nationally, 21% of households earn >R200k p.a., which equates to a key market segment of ~3.5 million households.

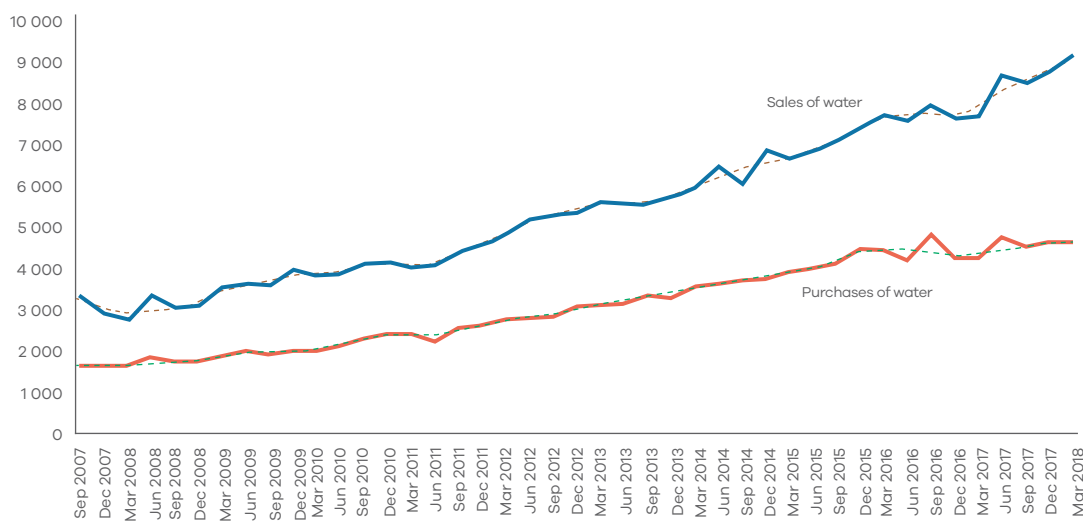


Figure 24: Quarterly costs and revenues for water by municipalities in South Africa, seasonally adjusted (R million)



4.2.2. Opportunities

The drought opened up the residential market for water technologies and services in the Western Cape. While there is continued demand for these solutions in the province, the broader opportunities lie in metros across Southern Africa, many of which face significant water challenges (see [Section 2](#)). The nature and extent of the demand for water technologies during the WC drought provides valuable insights into the opportunities in the rest of South Africa.

During the drought, residential users in the Western Cape were motivated to invest in water technologies due to severe water restrictions, high tariffs, and risk of water shortages. This resulted in an unprecedented demand for:

- **alternative water installations** (groundwater and rainwater harvesting, including treatment systems);
- **on-site reuse systems** (greywater and pool backwash water reuse); and
- **water efficient devices** (e.g. low-flow shower heads and tap aerators, and pool covers).

In December 2017 Gumtree (an online classified website) reported an ‘explosion’ in demand for water-related products and services, including **plumbers** and **borehole service providers** – which in Cape Town had doubled in a year. In the Western Cape, more than 50 specialist suppliers of **water-recycling systems** were listed; as well as over 1 300 listings for **pool covers** (which were traditionally a small category), and over 1 400 listings for **water tanks**. The demand for and supply of water-efficient **landscaping products**,

The drought has opened up the residential market in Cape Town and the Western Cape. Broader opportunities lie in other metros in SA, which face similar water challenges.

e.g. artificial grass, water-wise plants, paving and decking, had also significantly increased on the website (Masuabi 2017).

A leading **water tank** supplier experienced a 10-fold increase in demand in the WC between October 2017 and February 2018, with lead times of between 10 and 12 weeks. However, by June 2018 (when dam levels started to recover) lead times for tanks had decreased to around one week, primarily because of lower demand.

As water security improves in the WC and other areas of SA, the opportunities within the residential market are more limited to technologies with a strong business case, including:

- **easy to install, low-cost, retrofit water technologies** with short payback periods; and
- **water efficient appliances** (such as washing machines and dishwashers) when they need to be replaced, as consumers are more water conscious.

[Table 7](#) gives an indication of the size of this opportunity (StatsSA 2016a).

Table 7: Household ownership of selected water consuming/storing assets (2015)

Asset	Number owned (in 2015)	
	Western Cape	South Africa
Washing machine	1 070 000	5 414 000
Geyser	865 000	4 363 000
Dishwashing machine	240 000	1 023 000
Swimming pool	144 000	710 000

Across SA, the largest opportunity lies in the wealthier households as they have the highest rate of ownership of water consuming assets, and can afford to invest in water technologies.

Figure 25 shows a breakdown of household water consumption by income quintile in Cape Town (the 5th quintile being the wealthiest 20% of households) prior to and in the midst of the drought (Visser 2018).

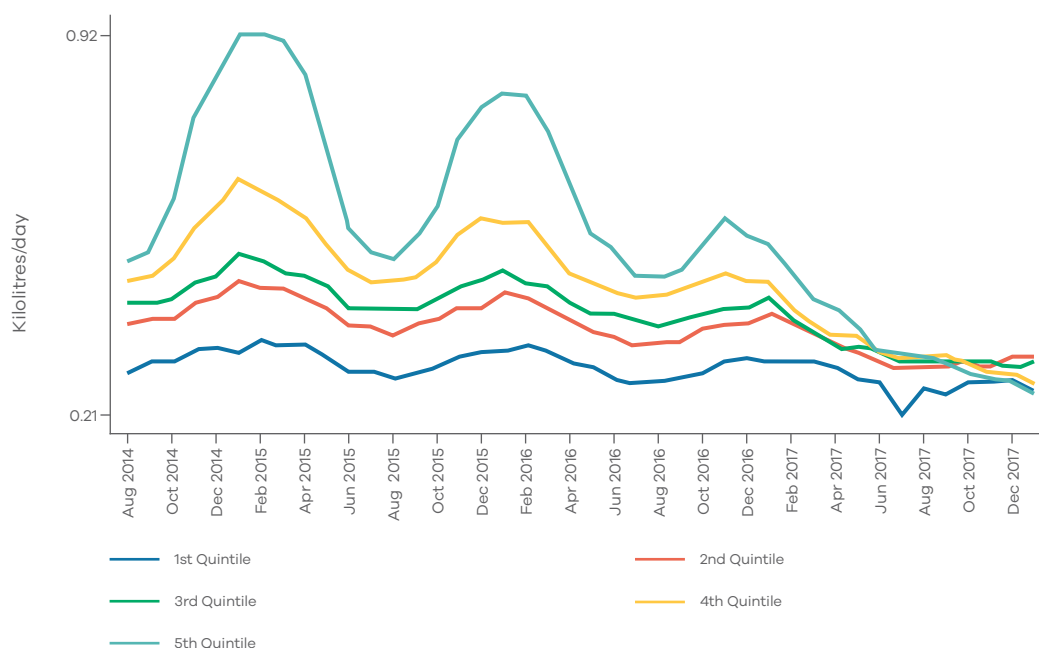


Figure 25: Household water usage by quintile in Cape Town (kl/day)

The dramatic reduction in water consumption by the wealthier households is partly because they invested in alternative water supplies (e.g. groundwater and rainwater harvesting and treatment systems) and water saving devices, and partly because they refrained from watering gardens or topping up pools with municipal water. By April 2018, only around 10 000 non-indigent households consumed more than 20 kl per month in Cape Town, down from almost 120 000 in December 2016 (CoCT 2018a). While this limits the market in Cape Town, the steeply inclining stepped tariffs provide a good business case for the adoption of water technologies in these high consuming households.

4.2.3. Drivers and risks

The drivers and risks that apply to the commercial and industrial markets (see Section 4.1) also apply to the residential market, i.e. the **risk of water shortages, water restrictions**, and the **business case** (linked to the water tariffs).

Certain technologies targeting the residential market are financially viable, regardless of tariffs.

With respect to the business case for technologies targeting the residential market, while certain investments have short paybacks regardless of the tariffs, e.g. low-flow tap aerators, many technologies have a poor business case under minimum restriction level tariffs (e.g. rainwater harvesting, borehole or well point systems). In general, the higher the restriction level, the higher the tariffs and hence the shorter the paybacks. In addition, as tariffs are stepped (see Section 3.2.2), the higher the water consumption, the quicker the paybacks.

Nationally, tariffs are often too low to drive household demand for water solutions. Tariffs are generally not cost-reflective (DWS 2017a) as most

municipalities are reluctant to significantly raise water tariffs, largely for equity and political reasons. In 2014/15 the 9th and upper expenditure deciles spent on average ~R220 and R410 per month respectively on water supply and sanitation (sewage collection) (StatsSA 2015). However, future tariffs are likely to maintain an upward trend, especially as more expensive water resources enter the supply mix.

4.2.4. Barriers

The **tenant/landlord relationship** presents a barrier to implementing water technologies in rental properties, as it is difficult to justify the investment when it is not clear whether tenants will reduce their water consumption and use the technologies.

4.3. New property developments

4.3.1. Market overview

The total value of new commercial, residential, and industrial buildings completed by the private

sector in South Africa in 2018 is estimated to be ~R70 billion, of which ~R2.1 billion was spent on plumbing infrastructure and fittings (wet services)³². This suggests that there is a sizeable potential market for water-solution providers.

Figure 26 (GreenCape analysis, StatsSA 2018c data) shows that almost 90% of this market is located within the Western Cape, Gauteng and KZN provinces.

There is a R2.1 billion per year market for wet services for new property developments with most opportunities in the Western Cape, KwaZulu Natal and Gauteng provinces.

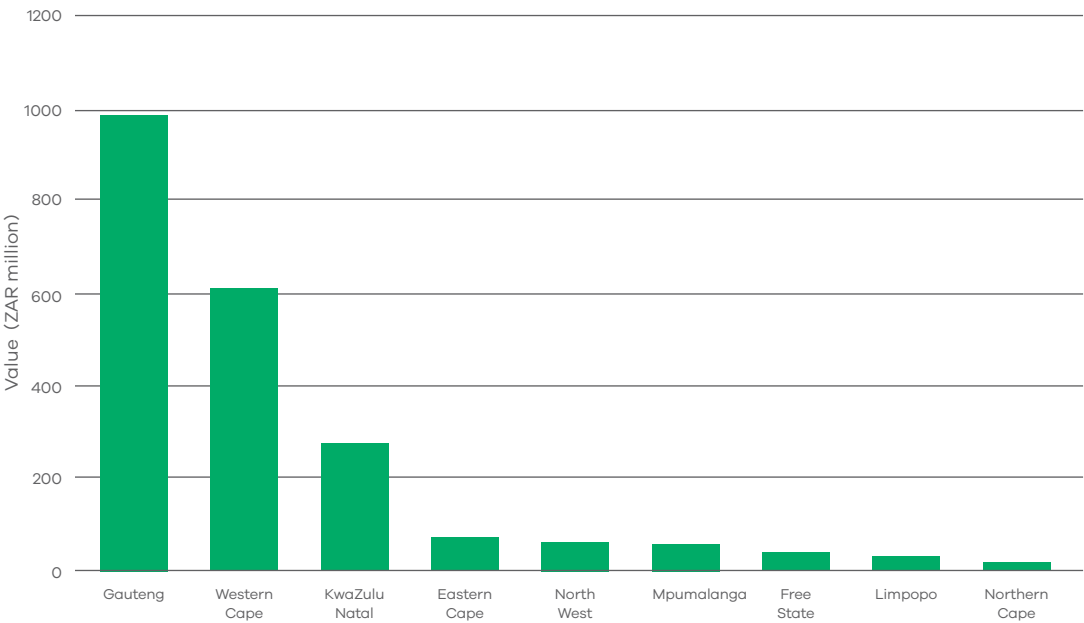


Figure 26: Estimated spend on wet services in new buildings completed in 2018 in SA

³² Assuming that wet services account for 3% of total building value. Wet services include certain infrastructure, such as piping, that will in many cases be required regardless of efficiency and augmentation measures. The value of buildings completed in 2018 was estimated based on the value of buildings completed between January 2018 and September 2018 (StatsSA 2018c) and extrapolated for the full 12-month period.

Within these three provinces the major opportunities lie in the metros, as shown in [Figure 27](#) (StatsSA 2016b) ³³.

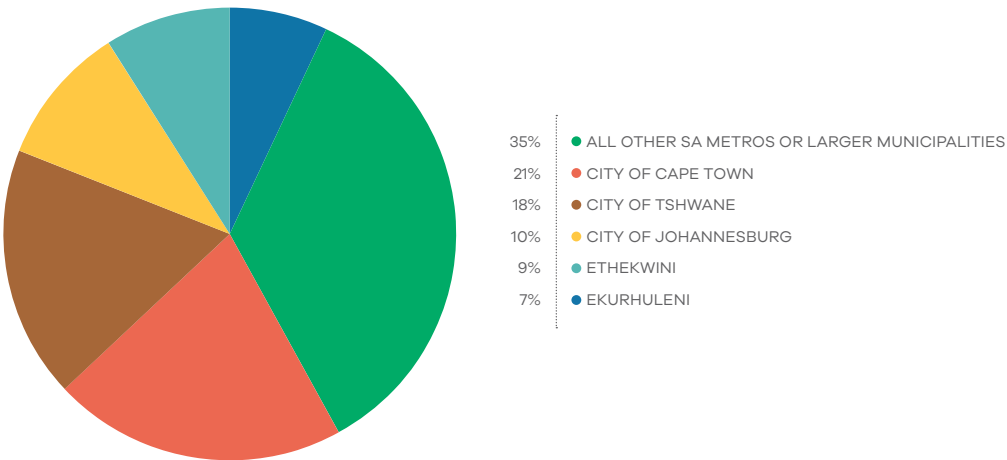


Figure 27: Largest municipal contributors to the value of buildings completed in 2016

Around 56% of the value of buildings completed in 2018 are in the residential market, as shown in [Figure 28](#) (StatsSA 2018c) ³⁴.



³³ Large municipalities and metros where the value of buildings completed in 2016 was less than R5 billion are grouped together under 'All other SA metros and larger municipalities'.

³⁴ Based on data from January 2018 to September 2018.

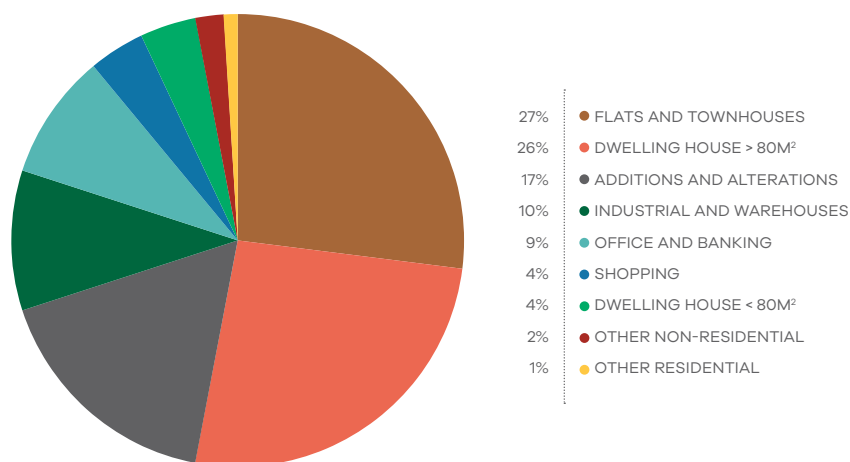


Figure 28: Value of buildings completed in metros and large municipalities in 2018 by building type.

4.3.2. Opportunities

Investment in green buildings (which incorporates water, energy, and waste efficient technologies) represents a significant opportunity for property developers. For example, in 2017 total returns for investment in Green Star Certified offices were estimated to be around 11.6%, compared to 8% for non-Green Star Certified offices. Higher capital growth is the major driver for the outperformance of green buildings. It is linked to more attractive valuation metrics, such as higher net income per square metre, higher net income growth, and lower vacancy rates (MSCI 2018).

Water technologies and services: In addition to the opportunities for property investors, there are also opportunities in the new development market for a wide range of water technologies and services, including smart water metering (usage and quality), onsite reuse, and alternative water systems. While onsite reuse technologies are often not included in the design, there is an increasing demand for these solutions. Greywater harvesting is considered more feasible in buildings where sufficient greywater is generated, e.g. hotels or residential developments, and is often preferred over rainwater harvesting systems, which provide less consistent supply. Onsite sewage water treatment for potable or non-potable purposes is also an emerging opportunity, but faces regulatory and user acceptance challenges.

Property developers and their consultants are not always able to keep abreast of innovative technologies. There is a need for technology providers to actively market their solutions to developers, and to clearly communicate the business case for the technology.

Water exchange networks: Within industrial park developments, there is an opportunity to develop water exchange networks where water can be cascaded between users and treated in distributed or centralised facilities for reuse. Industrial users benefit from enhanced resilience, as well as the economies of scale of shared or centralised treatment, which tend to kick in at around 2.5 MLD (most industrial water users in the Western Cape consume less than 0.5 MLD). While this represents an investment opportunity for both existing and planned industrial parks, the coordination of such a network would be easier if incorporated into the design phase.

4.3.3. Drivers

The drought, its effects on water security, and the associated risks to rental income, have caused many property developers in the Western Cape to shift away from conventional water infrastructure. They are now specifying water-efficient fixtures and dual reticulation systems (to accommodate alternative water sources) as standard design features.

Green Star SA, and other Green Building Council of South Africa (GBCSA) rating tools, require that

buildings incorporate water-efficient technologies and infrastructure into the building design and operation. Property developers are increasingly motivated to achieve green building certifications, and many national and international companies (whom they hope to attract as tenants) are requiring certification. In 2018, almost 100 projects were certified, compared to 28 in 2014 and four in 2010. Some developers have committed to meeting green building standards in their new developments, but due to the certification costs they are not certifying the buildings unless required by their tenants.

Technology providers should familiarise themselves with the green rating tools requirements to understand what solutions are promoted. For example, groundwater use does not currently contribute to Green Star SA scores, and use of basement water (seepage) only contributes if sufficient water-efficient measures and onsite water solutions are in place.

Regulations are becoming increasingly stringent on new developments. For example, the City of Cape Town's recently amended Water By-law (2018) requires that all new developments install

The National Building Regulations are in the process of being amended to include water efficiency and alternative water supply requirements in new buildings across South Africa.

water-saving measures or alternative water systems, as well as sub-metering of multi-unit properties. The National Building Regulations are in the process of being amended to include water efficiency and alternative water supply requirements in new buildings across South Africa. In some cases, however, permitting and authorisations may deter investment, particularly

in groundwater systems (see [Section 3](#) for permitting requirements).

4.3.4. Barriers and risks

Budget constraints remain a challenge for green buildings. While cost premiums appear to be diminishing, the average premium for a Green Star SA building is 5%, of which 26% is attributable to indoor environment quality and 9% to water (GBCSA 2016).

Economic growth affects the property development market and building confidence. The SA building confidence index is currently around 40 (Quantec 2018c)³⁵ and has declined over the last three years, suggesting that this market is not likely to grow significantly in the next 2-3 years. Projections for the building construction sector (see [Figure 21](#), which depicts the Gross Fixed Capital Formation for various sectors from 1970 to 2022) confirm this forecast.

4.4. Municipal market

4.4.1. Market overview

Globally, utilities dominate (67%) the water and sanitation (W&S) market, sized at ~US\$580 billion in 2016, followed by the industrial sector (15% or ~US\$130 billion) (TIPS 2018, GWI data). In South Africa, municipalities (which provide W&S services) represent a significantly larger market for W&S technologies and services than the other urban markets described in this report. This market is growing. SA's W&S annual capital and operational expenditure is projected to increase from ~US\$7 billion in 2015 to ~US\$12 billion in 2022 (TIPS 2018, GWI data), with municipalities accounting for a significant portion of this spend (TIPS 2018, GWI data). [Table 1](#) shows that ~R17 billion was budgeted for municipal water infrastructure and ~R13 billion for sanitation infrastructure in 2017. This represents a considerable opportunity for investors and technology providers looking to supply services and technologies to the municipal market.

Municipalities need a further R17 billion in funding to meet water and sanitation infrastructure maintenance and new-build demands.

³⁵ The index varies from zero (an extreme lack of confidence) to 100 (extreme confidence).

In addition to the R30 billion set out above, a further R17 billion in funding is needed each year by municipalities to meet the required water and sanitation infrastructure demands relating to refurbishing and upgrading existing infrastructure, and new infrastructure to support population and economic growth (DWS 2017a). This funding shortfall represents an opportunity for investors to provide innovative project financing.

4.4.2. Opportunities

As outlined in [Section 2](#), many areas in South Africa face significant future water supply deficits. To address this, municipal-scale **water**

augmentation and water demand management projects are needed.

[Figure 9](#) shows that the Berg water management area is expected to have a water supply deficit of ~300 million kl (m³) per year by 2040. The opportunity costs for CoCT, at R100 billion per year, far outstrip any other municipality in the catchment. The CoCT has accordingly committed to delivering ~350 million litres per day (MLD) of new capacity, and a further 70 MLD through demand management over 10 years, as outlined in [Table 8](#) (CoCT 2019).

Table 8: CoCT's committed new water programme over 10 years and provisional costs³⁶

Intervention	First Water	Effective yield		Total Capex	Unit Capex	Operating cost
		MLD ³⁷	Million kl p.a.	Capex (R million)	R million / MLD	R/kl
Demand management	2019	70	26	410	6	3
Alien vegetation clearing	2019	55	20			~20-40m p.a.
Management of WCWSS	N/A	27	10			~2-5m p.a.
Cape Flats Aquifer Phase 1	2019	20	7.3	610	31	5
Table Mountain Group Phase 1	2019	15	5.5	375	25	5
Cape Flats Aquifer Phase 2	2020	25	9.1	450	18	5
Atlantis Aquifer	2021	10	4	290	29	8
Table Mountain Group Phase 2	2021	15	5.5	335	23	5
Table Mountain Group Phase 3	2021	20	7.3	326	16	2
Berg River Augmentation	2022	40	15			~3-5
Water Re-Use Phase 1	2023	70	26	1 360	20	5
Desalination Phase 1	2026	50	18	1 650	33-40	9
Total		417	154	5806		

³⁶ Timing, capex and opex are best available engineering estimates. All schemes are subject to outcomes of ongoing investigations and relevant approvals. For up-to-date information please consult CoCT's Water Strategy, which was released for public comment in February 2019.

³⁷ 1 MLD = 1 megalitre per day, or 1 000 000 litres per day, or 1 000 kl per day.

In addition, CoCT is preparing for an adaptable programme that can be triggered if and when required (Table 6, CoCT 2019).

Table 9: CoCT’s planned adaptable new water programme³⁸

Intervention	Indicative supply volume
	MLD
Ground water (further phases)	50
Reuse schemes (2nd phase)	30
Desalination (further phases)	100
Surface water (new schemes)	100
Total	280

In November 2018 CoCT entered into a R1.3 billion loan agreement with the German government-owned KfW Development Bank to upgrade its urban wastewater management facilities and diversify future water supply.

Other municipalities in the Western Cape have planned augmentation and water conservation

and water demand management (WCWDM) projects, as shown in Figure 29 (GreenCape analysis, DLG data). Notably, Drakenstein municipality has implemented several innovative water projects, and is planning to develop a wastewater reuse project to supply industrial users with treated wastewater.

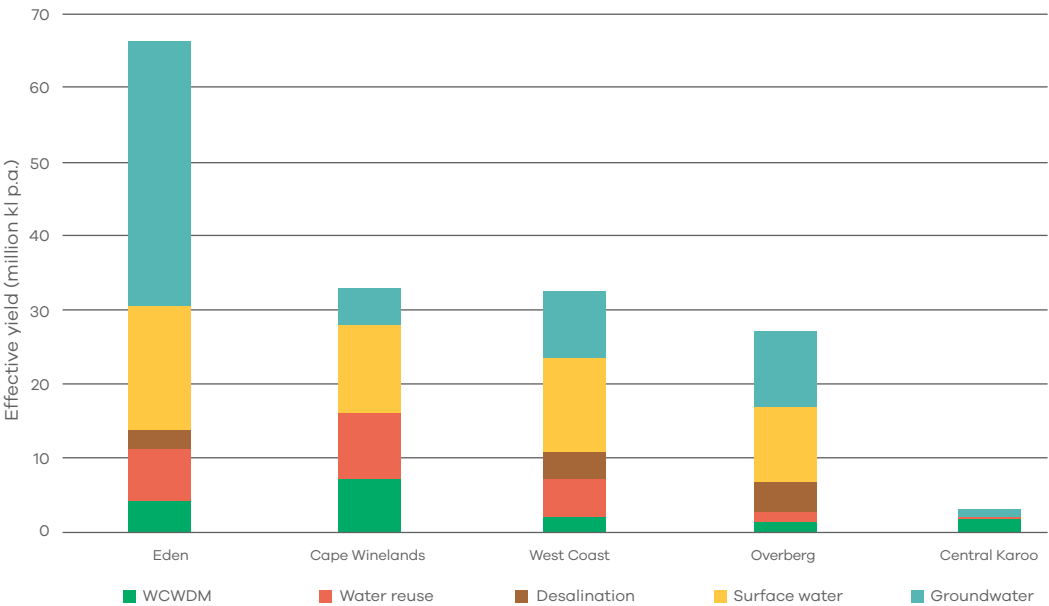


Figure 29: Proposed water augmentation interventions by WC district municipality³⁹

³⁸ Volumes are subject to change.

³⁹ The interventions are based on data from DLG. However, data from the All Towns Reconciliation Strategy Studies (DWS) was also used to estimate the proposed WCWDM projects. Interventions are subject to change.

Outside the Western Cape, various projects are planned in different municipalities. For instance, eThekweni municipality is planning to procure up to ~385 MLD of alternative water supply from reuse and desalination. They intend to procure this water through 20-30 year build-operate-transfer (BOT) public-private partnership contracts.

Non-revenue water (NRW) is the volume of water used by a municipality for which no income is received due to various factors, including water losses, metering inaccuracies, billing errors, theft, and unbilled authorised consumption. As shown in Table 10, South African municipalities cumulatively use around 4 000 million kl (m³) per

year, of which 41% is NRW (DWS 2017b), representing an estimated R6.3 billion in lost revenue each year (DWS & SWPN 2015).

Through investing in **water demand management** projects to reduce NRW (e.g. those linked to leak detection, early warning leak prevention, smart or remote meters, and improved billing and revenue collection systems), savings of R2-3 billion for the country as a whole are possible each year. These savings relate to various benefits, including increased revenue, deferred capital expenditure and lower municipal costs. The market lies predominantly in the metros and the large cities, which represent 84% of this national savings potential (DWS & SWPN 2015).

Table 10: Overview of non-revenue water in South Africa⁴⁰

Province	Population	SIV (m³/annum)	NRW (m³/annum)	% NRW	% WL	l/c/d	ILI
EC	4 477 918	332 151 376	158 647 165	47.80%	45.00%	200	4.8
FS	2 723 028	207 835 805	106 908 574	51.40%	46.60%	209	4.8
GT	12 978 281	1 473 100 700	528 839 540	35.90%	27.40%	305	5.8
LIM	4 225 967	281 235 907	155 016 679	55.10%	55.10%	182	5
KZN	8 491 508	697 751 184	327 444 107	46.90%	43.00%	225	6.2
NW	3 039 995	206 496 825	105 577 898	51.10%	51.10%	186	4.7
NC	1 085 944	94 205 305	45 418 308	48.20%	45.50%	238	7.1
WC	6 108 993	482 695 411	102 720 237	21.30%	16.70%	201	2.4
MP	3 622 506	270 990 713	129 852 490	47.90%	43.90%	205	4.3
National	46 754 140	4 046 463 225	1 659 588 711	41.00%	35.90%	233	5.3

4.4.3. Drivers

The major driver for water augmentation and water demand management projects is the anticipated future water supply deficits as outlined in Section 2. Non-revenue water projects are also triggered by:

- **regulatory compliance** (DWS);
- **auditory compliance** (Auditor-General's findings on water losses); and
- **revenue enhancement** (where savings result in more income for the municipality).

4.4.4. Barriers and risks

While there are considerable opportunities for private sector investment in municipal-scale projects, there are also significant barriers, as set out below.

Access to funding: Municipal-scale projects are often capital intensive, and access to funding can be a major constraint, particularly for the smaller, less financially stable municipalities that do not have the capacity (or the risk is considered too high) to develop bankable project pipelines to

⁴⁰ SIV: System input volume; WL: Water losses, which include real losses (e.g. leakages and overflows) and apparent losses (customer meter inaccuracies and unauthorised consumption); l/c/d: litres per capita per day; ILI: Infrastructure Leakage Index.

raise funds off-budget. This can lead to shortfalls in funding available for water services infrastructure. Table 1 in Section 2 highlights these shortfalls in South Africa.

Capacity constraints: Nationally, the ratio of civil engineering staff per 100 000 people is less than half of what is required to adequately plan, deliver, operate and maintain services, including water services (Lawless 2017). These capacity constraints limit the ability of municipalities to confidently implement or pilot innovative water technologies.

Municipal procurement processes (as outlined in Section 3.3) can be lengthy, tenders are often poorly specified, and unsolicited bids are typically not entertained. In addition, municipalities are hesitant to enter into Public Private Partnerships (PPP), which are relatively uncommon in the South African water sector and can be complex and difficult to arrange⁴¹. However, eThekweni municipality is planning to enter into a number of build-operate-transfer PPPs for reuse and desalination projects, as well as a performance-based contract to reduce NRW. This may give other municipalities confidence to explore this model. Procurement

processes also hinder municipalities' ability to trial innovative technologies.

Cost recovery: Alternative water supply projects, e.g. reuse and desalination, are generally more expensive than bulk water tariffs from traditional surface water or groundwater supply. The national average bulk water tariff was R7.44/kl in 2015/16 (DWS 2017a). These additional costs ultimately have to be passed on to the water user, but municipalities are often unable or reluctant to substantially increase water tariffs. This presents a barrier to adopting water augmentation projects. However, it is possible for municipalities to structure PPPs, such that the price ramps up over an initial period as has been done internationally.

While **NRW projects** represent a significant opportunity for investors, in general there are a number of additional challenges to implementing such projects. This includes a general lack of political will to prioritise these projects. Operation and maintenance budgets are often more readily cut than capital budgets, NRW data is often not up to date or readily accessible, and the No Drop compliance-based reporting mechanism has fallen away.



⁴¹ For more information on PPPs, the Government Technical Advisory Centre (GTAC), which is an agency of National Treasury, provides a number of valuable resources, including guidelines and manuals for establishing PPPs. Visit: www.gtac.gov.za/Pages/mmg.aspx



5

Funding and Incentives

A range of general and sector-funding solutions and incentives is available to investors, manufacturers and service companies in the green economy.

It covers international sources, such as Development Finance Institutions (DFI), local funding pools including the public and private sector, and a considerable range of tax incentives.

5.1. General database web page

The GreenCape Finance Desk hosts a web page⁴² with a number of Green Finance resources that cover funding and incentives available to companies in the green economy. A few of the available database are highlighted below.

5.1.1. Green Finance Database

In conjunction with the South African National Energy Development Institute (SANEDI), GreenCape maintains a database of funding sources and primarily dti-driven incentives that may be relevant to green economy investors. The database contains information on more than 100 funding opportunities, including an overview of the opportunity and its contact details and links. It is ideal for any entity seeking a broad range of funding solutions and financial incentives, with South African institutions being the main source of opportunities. The database is available to view and download online⁴³.

5.1.2. Government funding and incentives database

An updated document focused on South African government funding and incentives is available to view and download online⁴⁴.

5.1.3. Finfind database

Finfind⁴⁵ is an innovative online finance solution that brings together SME finance providers and finance seekers. With a focus on finance readiness, Finfind has more than 200 lenders and over 350 loan products available to SMEs. The database is ideal for South African SMMEs who are seeking funding and/or business advisory services, and those who want to improve their understanding of finance.

5.1.4. AlliedCrowds database

AlliedCrowds⁴⁶ is the first complete aggregator and directory of alternative finance providers in the developing world. Sign-up is free and allows users to access a global database where one can filter for sector (including greentech, agriculture and social impact), type of capital (equity, lending, grant), and type of funding (crowdfunding, angel investing, venture capital, impact investing). In addition:

- Themed databases around the Sustainable Development Goals (SDGs) and the World Green Economy Organisation (WGEU) are available.
- Reports, including a number specifically about African funding sources, can also be downloaded for free.
- You can also contact Allied Crowds to create a customised funding database for you.

This resource is ideal for any entity seeking a broad range of financial solutions on a global scale.

⁴² <https://www.greencape.co.za/content/focusarea/green-finance-databases>

⁴³ <https://www.greencape.co.za/assets/Uploads/GreenCape-Finance-Database-v6.xlsx>

⁴⁴ <https://www.greencape.co.za/assets/Uploads/Government-Funding-and-Incentive-Booklet.pdf>

⁴⁵ www.finfindeasy.co.za

⁴⁶ <https://alliedcrowds.com/>



6

The Western Cape: Africa's green economy hub

The Western Cape is a world-class investment destination.

The province provides businesses and investors with prime locations, modern infrastructure, a skilled workforce, low operational costs and an abundance of natural resources. It is also a sought-after place to live, with unrivalled natural beauty, vibrant culture, excellent schools and universities, and an outstanding quality of life. In 2017, Cape Town was ranked among the top 21 global investment destinations by Foreign Direct Investment (fDi) Intelligence, a division of the Financial Times.

A great place for green business

There are compelling reasons why the Western Cape Province is viewed by many as Africa's green economy hub. Coupled with a strong and rapidly growing market for green technology and services in South Africa and beyond, the Western Cape offers:

- Africa's renewable energy (RE) and cleantech hub, with a critical mass of leading companies present.
- Local presence of major professional services and financiers.
- Significant market opportunities for businesses and investors in agriculture, energy services, utility scale solar and wind, waste, water, bioeconomy and resource efficiency.
- A supportive government that has made ease of doing business and the green economy key priorities.
- Five universities with comprehensive R&D capabilities and dedicated green economy skills programmes.
- A range of investment incentives in the Atlantis Special Economic Zone (SEZ) for Green Technologies.

Supporting businesses and investors

The province also offers dedicated support for businesses and investors focusing on greentech and services, including:

InvestSA One Stop Shop: Offers convenient investor support on permits, licensing and registrations - all under one roof.

GreenCape: Provides dedicated support and market intelligence to green economy sectors.

Wesgro: The official investment and trade promotion agency for the Western Cape.

SAREBI: A business incubator providing non-financial support to green entrepreneurs.

SARETEC: Offers specialised industry-related and accredited training for the wind and solar industries.

Market opportunities in the province and South Africa

Some of the major market opportunity areas in the province and South Africa in the next five years are outlined in the graphic on the next page (see individual MIRs and the GreenCape website for more information).

R&D capabilities and skills

The region's five universities – University of Cape Town, Stellenbosch University, University of the Western Cape, the Cape Peninsula University of Technology and the George campus of the Nelson Mandela Metropolitan University – underpin all of this with comprehensive research and development (R&D) capabilities and dedicated green economy skills programmes.

Major market opportunities: Western Cape and South Africa

Agriculture

Precision agriculture

Tools, data analysis, local manufacturing & financing.

Solar energy for agriculture

Minimum market of R120 million (WC) and R420 million (SA) for solar PV in agri & agri-processing.

Controlled environment agriculture

R600 million potential market (WC), 15% annual growth (WC).

Energy services (SA-wide)

Solar PV systems & components

600MWp installed capacity; R1.7bn additional investment in 2018 (R7.7bn to date)

Local manufacturing & assembly

Solar PV systems and components – systems require compliance with local content regulations

Energy storage

Keystone of future energy services market; ~R5bn market for demand side management and back-up power by 2035

Utility scale renewable energy (SA-wide)

Independent power production

6.3GWp independent power procured, 13.7GWp additional capacity by 2030, based on updated IRP (5.67GWp solar, 8.1GWp wind).

Rest of Africa

Greater uptake of RE & decentralized systems. Off-take guarantees and local currency debt innovation needed.

Local manufacturing

Refined local content requirements, with specific components obligated to be locally manufactured e.g. wind towers, tower internals, panel laminating, PV mounting structures

Waste

Municipal PPP

Public-private partnership projects of R1.3bn (WC)

Organic waste treatment

Landfill ban require treatment technologies to process 1 m/t p.a. of organic waste (WC)

Alternative waste treatment

Cape Town has highest landfill cost in SA & good business case for AWT. R1bn+ invested by solution providers since 2016 (SA)

Water

Industrial and Commercial

Water intense food & bev sectors expected gross capital formation of ~R14bn by 2021

New developments

Green building certifications increased 25-fold since 2010 (SA)

Municipal

Significant opportunities in metro markets incl. new R5.8bn (417 MLD) Cape Town augmentation programme (WC)

Bioeconomy & resource efficiency

Food value retention

At least R600m retained through improved cold chain management & waste reduction (SA)

Solar thermal

Already installed: R33m (WC), R135m (SA); ~R3.7bn potential market in agri-processing

Biogas

For electricity, heating & transport; R100m of installations expected by 2023

Atlantis Special Economic Zone for Green Technologies

The Atlantis SEZ is a zone dedicated to the manufacturing and provision of services in the green technology space – technologies that reduce or reverse the impact of people on the planet. Wind turbines, solar panels, insulation, biofuels, electric vehicles, materials recycling and green building materials are all examples of green technologies that will be welcomed to the zone.

The zone welcomes manufacturers, service providers, suppliers and other players in the value chains of different green technologies.

The SEZ is situated in the Atlantis industrial area north of Cape Town, south of Wesfleur, east of Dassenberg Road, and west of the Witsand community.

Why invest in the SEZ?

There are strong and growing South African and African markets for greentech. The South African greentech manufacturing market is worth at least R30bn; with a growing greentech market in the neighbouring countries. South Africa has opportunities in energy, waste, agriculture, transport and other sectors and is a great entry point for the SADC market.

Atlantis is a great location and development ready. 93 hectares of zoned City of Cape Town

land is available for leasing to investors. Bulk infrastructure is in place and Atlantis has new public transport and shipping links and fibre connectivity. Atlantis is also close to major ports, roads, universities and greentech markets.

Investors have access to extensive investment support through the One Stop Shop for investor support and the rest of the investor support ecosystem, which includes InvestSA, GreenCape, the City of Cape Town, and Wesgro. Together the ecosystem provides information and advocacy; market intelligence; facilitated access to permits and licenses, planning and development approval; and skills training.

Investors and tenants are accessing attractive incentives in the form of tax relief and allowances, employment tax incentives, fast-tracked development approvals, fee exemptions and subsidies.

There is an attractive, wide-ranging skills base to recruit from with 5 universities and many more colleges in the province, and a large range of unskilled, semi-skilled, technical and professional candidates.

For more information, contact the SEZ's Investment Promotion Facilitator, Jarrod Lyons: jarrod@greencape.co.za



LARGE VOLUME OF
POLYETHYLENE

1865

MADE BY HANCOCK INDUSTRIES

WARNING

7

GreenCape's support to businesses and investors

GreenCape is a non-profit organisation that works at the interface of business, government and academia to identify and remove barriers to economically viable green economy infrastructure solutions. Our vision is a thriving prosperous Africa, mobilised by the green economy.

Working in developing countries, GreenCape catalyses the replication and large-scale uptake of green economy solutions to enable each country and its citizens to prosper.

We work with businesses, investors, academia and government to help unlock the investment and employment potential of greentech and services, and to support a transition to a resilient green economy.

We assist businesses by removing barriers to their establishment and growth and provide our members with:

- free, credible and impartial market information and insights
- access to networks of key players in government, industry, finance and academia
- an advocacy platform to help create an enabling policy and regulatory environment for green business

We assist local, provincial and national government to build a resilient green economy by providing:

- support on the development of standards, regulations, tools and policies
- expert technical knowledge on key sectors in the green economy
- access to networks of key players across business, academia, and internationally

Since inception in 2010, GreenCape has grown to a multi-disciplinary team of over 40 staff members, representing backgrounds in finance, engineering, environmental science and economics.

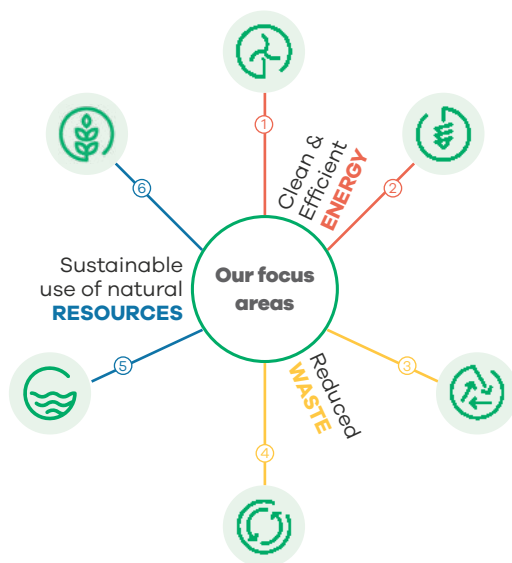
We have facilitated and supported R17bn of investments in renewable energy projects and manufacturing. From these investments, more than 10 000 jobs have been created. Through our WISP (industrial symbiosis) programme, by connecting businesses with waste / under- used resources, we have to date diverted nearly 63,000 tonnes of waste from landfill.

Our market intelligence reports form part of a working body of information generated by sector desks and projects within GreenCape's three main programmes – energy, waste and resources.

Figure 30 below shows the different focus areas within each of our programmes.

Benefits of becoming a GreenCape member

We currently have over 1 100 members, and offer free membership. Becoming a member of GreenCape will give you access to the latest information regarding developments in the various sectors; access to tools, reports, and project information; and offer you the opportunity – through our networking events – to meet and interact with various stakeholders in the green economy.



① Renewable Energy

Utility-scale projects, localisation of component manufacturing, incentives & financing options, wheeling & energy trading.

② Energy Services

Energy efficiency & embedded generation, electric vehicles, alternative basic electrification, incentives & financing options.

③ Alternative Waste Treatment

Municipal decision-making & policy & legislative tools on alternative waste treatment options; small-scale biogas, recycling & reuse (dry recyclables, construction & demolition waste).

Figure 30: GreenCape's focus areas

Support through the International Cleantech Network

GreenCape's membership of the International Cleantech Network (ICN) gives our members access to international business opportunities in countries where other cleantech clusters are based (mainly Europe and North America).

④ Western Cape Industrial Symbiosis Programme (WISP)

The team matches businesses to share unused resources, cut costs & create value. They also support entrepreneurs to identify & realise new business opportunities in the waste industry.

⑤ Water

Water provision & economic development; greentech opportunities for water use efficiency, treatment & reuse, business water resilience.

⑥ Sustainable Agriculture

Precision-, conservation- and controlled environment- agriculture; valorisation of wastes to high value bio- products, including bio-energy.

To become a member or to get your ICN passport, please contact GreenCape or visit our website: www.greencape.co.za





8

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