WESTERN CAPE WATER STATUS AND DROUGHT

Date: Sunday 30 January 2018
BACKGROUND
Background

• South Africa is an arid country and one of the 30 driest countries in the world.

• Coupled with that, it is important to note that the country as a whole has not recovered from the 2014 drought, with the Western Cape Province experiencing the worst drought in 400 years.

• During times of drought, it is good and common practice to stretch available water resources through the prudent application of restrictions to ensure that water supply systems do not fail.

• Operating under restrictions requires that all consumers play their part and comply with the restrictions which are applied from time to time. This is unfortunately not happening as both urban and agricultural users have continued to use more water than planned for under constrained conditions.
Background

• Despite our best efforts to manage the Western Cape Water Supply System (WCWSS) through the application of restrictions, as well as more recently increasing the levels of restrictions (domestic and industrial use increased from 40% to 45% and agricultural use increased from 50% to 60%), the capacity of our dams continue to decrease week on week.

• Of particular concern is that we continue to track that water use from the system for both domestic and agricultural consumers, are outside the recommended guidelines.

• We therefore need to intensify our efforts to ensure compliance with restrictions.

• By the 15 January 2018 Agriculture had already used 44.1 million M3 of the projected annual accumulated target of 58.8 million M3.

• By the 15 January 2018 Urban Household use was 48.8 million M3 of the projected annual accumulated target of 192.1 million M3.
Surface Water Resources

• The CoCT announced Level 6 restrictions, but are still not achieving the target of 500 megalitres per day and consumers are over using by approximately 86 megalitres per day, with a slight decrease of 8 megalitres per day week on week.

• Currently all residents are required to use no more than 87.5 litres of municipal drinking water per person per day in total irrespective of whether at home, work or elsewhere.

• The CoCT intend to move to a level 6B restriction from 1 February 2018 in order to drop daily demand to 450 megalitres per day which would mean an individual use target of 50 litres per person per day.
Surface Water Resources

• After the 12 December 2017 restrictions and interventions were announced, additional interventions were published in the Government Gazette on Friday 12 January 2018 with regard to limiting the use of water in the Breede-Gouritz and Berg-Olifants Water Management Areas.

• This notice includes inter-alia the following:
  - Curtailing groundwater abstractions for domestic and industrial use by 45% and for agricultural use by 60%. This brings the restrictions on groundwater use in line with the restrictions applied to surface water use.
  - Curtailment of water for irrigation use from the system dams once the users have depleted their seasonal bulk volumes (for some users this could be as early the end of January 2018).
ADDITIONAL WATER (AUGMENTATION) TO MEET FUTURE NEEDS
Why do we need more water?  
The Purpose of Water Reconciliation Strategies

• When we plan for additional capacity, we take the following into consideration
  – Available system yield
  – Impact of climate change
  – Constitutional right for human consumption
  – Constitutional right for the protection of the environment

• Additional Water Requirements was identified and it comes as a result of:
  – Growth of domestic water requirements
  – Growth of agricultural consumption (even though this allocation will be capped)
  – Industrial development Saldanha Bay
  – Success of Water Conservation/Demand Management Strategies

• Given the above, the Department and the City then, in 2007, developed a Reconciliation Strategy for the Western Cape
What are we doing now?

• We need to unite South Africa around more efficient use of water in the Western Cape and the country as a whole, given the effects of climate change.

• We need to ensure that all water users in Cape Town have more information on how to save water, especially at household level, given that 70% of water is being used by domestic consumers.

• We need to ensure that everyone understand their role in saving water and that we don’t place individual interests ahead of the rest of society.

• We need to ensure that there is water for all; and not only water for some. This will be achieved when we prevent the commodification of water. Water is a constitutional right.

• We need to stop the fear mongering. We proved the nay-sayers wrong when we hosted a successful World Cup in 2010 and we proved the capability of the national government, when we prevented the loss of life during the 2014 drought that ravaged most of the provinces in the country. We can prevent Day Zero.
Urgent Augmentation Activities
What are we doing now?

• A four (4) pronged strategy is being implemented towards additional water and this includes
  – Desalination
  – Groundwater optimisation
  – Water conservation and demand management
  – Re-use optimisation

• Progress on Desalination
  – Following meetings between the Mayor of the City of Cape Town and Minister and the request by the Mayor for assistance, Minister issued a directive to procure a 10MLD plant as an emergency intervention for CoCT
  – The City of Cape Town have however recently requested that Minister delay the implementation of the desalination option so that they can assess the ground water availability
Urgent Augmentation Activities

• Progress on Groundwater optimisation
  – Groundwater development and abstraction by CoCT (150MLD): Cape Flats aquifer drilling commenced to deliver water May 2018, Atlantis aquifer (5MLD) refurbished and pumping with a further 20MLD from May 2018 onwards, TMG Aquifer drilling commenced and 40MLD will be pumped into the system from February to June 2018.
  – Springs: Newlands Albion Spring (3MLD) in operation, Oranjezicht (1MLD) routed into the system.
  – Additional sources being identified for optimisation

• Progress on Re-use optimisation
  – Water Re-use: Zandvlei (10MLD) on track for June 2018 and Cape Flats (10MLD) by June 2018. Macassar, Potsdam and Athlone will be from 2019 onwards.
  – A review of the licenses for waste water treatment works underway in order to expand re-use opportunities
Urgent Augmentation Activities

• Progress on Water conservation and demand management
  – Irrigation boards received emergency delegation to support enforcement activities
  – Directives issued to CoCT given the lack of management of water resources
  – Improved communications to avoid Day Zero are being rolled out
  – Stakeholder management being strengthened
  – Use of unemployed young people and upskilling of young people are underway in programmes such as War on Leaks
  – Compliance and Enforcement activities will be strengthened with several criminal cases on illegal water use, already being pursued

• The Department ganted approval for three water use licences for the CoCT groundwater programme:
  – Steenbras three phases up to 57 million M3/annum,
  – Cape Flats three phases up to 75 million M3/annum,
  – Oranjezicht Springs up to 1.78 million M3/day.
## Medium term interventions
###Augmentation Infrastructure Development Currently Underway

<table>
<thead>
<tr>
<th>Projects</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extra pumping at Dasbos pump station</td>
<td>Increase pump capacity to 4m3/s at tunnel end of the City of Cape Town and other users</td>
</tr>
<tr>
<td>Misverstand Dam operational problems</td>
<td>Augment pump capacity at Withoogte WTW when Dam drops below 50%</td>
</tr>
<tr>
<td>Transfer water to Eikenhof Dam to Steenbras Dam</td>
<td>Water will be transferred through Palmiet Pumped Storage Scheme with existing infrastructure</td>
</tr>
<tr>
<td>Desalination Plant</td>
<td>Support the CoCT in the erection of 10 Ml/day desalination plant by 2018</td>
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## Medium term interventions

**Augmentation Infrastructure Development Currently Underway**

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<td>Voelvlei Dam water supply to Swartland WTW</td>
<td></td>
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<tr>
<td>Overberg Water (Ruensveld East) rehabilitation of two weirs</td>
<td>Construct emergency weirs to enable abstraction for longer period from low flowing river</td>
</tr>
<tr>
<td>TWK Dam: Water supply to Charmaine Tunnel</td>
<td>Construction of coffer embankment and pump system to Charmaine inlet tower from the main body when the Dam reaches 10% emergency</td>
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## Long Term Plans
### Augmentation To Meet Future Needs

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<tr>
<th>SCHEME</th>
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<th>LEVEL OF READINESS</th>
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<tr>
<td>Berg River Voelvlei Augmentation Scheme (BRVAS)</td>
<td>23 million m³</td>
<td>Augmentation of Voëlvlei Dam from Berg River catchment (winter flow) downstream of the Berg River Dam.</td>
<td>Feasibility May only be ready by 2021 (EIA started in 2015, designs done; construction to commence in 2019).</td>
</tr>
<tr>
<td>Michell’s Pass Diversion</td>
<td>36 million m³</td>
<td>Diversion weir (upper Breede) to augment Voëlvlei Dam.</td>
<td>Feasibility</td>
</tr>
<tr>
<td>Voelvlei Dam (Phase II)</td>
<td>9 million m³</td>
<td>Raising the structure of Voëlvlei Dam</td>
<td>Pre-feasibility</td>
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# Long Term Plans

## Augmentation To Meet Future Needs

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<td>Molenaars R Diversion</td>
<td>13.5 million m³</td>
<td>Building a new dam in the Molenaars River (Worcester side of the Huguenot Tunnel)</td>
<td>Pre-feasibility</td>
</tr>
<tr>
<td>Palmiet Transfer</td>
<td>23 million m³</td>
<td>increasing winter abstractions from the Palmiet Pumped Storage Scheme and raising the existing Lower Steenbras Dam by about 20 metres.</td>
<td>Pre-feasibility</td>
</tr>
<tr>
<td>Upper Wit River Diversion</td>
<td>13 million m³</td>
<td>Inter-basin transfer of winter water from Upper Wit River into the Berg River catchment.</td>
<td>Pre-feasibility</td>
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Augmentation To Meet Future Needs

• In 18 May 2017, the Minister granted approval to build the BRVAS scheme as a government waterworks in terms of section 109 of the National Water Act, 1998 (Act No. 36 of 1998), subject to a positive Environmental Authorisation.

• Minister then issued a directive to the TCTA (Trans Caledon Tunnel Authority) to secure funding and implement the BRVAS project on behalf of the DWS.

• The Berg River Voelvlei Augmentation Scheme (BRVAS) is conceptualized to abstract and pump winter flows from the Berg River to the existing Voëlvlei Dam improving its yield by 23 million m$^3$ per annum (approximately 60MLD). Detailed design is scheduled for completion in August 2018 and delivery in March 2021.
Together, we can be avoid Day Zero

• Water users in Cape Town are still using more water than their rightful allocation. It is therefore important that all users play their part in reducing water consumption. **Agriculture and industry need to make use of innovations and household consumers should be provided with practical tips on how to reduce and re-use water;**

• The Department is working with communities to optimise the use of water and seeks to extend this cooperation with all affected, especially organised formations;
THANK YOU!