# THE CEO **GUIDE TO** WATER RESILIENCE



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BETTER TOGETHER.



CITY OF CAPE TOWN TAD KAAPSTAD







### What will you find in this easy-to-use guide for CEOs?

### Thinking globally, implementing locally

How businesses across the globe are acting to ensure water resilience.

### How can businesses become water resilient?

The 5-step water process to improving resilience relating to water-related shocks and stresses.



### Measuring and reporting progress

Tracking the effectiveness of interventions and demonstrating commitment to sustainability and responsible water management.



### Snapshot of the South African water sector

Water risks to businesses and an overview of relevant legislation.

### Financing options for building water resilience

A database resource, covering more than 150 finance opportunities across 125 unique stakeholders plus an easy five-step process.



Every year, the World Economic Forum asks key decisionmakers from the public sector, business, academia and civil society across the globe to assess the risks facing the world over the decade to come. Since 2012, water crisis has consistently been ranked as one of the threats with the highest potential impact as well as likelihood.

Globally, CEOs and public sector leaders are grappling with the concept of water resilience, as the effects of climate change pose the biggest threat to businesses, society and the environment.

In this guide you will find best practice examples, an overview of the South African water sector, including key water-related risks and relevant legislation, as well as useful additional resources.

This publication is brought to you by GreenCape, a non-profit organisation that drives the widespread adoption of economically viable green economy solutions from South Africa, and Wesgro – the official tourism trade and investment promotion agency for Cape Town and the Western Cape.



### Fact

South Africa faces several water availability and quality challenges. These challenges pose risks to businesses, and, if unmitigated, threaten their ability to operate, retain employees and attract investment.

### Ge Act

To ensure a water secure future, collective action is required from all stakeholders, including government, citizens and businesses.

### ) Impact

Businesses can implement practical measures to improve their resilience to water-related shocks and stresses. These measures range from low-cost "quick win" metering and efficiency interventions, to more complex reuse and alternative water systems, and ultimately to collaborative water stewardship interventions at a catchment-level.



### Thinking globally, implementing locally

### Businesses across the globe are acting to ensure water resilience.

- Businesses are moving towards integrating sustainability into business practices.
- Reporting standards are ensuring businesses are moving away from shareholder value creation towards systems value creation.
- The aspects of double materiality are now required to be more prevalent in reporting, evidencing the impact of the business across its value chain and society.
- S&P 500 companies spend between USD 220 000 and USD 420 000 to ensure ESG compliance and integration.
- Thus when considering investing in ecological infrastructure towards resilience in water and climate, financial instruments need to consider corporate balance sheets and the role they play in ESG integration.

#### International Sustainability Standards Board launches two standards unifying corporate climate disclosures







#### Some examples

### 1. Understand water uses and risks

- Appoint task team
- Water audits
- Meter and monitor, (including leak detection)
- Understand water quality requirements
- Set internal water use targets or policy



#### 2. Reduce water use

- Behaviour change
- Efficient processes
- Efficient fittings and technologies
- Efficient cooling systems

### ③ 3. Water reuse on-site

- Greywater reuse
- Industrial effluent
- Basement "sump" water
- HVAC condensate
- Black water

### 4. Alternative water supply

- Rainwater harvesting
- Stormwater harvesting
- Treated effluent
- Groundwater
- Desalination

#### 😒 5. Water stewardship

- Developing resilience partnerships and networks to encourage collaboration
- Supporting catchment level projects (e.g. invasive alien clearing, non-revenue water projects)

Businesses are encouraged to start at Step 1, as these are lowest cost and least complex, and then continue along the steps, ending in water stewardship.





### Step 1: Understand water uses and risks

The first step is to understand water uses and risks, e.g. through sub-metering (with smart water meters) and water audits.

#### Case study

Excellent Meat (meat processing company in Cape Town)

Reduced water consumption through water monitoring systems and awareness campaigns.

Total water saved (Deli and Fresh Meat sites)	29 931 (kl)
Total water costs saved (over 4 years)	R1.5 million
Total capital investment cost	R360 958
Overall benefit (costs less investment) over 4 years	R1.14 million



#### **Case study**

### Growthpoint Properties The Estuaries (office park in Cape Town)

Achieved **70%** water savings largely due to the installation of smart metering. The payback period of the smart water meters was almost immediate, as the meters enabled them to detected leaks, which were promptly fixed.



Step 1: Understand water uses and risks



Step 2 aims to reduce water usage through efficient technologies and water-wise behaviour.

#### Efficient technologies include:

- Aerators and low-flow taps/showerheads
- Waterless urinals
- Water efficient directional spray nozzles for washing and cleaning
- Automatic shut off valves and sensing devices
- Waterless cleaning and processing

#### Water-wise behaviour:

- Report leaks.
- Staff awareness and incentive campaigns.



Case study

### JG Afrika offices (commercial building in Cape Town)



Reduced their office water consumption by 67% through awareness and water efficiency measures.

Cumulative annual savings (Over 7 years)	R33 424
Total capital investment	R13 100
Annual water savings (2017)	727 kL





Step 3 includes implementing reuse systems for grey water, black water, process water or industrial effluent.

The costs of interventions depend on the quality of wastewater and the intended quality of the output water. Reuse is most cost effective when higher quality wastewater streams are used for processes requiring lower quality water.

#### Case study

#### The Beverage Company



A soft drink manufacturing and bottling company, reduced water consumption by 27%, wastewater production by 61% and saved 3 000 kL/month (R285 000/month) by re-using rinse water from cleaning bottles in other stages after filtering.



### Case study

#### Virgin Active

Reduced water usage by 62% (12 600 kL/d water savings) through ablution facility retrofits and alternative water and greywater treatment plants at 30 branches in the Western Cape. They invested R24 million with a payback period of 20 months.





#### Case study

#### Warwick Wine Estate

A 23 kL/d membrane bioreactor at Warwick Wine Estate treats winetasting cellar effluent and domestic sewage from on-site staff housing, producing 10kL/d for irrigation.



Estimated average monthly wastewater disposal costs	R40 000
Capital cost of new plant (once off)	R1.1 million
Payback period	2.9 years
Monthly savings to be realised after payback period	R31 250



### Step 4: Alternative water supply

Step 4 is the use of alternative water supply sources for potable and non potable purposes, such as rainwater, groundwater, desalinated water and treated effluent.

Treated effluent from municipal wastewater treatment works can substitute potable water in many instances where non-potable water is needed, e.g.:

- Construction (growing demand for treated effluent to replace potable water)
- Toilet flushing, fire systems, irrigation

In Cape Town, treated effluent can be accessed by an extensive pipeline network across the City or via designated collection points. The cost is **R8.71/kl** compared to **R35.07/kl** ex VAT for potable water (2024/25 **no restriction** tariffs for commercial/ industrial users). Businesses are encouraged to contact their municipalities to find out about the availability of treated effluent.

**Contact:** treated.effluent@capetown.gov.za for further information on treated effluent in Cape Town

Examples of businesses that have used or are using treated effluent in their operations:



Durbanville farms



Astron Energy







Levi Strauss & Co.

#### Case study

#### **Bayside Mall**

Harvested rain and stormwater for non-potable purposes (irrigation and toilet flushing) and reduced potable water consumption by **93%**.

Annual savings	R200 000
Total capital investment	R1.5 million
Payback	5 years
IRR	20%



#### Case study

#### **BG Servers**

Reduced their municipal water consumption from 2 300 kl/year in 2009 to <70 kl/year in 2021, by installing rainwater harvesting and a non potable borehole system, and implemented vacuum cleaning of drums.



	Borehole (Groundwater)	Rainwater harvesting
Total capital investment	R95 000	R0 (donated system)
Annual O&M costs	R15 300	R500
Annual savings on municipal water account (in 2021)	R85 000	R28 000
Cumulative savings on municipal water account 2011–2021 (11 years)	R530 000 (Groundwater usage ramped up over this period)	R210 000







### Step 5: Catchmentlevel water stewardship

"Water Stewardship is the use of water that is socially and culturally equitable, environmentally sustainable and economically beneficial, achieved through a stakeholder-inclusive process that involves site-and catchment-based actions." Alliance for Water Stewardship (2019).

At a catchment level, businesses can develop resilience partnerships and networks to encourage collaboration to support catchment-level projects (e.g. invasive alien clearing, non-revenue water projects).

Organisations that are involved in water stewardship programmes in South Africa include, but are not limited to:

- National Business Initiative
- Worldwide Fund for Nature South Africa
- Strategic Water Partnership Network South Africa
- GIZ's International Water Stewardship Programme (GIZ-IWaSP)
- The Greater Cape Town Water Fund
- Alliance for Water Stewardship

#### Case study



### PepsiCo water stewardship at a catchment level

Funded by the PepsiCo Foundation, R6 million was invested in four individual projects aimed at providing safe water access:

- In partnership with the National Business Initiative, the company recently handed over 15 handwashing units and 35-foot operated standpipes to a community in Aliwal North in the Eastern Cape.
- Working with Worldwide Fund for Nature (WWF) SA, it aimed to provide 3 600 people in Matatiele, Eastern Cape with improved safe water access and hygiene practices with almost 20 000 ultimately positively impacted.
- 65 000 people have received improved sanitation services in the Bloekombos and Wallacedene communities in the Western Cape through its partnership with SOS CT.
- A project with the Water Research Commission in Ga-Moela, Limpopo, has benefitted over 750 people through the provision of improved sanitation.





# Measuring and reporting progress

- Measuring and reporting progress is essential for tracking the effectiveness of the interventions and demonstrating commitment to sustainability and responsible water management.
- It also aligns with the growing investor and stakeholder demand for transparency and accountability on environmental, social, and governance (ESG) matters.
- A typical water resilience report will include, but not limited to:
  - Detailed description of water resilience goals
  - Description of key performance indicators (KPIs)
  - Data on water usage reduction, efficiency improvements, and compliance
  - Identification of challenges encountered and strategies for overcoming them.
  - Outline of future water resilience initiatives and planned improvements.
- The depth and detail of a water resilience report will vary depending on the company's size, industry, and the level of maturity of its water management practices.

There are established frameworks and tools used by companies for reporting and measuring:

- Resilience Scoring Tool for corporates (ReST) is a framework developed by the CEO Water Mandate to assess a company's water resilience across governance, infrastructure, and social impacts. It provides a quantitative score to help companies identify strengths, weaknesses, and opportunities for improvement in their water management practices.
- Global Reporting Initiative (GRI): standard offers guidelines for companies to disclose information about their water usage, impacts on water resources, and management strategies.
- Task Force on Climate-related Financial Disclosures (TCFD): Offers a framework for companies to assess the potential financial impacts of climate change and provide recommendations.
- Sustainability Accounting Standards Board (SASB): Provides investors with comparable ESG data across different companies within the same industry.

These frameworks are not mutually exclusive. It is common for companies to report under a combination of frameworks depending on their specific needs and stakeholder expectations.



Snapshot of the South African water sector

### Water risks to businesses

### Water availability

- South Africa is a water-scarce country and ~98% of water supply is already allocated to users across the different sectors (with agriculture the largest user, ~60%).
- To increase water supply, various infrastructure projects are required, including surface water, groundwater, desalination (including acid mine drainage) and re-use.
- However, projections for 2030 indicate that without reducing water demand, the planned infrastructure development and the broadening of the water mix will not be sufficient to balance supply and demand.
- Demand reduction is therefore critical to ensuring water security in South Africa.

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### Water availability

Water scarcity during the drought in Western Cape in 2016–2018 resulted in significant economic impacts, demonstrating the vulnerability of businesses to water availability risks.

Industries	Impact (relative/indicative)
Agriculture	LOW HIGH
Manufacturing	
Tourism	La constante de
Construction	
Other	



#### Source: 2030 Water Resources Group

### Water quality

- The Green Drop Reports indicate that ~39% of wastewater treatment works and 26% of water treatment works are in a critical condition and required urgent interventions and turnaround (DWS, 2023).
- The results in potable water quality risks, which can impact businesses, particularly those that rely on high-quality water for processing.



Source: DWS, 2023

Climate change

The impact of climate change on water resources in South Africa are expected to result in severe droughts and floods (WRC, 2022).

The WWF Water Risk Filter risk assessment framework shows the water related business risks as a result of climate.

The maps alongside show the distribution of scarcity, flooding and quality risks across South Africa.

(Source: WWF Water Risk Filter)



Water scarcity risk by 2030

Very Low Medium High Very Extra



Water flooding risk by 2023

ry Low Medium High Very Extrem



Water quality risk by 2030



### Insurance premiums

- Water-related disasters, such as floods and droughts, are having a significant impact on the insurance landscape for businesses in South Africa.
- According to Moonstone Information Refinery water damage is the leading cause of business insurance claims in South Africa, accounting for around 30%.
- Santam saw a rise in flood insurance claims throughout 2022 and into early 2023. This was due to several floods, including the major one in KwaZulu-Natal in April 2022, followed by flooding along the Orange and Vaal Rivers and the Western Cape in June of 2023.
- With more claims, insurers are likely to raise premiums to reflect the increased risk of water-related disasters.
- Businesses could see a 10–30% increase in premiums this year 2024<sup>1</sup>.
- As a result of the risk, insurers are likely to become more rigorous in assessing flood risk during underwriting.
- Businesses in high-risk areas may find it harder to obtain coverage or face higher premiums.

<sup>1</sup> From engagements with insurers and brokers post the KwaZulu-Natal floods in 2022



Insurance Considerations going forward are going to include<sup>2</sup>:

### O Liability insurance

Protects against physical loss or damage to third party assets and death or bodily injury to third parties.

### Pollution liability insurance

Covers the startup's financial responsibility if their water treatment process accidentally contaminates water supplies.

### Cyber insurance

Crucial for startups developing digital water management solutions or smart water infrastructure.

Insurance companies are likely to promote and incentivise disaster risk reduction measures among policyholders in the future.

## What the City of Cape Town is doing to ensure water security

- The City of Cape Town is implementing its New Water Programme in an effort to diversify and expand Cape Town's water supply sources and meet the growing water demands of an increasing population.
- The committed programme will deliver more than 300 million litres of additional supply per day over ten years, and a saving of approximately 70 million litres per day from demand management.
- The adaptable programme will deliver another approximately 250 million litres of new capacity per day up to 2040.

## Update on the City of Cape Town's New Water Programme

		Project	Progress/status	Contribution
Suri wa	face Iter	Berg river flow into Voëlvlei dam	Planning. To be completed by 2027	40 MLD <sup>3</sup>
Clea inva ali pla	aring isive ien ints	Greater Cape Town Water Fund	To be completed by 2026	30 MLD
Groun	dwater	Springs & aquifers – Atlantis, Cape Flats & Table Mountain Group	Various phases to be completed between 2023–2040	100+ MLD
Desali	ination	Desalination Phase 1	Detailed feasibility study of the alternative options. To be completed by 2030	70 MLD
C Re	use	Faure New Water Scheme	Design complete and now at evaluation of various financing, implementation, and operational options. Phase 1 to be completed by 2029	70–100 MLD

Source: Cape Town Water Outlook 2024, City of Cape Town



### Key water legislation

Legislation	Application or relevance to businesses
The National Water Act (NWA) (No. 36 of 1998)	Stipulates that any water use requires authorisation from the Department of Water and Sanitation (DWS) or its appointed regulator
Regulations Regarding the Procedural Requirements for Water Use License Applications and Appeals, 2017	Provides detailed steps for the submission, processing, and evaluation of water use license applications
Water Services Act, 1997 (Act No. 108 of 1997)	Allows businesses to become water services providers if they are contracted by the water services authorities (i.e. municipalities)
National Environmental Management Act, 1998 (NEMA) (Act No. 107 of 1998)	Stipulates that businesses must conduct environmental impact assessments (EIAs) for projects that could have significant effects on water resources
Municipal by-laws	Municipalities may impose water restrictions on water pricing and billing for businesses
South African National Standards (SANS)	SANS 241: Specifies drinking water quality standards.
	SANS 10252-1 and SANS 10252-2: Standards for water supply and drainage for buildings



The City of Cape Town has produced Guidelines for the Installation of Alternative Water Systems



## Municipal by-laws and guidelines

Each municipality will have its own by-laws covering water, wastewater and stormwater.

Refer to your local municipality website for more information.

### Examples of water by-laws for water resilience in the City of Cape Town

2018 Water amendment by-law:

- Installation of sub meters in residential and business complexes
- No person may negligently, purposefully or wastefully:
  - permit pipes or water fittings to leak;
  - use water fittings that are incorrectly adjusted or defective, or permit such use; and
  - inefficiently use water or allow an inefficient use of water to persist.
- New developments must ensure water efficiency:
  - must install water conservation and demand management systems, or
  - alternative water systems (e.g. rain water, grey water)



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The **database** covers more than 150 finance opportunities across ~125 unique stakeholders.

ZAR 25 billion is currently available across the financing solutions covered in the database.

Easy five-step process:



Contact financier.



Aiding access to finance: Green Economy Climate Finance Database







Climate change, extreme events and competing demands are impacting water systems around the world.

Building long-term water resilience is essential for a company aiming to mitigate or adapt to current and future shocks and stresses.

Resilience thinking and its application is still nascent in many sectors in South Africa. Thinking needs to shift towards seeing water resilience as a part of core functions and growth strategies.

Business resilience is interconnected with the systems it operates in and long-term success will require coordination, transparency, and alignment of common goals among all stakeholders.

Conclusion





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GreenCape's business support page:



Contact: water@greencape.co.za

Industry briefs and case studies:



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# Nat Survs' best practice guidelines for industry



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Access the NatSurv in the WRC's Knowledge Hub portal: http://search.wrc. org.za/#!/



# Thank You

## Stay in touch as you navigate the next steps





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