

# Water in the Cape

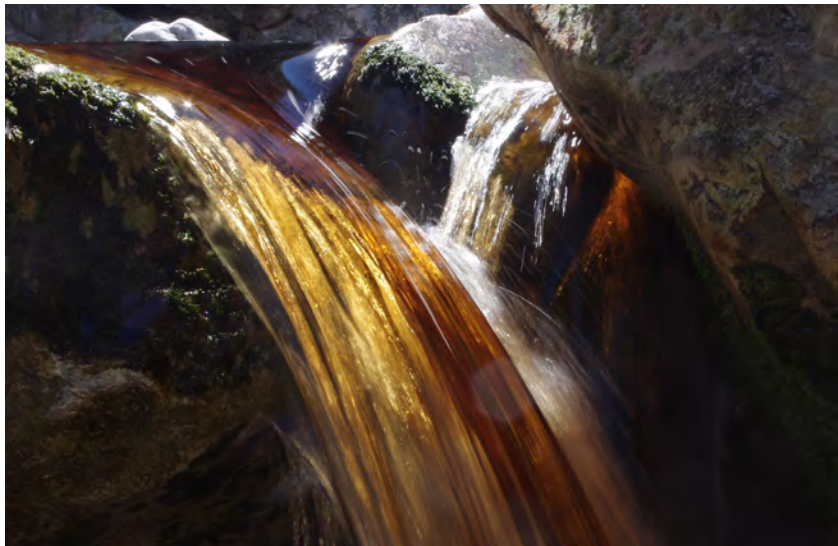


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Biogeochemistry Research Infrastructure Platform  
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what is water?

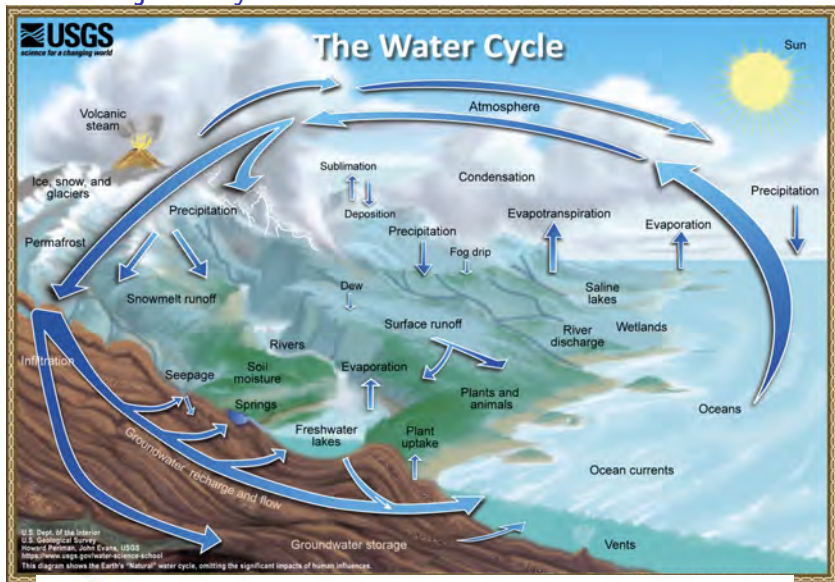


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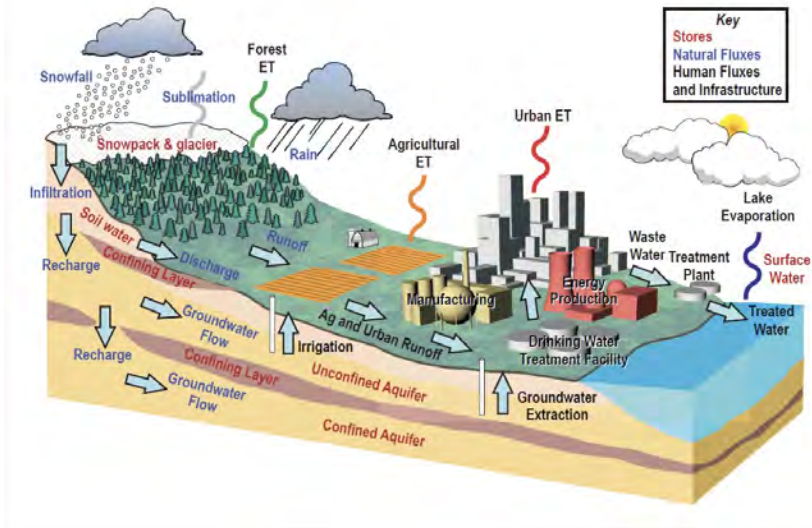
# what is water?

- ▶ H<sub>2</sub>O
- ▶ suspended matter (clays, organic particles, etc)
- ▶ dissolved matter
  - ▶ major anions: Cl<sup>-</sup>, HCO<sub>3</sub><sup>-</sup>, SO<sub>4</sub><sup>2-</sup>
  - ▶ major cations: Na<sup>+</sup>, K<sup>+</sup>, Ca<sup>2+</sup>, Mg<sup>2+</sup>
  - ▶ minor anions: CO<sub>3</sub><sup>2-</sup>, F<sup>-</sup>, NO<sub>3</sub><sup>-</sup>, PO<sub>4</sub><sup>3-</sup>
  - ▶ minor cations: Fe<sup>2+</sup>, Fe<sup>3+</sup>, Al<sup>3+</sup>, Si, Mn
  - ▶ trace elements: Zn, Cu, Cd, Cr, Li, U, etc.
  - ▶ pollutants:
    - ▶ inorganic: salts, metals
    - ▶ organic: pesticides, herbicides, pharmaceuticals, detergents, lubricants, etcetera, and breakdown products of these
- ▶ micro-organisms (= microbes)
- ▶ other properties: temperature, colour, radioactivity

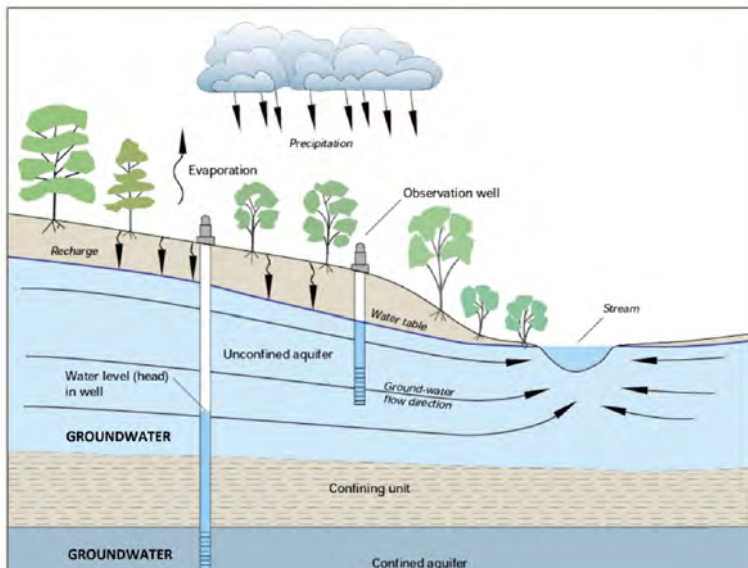
# the natural journey of water



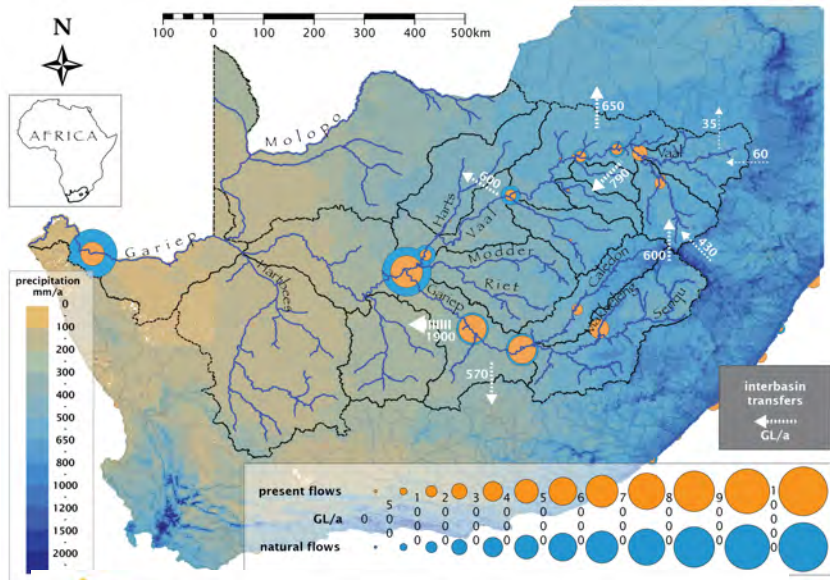
# the altered journey of water



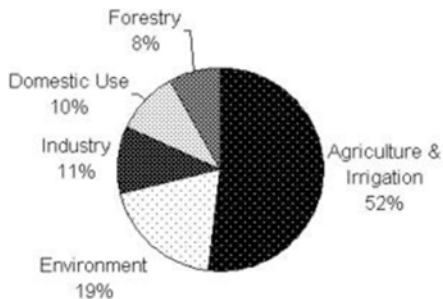
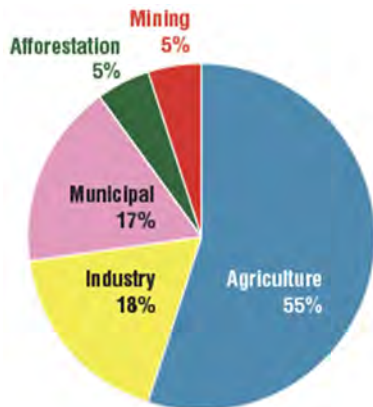
# groundwater



# South African context



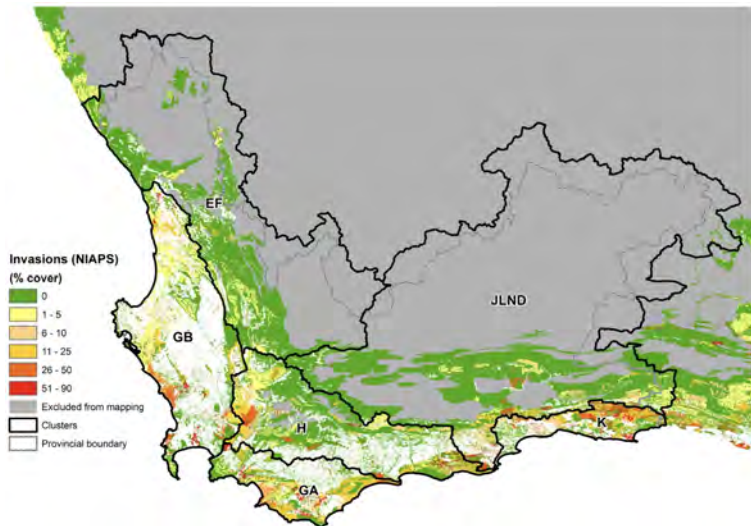
# RSA water use



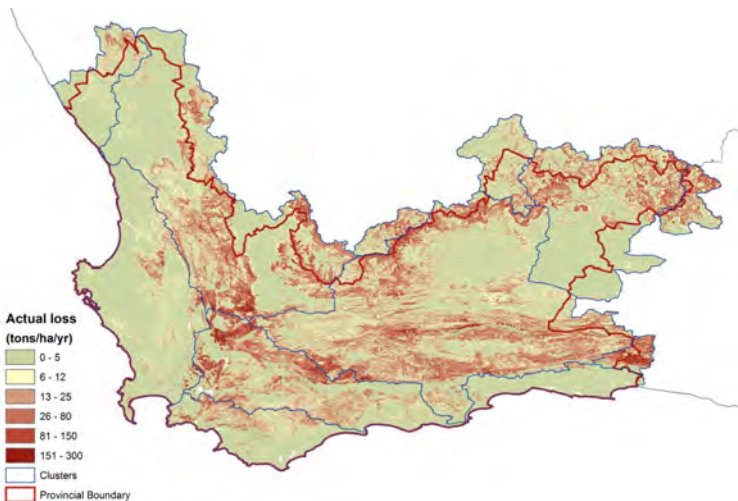
Source: Department of Water Affairs and Forestry



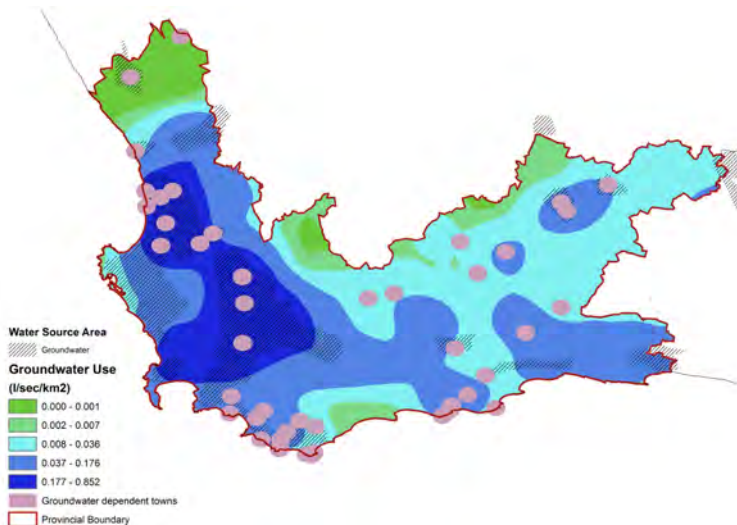
# Western Cape landcover and invasive alien plants



# Western Cape soil loss



# Western Cape groundwater use



# Western Cape state of rivers



# Cape Peninsula state of rivers

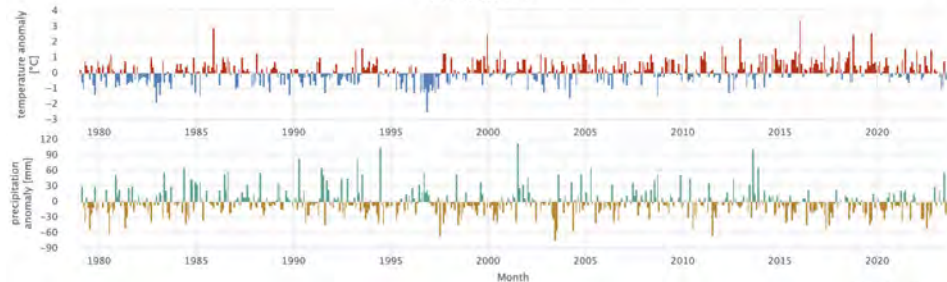
- ▶ N = natural (blue)
- ▶ G = good (green)
- ▶ F = fair (orange)
- ▶ P = poor (red)
- ▶ U = unacceptable (purple)



# Cape Town climate – temperature and rainfall anomalies

Monthly anomalies for temperature and precipitation 1979–2023.

33.93°S, 18.42°E.



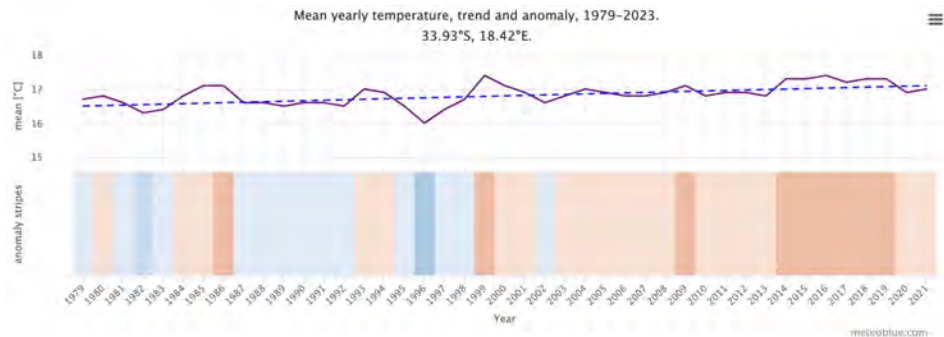
meteonblue.com



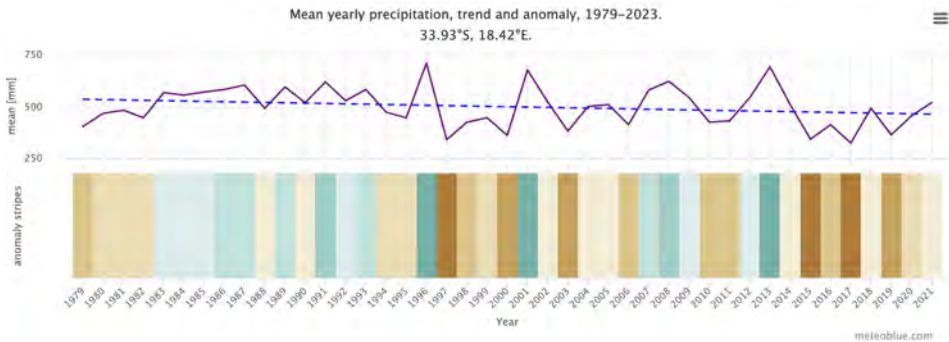
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# Cape Town climate – temperature trend



# Cape Town climate – rain trend





# human household water consumption



excludes houses with gardens & pools

# total human water use

Direct water footprint

3%



Indirect water footprint

97%



# food product water footprints

## WATER FOOTPRINT

Virtual water embedded in products

**one case** (shown in the illustrations) is equivalent to **60 litres of virtual water** (production-wise deficit). All figures shown on this poster are based on **average** calculations and may vary depending on the origin and production process of the product.

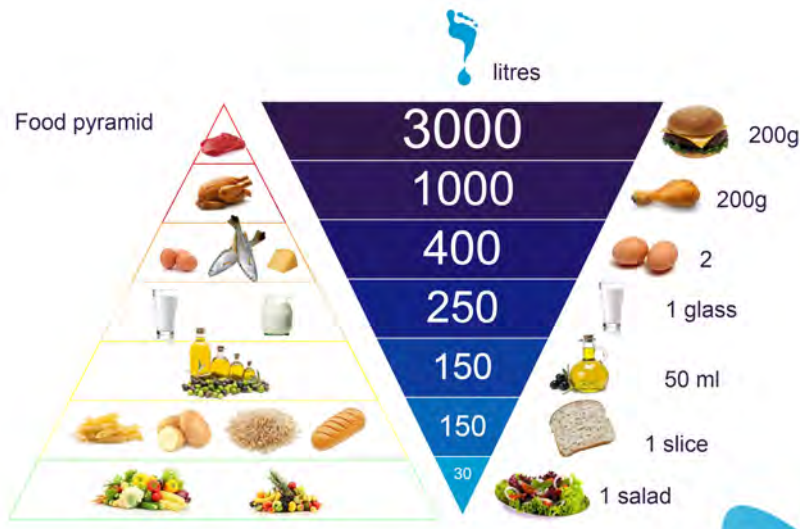
The **water footprint** of a product (a commodity, good or service) is the volume of freshwater used to produce the product, measured at the place where the product was actually made. It refers to the amount of the water used in the various steps of the production chain.

→ For the full poster, featuring many more products and a large reference table, visit [www.biogrip.ac.za](http://www.biogrip.ac.za)

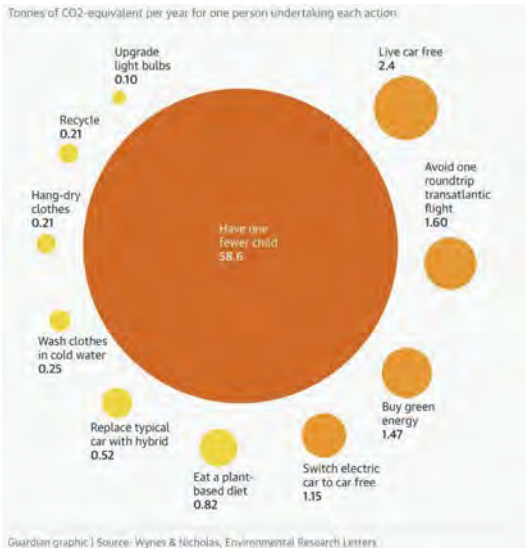
**DATA:** Markiris, A.T., Chapagain, A.K. (2010) Calculation of water footprint of wheat: Sharing the planet's fresh water resources. Blackwell Publishing, Oxford, UK [www.waterfootprint.org](http://www.waterfootprint.org)  
**SOURCES:** Tyson Robotics, [www.tysonrobotics.eu](http://www.tysonrobotics.eu)  
**DESIGNER:** Thelma and Thelma, [www.thelmaandthelma.com](http://www.thelmaandthelma.com)



# food product water footprints



# personal CO<sub>2</sub> footprint



# water saving measures

## TOP 10 WAYS

### TO USE WATER WISELY THIS SUMMER



LEAKS:	INDOORS:	OUTDOORS:
<div style="background-color: #0056b3; color: white; border-radius: 50%; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">1</div> 	<div style="background-color: #0056b3; color: white; border-radius: 50%; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">2</div> 	<div style="background-color: #0056b3; color: white; border-radius: 50%; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">6</div> 
<p><b>Find and fix leaks.</b> High water use could mean you have an undetected, expensive leak. Check your meter regularly to identify leaks, and get them fixed quickly. See the City's simple guides to help.</p>	<p><b>Don't flush in a rush.</b> Only flush when necessary and do not use your toilet as a dustbin. New or replaced toilet cisterns may not exceed 6 litres for each flush.</p>	<p><b>Close the hose</b> when washing the car. Hosesprays for washing vehicles, boats and caravans must be fitted with an automatic self-closing device. Stop-start your spray as you need it or bucket-wash your vehicle.</p>
<div style="background-color: #0056b3; color: white; border-radius: 50%; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">3</div> 	<div style="background-color: #0056b3; color: white; border-radius: 50%; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">4</div> 	<div style="background-color: #0056b3; color: white; border-radius: 50%; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">7</div> 
<p><b>Take short, step-start showers</b> or small baths. The maximum flow rate of new and replaced showerheads may not exceed 7 litres per minute.</p>	<p><b>Wash more with less</b> for laundry and dishes. Only wash clothes and dishes pots, cups and plates really needed. Wash for a full load before using washing machines and dishwashers. Hand-washing and spot-cleaning can use less water.</p>	<p><b>Stop-start and don't waste the spray.</b> Use a controlling device at the end of the hose, like a sprayer (see left) or automatic self-closing device (see photo in 6 above).</p>
<div style="background-color: #0056b3; color: white; border-radius: 50%; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">5</div> 	<div style="background-color: #0056b3; color: white; border-radius: 50%; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">9</div> 	<div style="background-color: #0056b3; color: white; border-radius: 50%; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">8</div> 
<p><b>Turn off the tap when not using the water</b> e.g. use a cup for drinking and brushing your teeth.</p>	<p><b>Keep summer fun water wise.</b> Supervise very carefully the use of water for children's play and cooling down in hot summer months, e.g. use a wet cloth to cool down hot skin, and avoid the wasteful spraying of water.</p>	<p><b>Beat the heat loss.</b> Only water lawns 01:00 or after 18:00 to avoid evaporation losses.</p>
<div style="background-color: #0056b3; color: white; border-radius: 50%; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">10</div> 	<p><b>Swim, cover, save, repeat.</b> Bath-in and fold-mat pools must be covered when not in use to prevent up to 95% of evaporation loss. This saves water and money. Recycle the backwash, and top-up with rainwater or alternative water whenever possible.</p>	<p><b>WATER WISE GARDENING</b></p>

 The more useful water-saving guides and alternatives about preventing water use reductions, visit [www.capetown.gov.za](http://www.capetown.gov.za) or search the City website using the website on your smartphone.

To report water wastage and any water and sewer issues: [Water@capetown.gov.za](mailto:Water@capetown.gov.za) or 0800 111 111 (toll-free) or 021 460 1111 (City of Cape Town). Email: [water@capetown.gov.za](mailto:water@capetown.gov.za) • Web: [www.capetown.gov.za](http://www.capetown.gov.za)

Making progress possible. Together.



## internet resources



[www.waterstories.co.za](http://www.waterstories.co.za)

[www.dws.gov.za/drought/  
weeklystatus.aspx](http://www.dws.gov.za/drought/weeklystatus.aspx)

[www.capetown.gov.za](http://www.capetown.gov.za)  
(click on dam levels)

[www.waterfootprint.org](http://www.waterfootprint.org)