OVERVIEW OF THE WESTERN CAPE WATER CRISIS, LONG TERM WATER CHALLENGES & RESPONSES

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Department of Economic Development & Tourism

28 February 2018
Overview of meeting

• Overview of rainfall and dam situation
• Business impacts thus far & expected
• Response of WCG, municipalities and business
• Business support available
OVERVIEW OF RAINFALL AND DAM SITUATION
Update on rainfall figures – Cape Town

Accumulated daily rainfall at Cape Town Airport

- 2015
- 2016
- 2017
- 2018
- 20-80 percentile range
- median

Dam levels of the biggest six dams in the Berg River System that the City draws from (26 Feb 2018)

<table>
<thead>
<tr>
<th>Year</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>102.9%</td>
<td>103.5%</td>
<td>72.4%</td>
<td>60.1%</td>
<td>34.7%</td>
<td>23.7%</td>
</tr>
</tbody>
</table>
Western Cape catchment areas

Catchment area
City of Cape Town
draws from

- Many businesses based in Cape Town - operations & / or supply chains in other parts of the Western Cape
- How serious is the situation across the rest of Western Cape?
Normally winter rain start around the Easter Weekend - in 2017 it started in June 2017.

Below normal rain fell May to September (+-50% of Long Term average) which had significant impact on water levels in our major storage dams

Dam levels much lower than corresponding time last year

Current drought measures continue for foreseeable future

Businesses need to actively work towards a new normal

<table>
<thead>
<tr>
<th>Dam</th>
<th>% full this week</th>
<th>% full last week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cape Town System Dams (Combined):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wemmershoek, Voelvlei, Steenbras,</td>
<td>23.70</td>
<td>32.43</td>
</tr>
<tr>
<td>Theewaterskloof and Berg River Dams</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Berg River Catchment</td>
<td>39.00</td>
<td>39.01</td>
</tr>
<tr>
<td>Breede River Catchment</td>
<td>14.85</td>
<td>29.58</td>
</tr>
<tr>
<td>Gouritz River Catchment</td>
<td>24.53</td>
<td>26.81</td>
</tr>
<tr>
<td>Olifants / Doorn River Catchment</td>
<td>10.46</td>
<td>35.57</td>
</tr>
<tr>
<td>Western Cape State of Dams</td>
<td>21.31</td>
<td>31.69</td>
</tr>
</tbody>
</table>
Red - ‘high risk’ municipalities / towns reflect where the urban water demand is outstripping the sustainable supply

Yellow - may highlight medium risk, but demand is becoming dangerously close to threatening supply
## Western Cape Drought Risk

<table>
<thead>
<tr>
<th>High Risk</th>
<th>Medium Risk</th>
<th>Low Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cape Town <strong>WCWSS</strong></td>
<td>Beaufort West *** [Beaufort West]</td>
<td>Beaufort West [Nelsoport, Murraysburg, Merweville]</td>
</tr>
<tr>
<td>Stellenbosch <strong>WCWSS</strong></td>
<td>Overstrand</td>
<td></td>
</tr>
<tr>
<td>Saldanha Bay Misverstand</td>
<td>Drakenstein Wemmershoek [Paarl, Wellington]</td>
<td>Drakenstein Voelvlei [Hermon, Gouda, Saron]</td>
</tr>
<tr>
<td>Swartland Misverstand [Mooreesburg, Koringberg]</td>
<td>Swartland Voelvlei [Malmesbury, Darling, Riebeeck West, Riebeeck Kasteel, Kalbaskraal, Riverlands, Chatsworth, Yzerfontein]</td>
<td>Cape Agulhas</td>
</tr>
<tr>
<td>Langeberg *** [Bonnievale]</td>
<td>Langeberg * [Montagu, Ashton]</td>
<td>Langeberg [McGregor, Robertson]</td>
</tr>
<tr>
<td>HIGH RISK</td>
<td>MEDIUM RISK</td>
<td>LOW RISK</td>
</tr>
<tr>
<td>-----------</td>
<td>-------------</td>
<td>----------</td>
</tr>
<tr>
<td>Theewaterskloof * [Caledon, Riviersonderend, Viliersdorp]</td>
<td>Theewaterskloof [Grabouw, Bot River, Greyton, Genadendal, Teslaarsdal]</td>
<td></td>
</tr>
<tr>
<td>Witzenberg * [Ceres, Tulbagh]</td>
<td>Witzenberg [Op die Berg, Wolseley, PA Hamlet]</td>
<td></td>
</tr>
<tr>
<td>HIGH RISK</td>
<td>MEDIUM RISK</td>
<td>LOW RISK</td>
</tr>
<tr>
<td>-----------------</td>
<td>------------------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>Matzikama ***</td>
<td>[Vredendal, Klawer, Lutzille, van Rhynsdorp, Ebenhaezer, Strandfontein, Doringbay]</td>
<td>Mossel Bay</td>
</tr>
<tr>
<td>Oudtshoorn **</td>
<td>[De Rust, Dysselsdorp, KKRGS]</td>
<td>Oudtshoorn [Oudtshoorn]</td>
</tr>
<tr>
<td>Breede Valley *</td>
<td>[De Doorns]</td>
<td>Breede Valley [Worcester, Rawsonville, Touws River]</td>
</tr>
<tr>
<td>George *</td>
<td>[Uniondale, Haarlem]</td>
<td>George [George, Wilderness]</td>
</tr>
<tr>
<td>Cederberg ***</td>
<td>(Clan William)</td>
<td>Cederberg [Lambertsbay, Elandsbay, Graafwater, Algeria]</td>
</tr>
</tbody>
</table>
Breakdown of water users in the Berg River Management Area

Different users are under different levels of water restriction

October 2017:
Agriculture was at 50% reduction in allocation while domestic & industrial areas were at 40% reduction in allocation

February 2018:
Agriculture usage that was capped at 60%, was in fact halted in some areas by DWS by end-Jan 2018;

Industrial & commercial areas are at 45% reduction in allocation & domestic is recommended at 50l/person/day (City)
BUSINESS IMPACTS THUS FAR & EXPECTED
Economic impacts of water crisis

- Low water supply
- Uncertain water supply
- No water supply
- Variable water quality
- Knock on high costs of water

Reduced productivity
- Delaying investment
- Unplanned infrastructure investments
- Increase in cost of inputs
- Decreased competitiveness
- Profit loss
- Employee retrenchment
- Importing products previously sourced locally
- Reputational loss as a supplier
- Reputational loss as a tourism destination
- Change management required for new normal

Increase in unemployment
- Increase in prices of goods and services for all
- Food security
- Closing down of businesses
- Decrease in rates & taxes
- Decline in GVA
- Loss of confidence in investing in WC
- Change management required for new normal
- Employee retrenchment
- Importing products previously sourced locally
- Reputational loss as a supplier
- Reputational loss as a tourism destination
- Change management required for new normal

• Reduced productivity
• Delaying investment
• Unplanned infrastructure investments
• Increase in cost of inputs
• Decreased competitiveness
• Profit loss
• Employee retrenchment
• Importing products previously sourced locally
• Reputational loss as a supplier
• Reputational loss as a tourism destination
• Change management required for new normal
Focus of business support to minimise economic impacts

Municipalities at high risk of municipal drought

- High water use
- Water dependence
- Vulnerability
- No. of employees
- Critical sectors
- SMMEs
- Construction sector
Water economic impact analysis survey being issued – please complete

<table>
<thead>
<tr>
<th>Engagements</th>
</tr>
</thead>
<tbody>
<tr>
<td>QID</td>
</tr>
<tr>
<td>Date of new entry/update</td>
</tr>
<tr>
<td>District municipality</td>
</tr>
<tr>
<td>Name of organisation</td>
</tr>
<tr>
<td>Town/city</td>
</tr>
<tr>
<td>Does the business have further branches/offices in other parts of SA or globally?</td>
</tr>
<tr>
<td>Contact person</td>
</tr>
<tr>
<td>Contact number</td>
</tr>
<tr>
<td>Mobile number</td>
</tr>
<tr>
<td>Email address</td>
</tr>
<tr>
<td>Website</td>
</tr>
<tr>
<td>Number of employees:</td>
</tr>
<tr>
<td>Permanent</td>
</tr>
<tr>
<td>Contract</td>
</tr>
<tr>
<td>Seasonal</td>
</tr>
<tr>
<td>Sector/organisation type</td>
</tr>
<tr>
<td>Water consumption (litres/month)</td>
</tr>
<tr>
<td>Water savings target and target year</td>
</tr>
<tr>
<td>Water savings actions implemented</td>
</tr>
<tr>
<td>Water savings actions planned</td>
</tr>
<tr>
<td>Water savings achieved (litres/month) in the last 1 year</td>
</tr>
<tr>
<td>Water savings achieved (%) in the last 1 year</td>
</tr>
<tr>
<td>Not municipal water supplies i.e. no potable (e.g. boreholes, desalination, treated waste water, rainwater tanks)</td>
</tr>
<tr>
<td>Has your business considered using or implemented on-site re-use of water (greywater re-use and process water re-use)?</td>
</tr>
<tr>
<td>What is the risk to your business’s survival should water availability be decreased by 45%, 50% or if there is no water (please quantify where possible) in respect of:</td>
</tr>
<tr>
<td>*Scaling down of production</td>
</tr>
<tr>
<td>*Loss of customers</td>
</tr>
<tr>
<td>*Loss of exports</td>
</tr>
<tr>
<td>*Closure</td>
</tr>
<tr>
<td>Support needed by the business to ensure its survival in the crisis</td>
</tr>
<tr>
<td>Any opportunities as a result of the drought</td>
</tr>
<tr>
<td>Does the business’ SA or global network support the business’ water resilience planning in any way?</td>
</tr>
<tr>
<td>Business continuity planning for a possible day zero – i.e. SEVERE water rationing / shedding</td>
</tr>
<tr>
<td>Willing to be a case study?</td>
</tr>
</tbody>
</table>

FOR INTERNAL USE ONLY

| Date of engagement |
| Nature of engagement |
| Lead organisation |
| Lead person |
| Supported by |
| Key issues |
| Outcome/way forward |
| Outstanding matters |

Water savings actions planned
RESPONSE & BCP OF WCG, MUNICIPALITIES AND BUSINESSES
Municipal water security response

To ensure water security (adequate supply) in all municipalities to avoid day zero.

- Demand management interventions to reduce water consumption for all municipalities in the Western Cape Province.
  - Challenge continues: different restriction levels & actions for different municipalities, even when on same catchment management system.

- Supply side interventions to augment municipal water supply to secure vital services.
### Supply interventions underway in WC municipalities

<table>
<thead>
<tr>
<th>Municipality</th>
<th>Intervention</th>
</tr>
</thead>
</table>
| Cape Town      | Bring online up to 500ML/day of new non-surface water (by end of 2021), 200 ML end 2018  
Mix of groundwater, treated wastewater & groundwater  
Extensive communications to reduce consumption to <450MLD |
| Matzikama      | Exploring & finding funding for boreholes |
| Beaufort West  | Emergency water security – equipping 2 boreholes, 3rd underway soon.  
Further funding: 5 more boreholes. Intensive comms campaign |
| Kannaland      | New abstraction point & pipe, lining earth channel & pipe repairs underway |
| Knysna         | Water works plant repairs & others |
| Bitou          | Existing groundwater project Greater Plettenberg Bay remains in progress –  
for drilling, equipping of boreholes and pipelines |
## Supply interventions underway in WC municipalities cont.

<table>
<thead>
<tr>
<th>Municipality</th>
<th>Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drakenstein</td>
<td>Exploring 57 boreholes &amp; 19 boreholes underway</td>
</tr>
<tr>
<td>Stellenbosch</td>
<td>Exploring &amp; finding funding for boreholes</td>
</tr>
<tr>
<td>Bergrivier</td>
<td>Exploring &amp; finding funding for boreholes</td>
</tr>
<tr>
<td>Swartland</td>
<td>Exploring boreholes</td>
</tr>
<tr>
<td>Saldanha Bay</td>
<td>Multiple boreholes options. Desalination option</td>
</tr>
<tr>
<td>Theewaterskloof</td>
<td>2 groundwater purification plants implemented. Refurbishment of existing boreholes and link pipeline completed.</td>
</tr>
</tbody>
</table>
Timeline towards possible ‘Day Zero’ i.e. how is ‘Day Zero’ determined

Day zero is not a static date - dependent on numerous factors:
- Rainfall
- Temperatures and wind speed (evaporation)
- New supply volumes & timing
- Consumption – City need <450MLD

Rainfall

Day zero is not a static date - dependent on numerous factors:
- Rainfall
- Temperatures and wind speed (evaporation)
- New supply volumes & timing
- Consumption – City need <450MLD

Temperatures and wind speed (evaporation)

New supply volumes & timing

Consumption – City need <450MLD
Regional contingency planning

• Key aim is to avoid day zero all together by stretching water resources until next winter’s rainfall;
• Day Zero reduced from probability (January 2018) to possibility (February 2018) – now calculated 9 July 2018. But only way to keep Day Zero where it is & move further back – reduced consumption.
• If properly managed the so called day zero will not arrive suddenly and unexpectedly - the monitoring of the situation by the WCG will provide an early warning should the Day Zero date be approaching for a specific municipality;
• Contingency plans for municipalities facing critical scenarios are currently being developed by the Provincial Disaster Management Centre, along with town-specific plans where required.
WCG Response: Continuity planning for WCG run facilities & operations

Public sector focus - disaster prevention & plan for possible disaster (with contingency plans in place)

**WCG run facilities & operations**
Contingency planning or BCP – identify critical services that must be based at offices / facilities

**Priority - To ensure water security for the following facilities:**
- 49 provincial health facilities (38 hospital sites and 11 private healthcare sites)
- 9 Social Development Child & Youth Care Centre facilities
- Water Securing 10 WCG command and control office facilities
- WCED has to secure 23 mega litres of water daily for 1 116 516 learners, 32 000 teachers at 1 506 schools. Focus on demand management & equipping & rehabilitating existing boreholes and developing further strategic boreholes.
BUSINES SUPPORT AVAILABLE
WCG Economic security work-stream goal & objectives

Address immediate water crisis needs & strengthen long term water resilience – 4 key objectives

- Reduce water consumption
- Increase businesses’ own water supply augmentation
- Prepare businesses for day zero
- Build the water sector of the Province

Economic Security support:
- Information, engagements & awareness raising
- Strategic & technical – technologies, cost assessments, risks, market trends, business continuity planning etc.
- Unblocking systemic issues to enable LT water resilience in economy

Construction sector case studies to follow

Economic Security workstream includes partners from WCG (DEDAT, DEADP, DoA), City, GreenCape, Wesgro, Economic Development Partnership, National Business Initiative, Accelerate Cape Town & multiple business associations
Economic response to building water resilience two-fold

Reduce economic risk of water shortages and increased costs

Develop water sector to enable risk reduction
What can businesses do to reduce economic risks?

Understand water uses and risks
- Water audits
- Meter and Monitor
- Water quality requirements (fit-for-purpose)
- Set targets
- Identify risks

Water efficiency interventions
- Efficient processes and behavior
- Efficient fittings & technologies
- Water-wise landscaping

Onsite re-use
- Greywater re-use
- Process water re-use
- Water exchange network

Alternative water supply
- Treated effluent
- Groundwater
- Rainwater/Stormwater
- Desalination

Increasing cost and complexity

Work underway to develop & strengthen the water sector to enable above

Email: water@green-cape.co.za for free business support relating to the above

Source: GreenCape
Role of businesses to reduce own & collective risk

- Reduce own water use / improve water efficiency
  - Reuse, treat, cascade water

- Own water supply augmentation

- Work with suppliers to reduce use

- Business continuity planning

- Develop water sector – services & technologies

- Engage employees re reducing work & home water use

- Engage customers & clients re reducing water use

- Communicate & share best practice with businesses

- Use expertise to help solve big challenges

Reduce business risk

Reduce collective risk

Further reduce business risk
Business support offered

For technical business support incl.:
• increasing water efficiencies, reusing or recycling water and supply options
• Case studies
• Benchmarking
• Linking with water tech suppliers
• Technology choices
• Networking events, etc.
  water@green-cape.co.za
  http://www.greencape.co.za/content/focusarea/business-support

For general water for the economy program support incl.:
• Industry engagements
• Links with municipalities
• Licensing issues
• Contingency planning
• Website updates
• Business related communication materials
  helen.davies@westerncape.gov.za
  lourencio.pick2@westerncape.gov.za
  https://www.westerncape.gov.za/110green/water

City of Cape Town support:
• Energy, Water and Waste Business Forum
• Star rating tool for good water management practices (business operations) – CCT’s currently being updated
• New technology evaluation process
• Awareness materials
• Guideline for installation of alternative water systems (households & businesses) being developed.

Treated effluent: treated.effluent@capetown.gov.za
Communications materials:
www.capetown.gov.za/thinkwater
Key messages

- The effects of the current drought are long term and can only be broken with 3-4 years of good rain
- Restrictions are here to stay – likely to be level 6B in City until well into 2019
- Water tariffs are likely to remain high in the future
- We are too dependent on rainfall and surface water sources – need to diversify supplies – both sources of water and decentralised models
- Businesses need to adapt to a ‘new normal’ – growing business case for improved water efficiencies & own water supplies
- Need a whole of society approach – businesses key partner (own operations, supply chains, employees)
- Business support is available
What we need from all businesses and associations

• Reduce water use as much as possible without affecting production
• Implement own water supplies
• Help in communicating the severity of the drought & urgency to reduce water use – to businesses, competitors, suppliers, customers, and employees (activate at work & home)
• Use and signpost support available to businesses Keep us posted on impacts – felt or anticipated & help with distributing survey re economic impacts & encouraging feedback
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