



## **Annexure: Response to Cape Town's Drought**

In response to extreme low rainfall in 2015, 2016 and 2017, the City of Cape Town has responded by developing a Critical Water Shortages Disaster Plan (which includes extensive demand management measures in Phase 1) and a New Water Programme to augment and diversify water supply. The information in this annexure is as of February 2018, but may change according to operational and other requirements.

### **1. Cape Town's Proposed Water Augmentation Plan<sup>1</sup>**

A water augmentation plan is designed to protect existing water rights by diversifying supply from reliance on groundwater to other sources. Augmentation plans for the City due to the severe drought and subsequent shortage of water is programmed till June 2022 to reach a resilient water supply position.

Over the **short term, temporary desalination** (16MLD) is planned in three locations:

- Strandfontein, 7 MLD and is on track for first water in March 2018, reaching full production by May 2018
- Monwabisi, 7 MLD, on track for first water in April 2-18, reaching full production by May 2018.
- V&A, 2MLD, on track for first water in February/ March 2018

#### **Groundwater abstraction (peak at 150MLD)**

- Cape Flats aquifer, on track, drilling to start beginning of January 2018, 83 MLD water (temporary maximum abstraction) into the system ramping up from May/June 2018
- Atlantis aquifer, 5MLD already refurbished and into the system, a further 20MLD to be ramped up from May to October 2018 to serve the Atlantis/Silwerstroom area;
- TMG aquifer, pilot drilling commented in November 2017, water will enter the system from February 2018, ramping up to June 2019 (yielding 50MLD sustainably)

#### **Springs**

- Newlands - Albion spring in operation at 3MLD. The City aims to add all feasible springs into the reticulation system which will increase the volume
- Oranjezicht – routed 1 MLD into the system looking at other springs to enter into the system where possible which will increase the volume

#### **Water re-use plants (subject to requirements from aquifer re-charge currently being assessed)**

- Zandvliet, 10MLD temporary yield on track for June 2018, increasing to 50MLD permanent yield in December 2021
- Cape Flats, 10 MLD by June 2018, 75 by December 2021
- Macassar, 20MLD by June 2019
- Potsdam, 10MLD by June 2019
- Athlone, 75MLD by December 2021

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<sup>1</sup> Water Outlook Report, Revision 20, updated 5th February 2018

### **Water transfers**

- Approximately 10,000m<sup>3</sup> will be transferred from a large private owned dam on the Palmiet River over the season. Future transfers will depend on the rainfall in respective catchments
- Other options are under investigation

Over the long term, **permanent desalination** is planned in Koeberg which is already underway. The Cape Town harbour desalination plant plans are in place, ready to implement if needed. There are other long term desalination project proposals under development.

## **2. Critical Water Shortages Disaster Plan**

### **Overview:**

The City of Cape Town is currently faced with an unprecedented water crisis. A multi-year drought has had a prolonged and profound impact on the City's ability to adequately meet its water needs.

Disaster risk management is a core function within the City's service delivery mandate. To meet this mandate and align with its strategic objectives, particularly that of being a Safe and Well-Run City, a corporate disaster planning exercise was undertaken. This resulted in the development of the Critical Water Shortages Disaster plan (hereinafter, the disaster plan) to manage the City's operational responses to the ongoing water shortages.

The disaster plan adopts a cautious approach and assumes very little additional supply measures until the next rainy season, thereby preparing for a worst case scenario. This planning approach is not a reflection on the City's confidence in the water supply demand management and augmentation programme, but a strategy to ensure that the City is adequately prepared to manage increasingly severe drought conditions as they intensify over time.

The disaster plan is, however, adaptable as it is designed to account for changing conditions over time, particularly those relating to the available supply of the Western Cape Water Supply System (WCWSS) including water use by agriculture and other municipalities.

Primarily, the disaster plan outlines scenarios which are intended to focus attention on the actions that are required to ensure good governance, the protection of human life in the face of a disaster scenario, as well as ensure resource efficiency and security.

### **Principles**

The disaster plan is based on the following principles as a basis for decision-making:

- Minimising the impact of the critical water shortages on human life, dignity and property;
- Ensuring the continuation of critical services, such as health and safety and security services, to the public;

- Ensuring the disaster is prevented from escalating by employing appropriate mitigation measures;
- Ensuring the effects of the disaster on the day-to-day life of the City's residents are reduced;
- Ensuring the protection of the City's infrastructure;
- Ensuring every person in the city has access to sufficient water to drink and is able to maintain health and hygiene;
- Ensuring appropriate measures are in place to limit and respond to outbreaks of water-borne diseases.
- The most vulnerable residents of the city are least able to adapt to an escalating disaster and will require prioritised support;

### **Approach**

The plan adopts a Phased Approach to Disaster Response which involves options to ration water use, with each progressive phase responding to an increasingly severe shortage of water supply from the Western Cape Water Supply System (WCWSS):

1. Phase 1 - Preservation Restrictions
2. Phase 2 - Disaster Restrictions 'Day Zero'
3. Phase 3 – Full-scale Disaster Implementation

Significantly, a Risk Management approach is being taken which considers the risks and impact of possible scenarios, and provides appropriate preparedness plans and mitigation actions. Four major risks posed by critical water shortages have been identified:

1. Water Outages
2. Critical Infrastructure Failure
3. Disease Outbreak
4. Civil Unrest

Given the number of City directorates required for execution of the disaster plan, a transversal project approach is being taken. Preparedness and implementation plans are in place for sectors such as Water and Sanitation, Fire Services, Metro Police, Traffic Services, City Health, Recreation and Parks, Social Development and Early Childhood Development, as well as various other critical and supporting services, communication protocols and decision processes.

The disaster plan informs the basis of response planning by the City's intergovernmental partners and supporting entities and it provides for emergency procedures to be implemented in the event of a disaster occurring. As the detailed operational planning has been undertaken, the City has made information available to ensure that external role-players, other spheres of government, the business community and the public are informed of the envisioned disaster phases, including how they are likely to be affected and in order to give fair warning to engage in mitigation measures.

### **Phase 1 – Preservation Restrictions**

Phase 1 requires the implementation of water rationing through pressure management and limited supply to remain within collective daily water usage of 450 million litres, as per the National Department of Water and Sanitation's required savings of 45% for urbanised areas.

Whilst a minimum level of supply is being maintained for as many Informal Settlements as possible and critical services such as clinics and hospitals are largely unaffected, there is limited supply across other parts of the city. Furthermore, the City is intensifying its installation of water management devices to limit the consumption of users who are exceeding the current Level 6B water restrictions.

### **Phase 2 – Disaster Restrictions 'Day Zero'**

In Phase 2 the City will need to actively assume control over the daily water supply available to households and businesses and ration water in order to maintain human life and critical services, as well as prevent the water disaster escalating to Phase 3.

In order to keep essential services and vital industry running, the City has calculated that at 13, 5% dam storage, Day Zero will take effect. Day Zero is the day that the municipality takes control of the municipal water supply in a phased approach in order to stretch this supply, until the dams are at a sufficient level to allow water to be distributed via the reticulation system once again.

Where feasible, some key areas will be prioritised to stay connected during Phase 2. Critical infrastructure, population density and risk profile for disease outbreak are some of the factors that the City will take into account to decide which areas stay connected.

The City has prioritized planning for Phase 2 by:

- Focussing on the planning and assessments of water collection sites; operationally known as Points of Distribution (PODs) which will either be pedestrian-based or vehicle-based
- Developing a comprehensive disease outbreak response in collaboration with the Provincial Department of Health
- Developing plans and consulting with external partners such as SAPS and SANDF to ensure an intergovernmental security operational plan is in place to prevent and mitigate against civil unrest as well as focussed on key procurements, logistics and internal business continuity
- Developing Directorate Operational Plans to ensure that the City's internal business continuity is in place and recovery measures are put in place.
- Focussing on key emergency procurements needs and logistical requirements for essential goods and services
- Engaging with national government, provincial government, businesses, communities and NGOs to support the City to care for our most vulnerable residents, such as the elderly and those with disabilities.

Key aspects of Phase 2:

- Water supply to residential areas will be severely reduced or cease. Many households and businesses will be unable to access drinking water in their homes and places of work.

- As far as possible, densely populated informal settlements will stay connected, as many of them are already using standpipes to collect water.
- Strategic commercial areas, high-density areas with significant risk of increased burden of disease, and critical services, such as hospitals and clinics, where possible, will continue to receive drinking water through the reticulation network where feasible.
- Daily water use will be actively controlled through the distribution of water to residents through, approximately 200 localised water collection points across the city.
- Additional measures will be taken to ensure water supply to vulnerable groups such as old age homes and care facilities.
- The City's law enforcement and policing resources, as well as resources from intergovernmental partners (SAPS and SANDF), will be deployed to ensure that general safety is maintained.
- The City's Water and Sanitation Department will monitor Day Zero's impact on sanitation services.

### **Phase 3 – Disaster Restrictions 'Day Zero'**

Phase 3 is an extreme disaster scenario in which dam water storage in the WCWSS has been completely depleted. There will be a finite time period in which the City can access water from its reservoirs and reticulation system. The City will prioritize security of these reservoirs as any remaining water will be considered as emergency supply until augmented supplies come on stream.

Non-surface drinking water supplies, sourced from groundwater abstraction from various aquifers and spring water, will be available for drinking purposes only. The City will distribute this water, supplemented by bottled water, to residents through water collection points with the purpose of maintaining a lifeline drinking supply only.

An operational plan will be put in place for the systematic rationalisation of critical services and shutdown of non-critical services provided by the city.

The City has continued to alert users that this scenario can be avoided with progressive rationing in Phase 1 and 2.

As a responsible City, the likelihood of such a risk materialising must be balanced against the potential impact of that risk. It is therefore necessary that the City and its residents and stakeholders plan for such a situation if it were to occur.