The Current Water Supply Situation

Business Briefing

Peter Flower
Director: Water & Sanitation Department

9 May 2017
Presentation Outline

1. Overview of Bulk Water supply system
2. Status of water resources and water use
3. Water demand management
4. Assurance of Supply and Water Restrictions
5. Disaster declaration and contingency planning
6. Acceleration of water resource schemes
7. Business Sector engagement
8. Future outlook
Bulk Water Infrastructure

- **Dams (DWA & City)**
  - Production Capacity: 1650 Ml/day
  - Current Capacity utilisation: 45%

- **Water Treatment Plants**
  - Reservoirs
    - Storage Capacity: 2740 Ml
    - Average demand storage: 3 days
    - Peak demand storage: 2.5 days

- **Pipelines**: 655 km

- **Water Allocation and Demand**
  - Allocation from System: 400 Mm³ p.a.
  - 2014/15 Demand: 345 Mm³ p.a.
  - 2015/16 Demand: 330 Mm³ p.a.
  - Projected 2016/17 Demand: 280 Mm³ p.a.
Comparative Water Use from WCWSS (2014/2015)

- Cape Town: 345 Mm³/a (64%)
- Agriculture: 158 Mm³ (29%)
- Other municipalities: 37 Mm³ (7%)
Estimated WCWSS Summer Water Use
(1 November 2016 – 28 February 2017)

- Agriculture & Other Municipalities: 45%
- COCT: 40%
- Evaporation: 15%
Water Use in Cape Town (2015/16)

- Houses, 55.6%
- Retail & Offices, 11.0%
- CCT Departments & Council-owned premises, 5.2%
- Government, 2.5%
- Other, 6.2%
- Flats & complexes, 9.2%
- Informal Settlements, 4.7%
- Domestic other, 1.8%
- Industry, 3.9%

70% Residential
## Dam Storage Change and WTP Production – 8 May 2017

### Major dam levels in Cape Town

<table>
<thead>
<tr>
<th>Major Dams</th>
<th>Capacity (MI)</th>
<th>%</th>
<th>Storage 08 May 2017</th>
<th>%</th>
<th>Previous Week</th>
<th>%</th>
<th>2016</th>
<th>%</th>
<th>2015</th>
<th>%</th>
<th>2014</th>
<th>%</th>
<th>2013</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>BERG RIVER</td>
<td>130 010</td>
<td>33.0</td>
<td>33.3</td>
<td>27.3</td>
<td>54.4</td>
<td>88.7</td>
<td>72.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>STEENBRAAS LOWER</td>
<td>33 517</td>
<td>28.3</td>
<td>30.0</td>
<td>39.3</td>
<td>49.5</td>
<td>43.1</td>
<td>47.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STEENBRAAS UPPER</td>
<td>31 767</td>
<td>56.8</td>
<td>54.9</td>
<td>55.3</td>
<td>58.8</td>
<td>77.8</td>
<td>68.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>THEEWATERSKLOOF</td>
<td>480 188</td>
<td>15.7</td>
<td>17.1</td>
<td>32.1</td>
<td>52.5</td>
<td>73.3</td>
<td>66.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VOELVLEI</td>
<td>164 095</td>
<td>18.7</td>
<td>18.5</td>
<td>21.6</td>
<td>44.2</td>
<td>58.5</td>
<td>52.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WEMMERSHOEK</td>
<td>58 644</td>
<td>36.0</td>
<td>36.0</td>
<td>49.2</td>
<td>51.5</td>
<td>58.6</td>
<td>68.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL STORED</strong></td>
<td><strong>898 221</strong></td>
<td><strong>197 798</strong></td>
<td><strong>204 392</strong></td>
<td><strong>284 752</strong></td>
<td><strong>461 026</strong></td>
<td><strong>638 849</strong></td>
<td><strong>575 946</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Storage</td>
<td>22.0</td>
<td>22.8</td>
<td>31.7</td>
<td>51.3</td>
<td>70.9</td>
<td>64.1</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Capacity of the major dams of the Western Cape Water Supply System is 99.6% and that of the minor dams 0.4% of the combined capacity of the major and minor dams.
Recent Drought Events

The graph illustrates the percentage of a dam's capacity over time, starting from Jan 2000 to Jan 2017. It highlights two drought periods: one from 2011 to 2014 with a peak capacity of 75% and another from 2015 to 2017 with a peak capacity of 62%. The graph also shows a significant decline from 2016 to 2017, indicating the lowest percentage of 15-20%.
Rainfall Record
Weather Outlook (March – May 2017) - Normal to below normal rainfall is expected over the Western-Cape for autumn and early winter.

(PDMC Drought Monitoring Situation Report No.9)

With the possibility of a moderate El Nino event becoming more likely in the summer of 2017/18, conservative planning is advised wherever possible

(SAWS 2 May 2017)
Voelvlei Dam (12 April 2017)
Steenbras Lower Dam (28 April 2017)
Population Growth and Water Use Efficiency

Reducing per capita water consumption
Factors that influenced demand growth after 2000

<table>
<thead>
<tr>
<th><strong>Water business unusual</strong></th>
<th>Recognized need for WC and WDM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Water restrictions in 2000/01 and 2004/05</strong></td>
<td>Water restrictions were implemented in 2000/01 and 2004/05, after periods of low winter rainfall.</td>
</tr>
<tr>
<td><strong>The City commits to implementing WDM as part of approval of Berg River Scheme</strong></td>
<td>The raw water supply agreement between the City and DWS was signed in 2003, for the construction of the Berg River Scheme. One of the conditions of approval of the Scheme was that the City would implement water demand management.</td>
</tr>
<tr>
<td><strong>The City approves and implements a 10 year WDM Strategy</strong></td>
<td>The City approved its 10 year water demand management strategy in 2007. A dedicated water demand management section was established in the City’s water and sanitation department, responsible for implementing the strategy.</td>
</tr>
<tr>
<td><strong>Berg River Scheme completed</strong></td>
<td>The construction of the Berg River Scheme was completed in 2007.</td>
</tr>
</tbody>
</table>
Water demand management interventions

Technical interventions:

- Stepped tariffs
- Pressure management
- Treated effluent use
- Water pipe replacement
- Leak detection
- Water management devices (WMDs)
- Meter replacement
- Zone metering
- Building plumbing retrofit
- Plumbing repairs in indigent houses
- Springs investigation
- Reducing response times to repair bursts and leaks

Education and awareness campaigns:

- Door to door community engagements
- Schools interventions
- Top water users engagements
Pressure management projects (coupled with pipe replacement)

Khayelitsha pressure management project (2001)

Estimated savings: 9 Mm$^3$/a

Other notable pressure management projects, with estimated savings:

- Mfuleni: 0.4 Mm$^3$/a
- Gugulethu: 2.6 Mm$^3$/a
- Langa: 0.5 Mm$^3$/a
- Eersteriver: 1.2 Mm$^3$/a
- Brentwood Park: 0.04 Mm$^3$/a
- Browns Farm: 0.6 Mm$^3$/a
- Wesbank: 0.3 Mm$^3$/a
- Delft: 0.6 Mm$^3$/a
- Grassy Park: 0.6 Mm$^3$/a
- Crossroads: 0.2 Mm$^3$/a
- Plumstead & Retreat: 0.6 Mm$^3$/a
- Fisantekraal: 0.2 Mm$^3$/a
- Marina de Gama: 0.6 Mm$^3$/a

Mitchells Plain pressure management project (2008)

Estimated savings: 2.4 Mm$^3$/a
Treated Effluent Re-use

• More than 250 users are connected
• Mostly used for irrigation and industrial purposes
  – Golf courses
  – City Parks
  – Schools
  – Farmers
  – Refinery
  – Currently approximately 7% of potable water treatment requirement is off-set by TE

NON-POTABLE WATER
USED FOR IRRIGATION
DO NOT DRINK THIS WATER
CITY OF CAPE TOWN WATER RETICULATION ASSETS

10 691.62km (03/17) Water Reticulation Pipeline
80 652 Valves (as at 03/17)
55 580 Hydrants (as at 03/17)
652 783 (03/17) Service Connections.
Water Mains - Relaid (m) Annual Totals


Repair to Burst Water Mains (No.)

Note: Pressure Management implementation was intensified after 2010/11
RETICULATION WATER MAINS: PERFORMANCE

BURST WATER MAINS

Number of Bursts per Months

Bursts / 100km / year

Jul-06 to Jul-17

No. Burst Water Mains

Burst/ 100km
# Active Leak Detection and Repair

## Zone's Statistics

<table>
<thead>
<tr>
<th>Description</th>
<th>Highbury</th>
<th>Highbury Park</th>
<th>Wesbank</th>
<th>Mfuleni</th>
<th>Du noon</th>
<th>Pella</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of watermains (km)</td>
<td>20.39</td>
<td>15.34</td>
<td>22.91</td>
<td>58.617</td>
<td>32.083</td>
<td></td>
<td>149.34</td>
</tr>
<tr>
<td>Pipeline Material</td>
<td>Fibre cement</td>
<td>Fibre cement</td>
<td>Fibre cement</td>
<td>Fibre cement</td>
<td>Fibre cement</td>
<td>Fibre cement</td>
<td>Fibre cement</td>
</tr>
<tr>
<td>No. of properties</td>
<td>1259</td>
<td>943</td>
<td>3204</td>
<td>8441</td>
<td>3025</td>
<td></td>
<td>16872</td>
</tr>
</tbody>
</table>

## Subzone's statistics

<table>
<thead>
<tr>
<th>Total No. leaks located</th>
<th>46</th>
<th>12</th>
<th>77</th>
<th>215</th>
<th>40</th>
<th>23</th>
<th>413</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dates in Months when leaks detection was done</td>
<td>2013</td>
<td>2013</td>
<td>2014</td>
<td>2014/15</td>
<td>2015</td>
<td>2015</td>
<td>1.8 yrs</td>
</tr>
<tr>
<td>Dates in Months when leaks were repaired</td>
<td>Fixed</td>
<td>Fixed</td>
<td>Leaks fixed except leaking meters with WMD</td>
<td>Not fixed</td>
<td>Not fixed</td>
<td>Not fixed</td>
<td>generally leaks are not fixed</td>
</tr>
</tbody>
</table>

## No. Repairs:

- Connections, Meters, Sluices, Valves & Fire Hydrants
- Associated Estimated Savings (kℓ/annum)

<table>
<thead>
<tr>
<th>No. Repairs</th>
<th>2011/12</th>
<th>2012/13</th>
<th>2013/14</th>
<th>2014/15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connections, Meters, Sluices, Valves &amp; Fire Hydrants</td>
<td>26 574</td>
<td>41 437</td>
<td>40 696</td>
<td>35 356</td>
</tr>
<tr>
<td>Associated Estimated Savings (kℓ/annum)</td>
<td>2 287</td>
<td>3 580</td>
<td>4 592</td>
<td>3 887</td>
</tr>
</tbody>
</table>
Water demand management interventions

Technical interventions:

• Stepped tariffs
• Pressure management
• Treated effluent use
• Water pipe replacement
• Leak detection
• **Water management devices (WMDs)**
• Meter replacement
• Zone metering
• Building plumbing retrofit
• Plumbing repairs in indigent houses
• Springs investigation and utilization for non-potable uses
• **Reducing response times to repair bursts and leaks**

Education and awareness campaigns:

• Door to door community engagements
• Schools interventions
• Top water users engagements
Billboards and print advert

Save water. Every drop counts.

Water is scarce, save every drop.

Waste water today, regret it tomorrow.

If you don’t need it, close it.

Report burst pipes immediately: 0860 103 089

CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

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Social Media

WATER SAVING CAMPAIGN REPORT
CAMPAIGN DURATION: 18 AUGUST TO 4 SEPTEMBER 2015

WHAT WE’VE LEARNED
COMMUNITY STANDING TOGETHER:
Many residents agreed with the need to save water and shared how they do it.

QUERY EscALATION
Any fault logged or mentioned by a resident is attended to by the community managers as per usual process.
As explained, there were many water-related faults being reported (leaking water meter, burst pipes etc.) which were all logged as per normal.

QUERIES AND COMPLAINTS
There were complaints of the City not attending to water faults timely. Residents were asked for further details, and it was logged again on their behalf.

There were many issues related to higher water accounts, to which we replied that we are investigating them and will contact the accounts department.

There was some misunderstanding regarding the copy on “shower for 1 minute only”, some read it as “shower for a minute” and complained as such. This was clarified in the response.

There was a comment saying that the City should have been telling people for months to conserve water. We received an answer from the City saying many of the water conservation messages have been sent to the community.

EDUCATING
Some residents do not understand that if they are on private property, they will need a number for certain things, whereas the management is working on this. The community managers then educated the community.

There were some queries regarding the process and testing of faulty electricity meters.

TOP PERFORMING POSTS

POSITIVE COMMENTS
AMANDA SKRZYPCZAK: “Thank you for addressing it.”

ERIKA MARTINSICH: “Thanks for the initiative to save water.”

MARY-JANE FAKUNGU: “Thank you CCT for your excellent service.”

SABRINA WILLIAMS: “Thank you for the speedy response! I love our water conservation messages.”

ELEANOR KIRKOWICE: “From what I can gather, my mother’s city is probably one of the last functioning in the morning. I am thankful not to live in CT or DC anymore!”

Contact:

SAVE WATER
every drop counts.

City of Cape Town
I.S. Sasekpa
Stad Kaapstad

Save water this summer.
Education and Awareness Campaigns
- Schools Intervention

CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

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WATER AND SANITATION WEBSITE

- Developed and improved W&S website (live April 2015)
- 58 Web pages created
- Updated regularly

Branches can contact us to update information
Water demand management programme 2011/12 to 2020/21: capital expenditure of R3.2b and water savings of 70 million m³ per annum
Cape Town Scoops C40 Cities Award at COP21 Conference in Paris
Population Growth and Water Use Efficiency

Reducing per capita water consumption
Water Allocations and Actual Demand

- Allocation from Berg River Dam (84 Mm3) Fully Financed by COCT
- Combined allocations from Voelvlei, Wemmershoek, Theewaterskloof and Steenbras Dams plus Palmiet Transfer (320 Mm3)
- Proposed COCT Augmentation Schemes Accelerated Programme (Additional 15 Mm3)

Actual Demand

- 20% Saving
- 280-260 Mm3
Supply Assurance and WCWSS Operating Rules (COCT / DWS Raw Water Supply Agreement)

- **Supply Assurance**
  - Number of years out of a hundred that a water user will obtain it’s allocated yield without the application of water restrictions (Urban 97%, Agriculture 91%)
  - Curtailment of abstractions required in drought years to ensure demand can be sustainably met from the supply system. This is internationally accepted water resource planning practice.

- **Operating Rules for System of Dams**
  - Minimize spillage: COCT demand can be shifted to dams most likely to spill to maximize system yield
  - Minimize Wastage: WC/WDM Strategies to be implemented by all users
  - Water Restrictions: DWS are responsible for determining and managing water restrictions
Water Restriction Campaign

- **Timeline**
  - Level 1 – 2005 (10% saving)
  - Level 2 – January 2016 (additional 10% voluntary saving)
  - Official DWS 20% curtailment – September 2016
  - Level 3 – November 2016 (additional 20% saving)
  - Level 3B – February 2017 (restriction measures amended)
  - Official DWS curtailment (Urban -20%, Agriculture 30%) – March 2017
  - Proposed Level 4 – May 2017

- **Water saving measures and usage tariffs**
  - Tariffs designed to encourage water saving
  - Curtailment of non-essential water uses required (incl Municipal)

- **Promotion of alternate water sources**
  - Treated effluent
  - Groundwater
  - Greywater
  - Rainwater harvesting
Water Restriction Campaign (continued)

- Communication
  - Strong political support
  - Constant media attention and awareness campaigns

- Enforcement
  - Targeting high water users
  - Improved enforcement
  - Increased bylaw contravention fines

- Minimisation of water losses
  - Losses reduced from 25% (2009) to 15% (2017)
  - Increasing capacity to respond to leaks and bursts
  - Expanding automated and manual pressure management
Impact of Restriction Campaigns on Water Supplied

Water Supplied (kl/day)

- 2005
- 2017

- 850 Ml/day
Actual Daily Production versus Restriction Target

- No restrictions
- CCT Level 2 Restrictions
- Level 3b
- Proposed Level 4

Unrestricted Summer: 21%
Local Drought Disaster Declaration

• **Promulgated**
  – 3 March 2017 and valid for 3 months (can be extended)

• **Rationale**
  – Approximately 3 months water remaining (present dam draws with no early rainfall)
  – Possible failure of dam system in 2018 (below average winter rainfall)
  – 4 million people are solely dependent on COCT bulk water supply system
  – Failure of the water supply system will precipitate collapse of sanitation and other municipal services with dire human health and socio-economic implications

• **Outcomes**
  – Assistance from Provincial and National governments (technical, financial and regulatory)
  – Re-allocation of municipal resources to manage water situation
  – Shortened EIA and SCM processes

• **Drought Disaster in the Western Cape**
  – Classified as Provincial Disaster on 25 April 2017
  – Ito S23 of Disaster Management Act (57 of 2002)
  – By Head of National Disaster Management Centre
Contingency Measures

- **15 – 20% dam storage** - Increase the water restrictions measures and decrease water pressures in the network.

- **10 – 15% dam storage** - Implement intermittent supply in residential areas, with stringent restriction measures.

- **Below 10% dam storage** – Provide a ‘lifeline’ water supply, which would involve minimal supply pressures, intermittent supply, and very stringent restriction measures.

Steenbras Lower and Wemmershoek Dams at 10% - 1973
WCWSS Reconciliation Strategy (2016 Update)

Driven by long-term population and water demand growth

- **Voelvlei Augmentation**
  - 20 - 23 million m³ p.a.
  - R300m CAPEX and R0.5m OPEX
  - National DWS to implement

- **TMG Aquifer**
  - 20 - 40 million m³ p.a. (in phases)
  - Cost to be determined

- **Wastewater Reuse**
  - 80 million m³ p.a.
  - R4.5b CAPEX and R0.5b OPEX

- **Desalination**
  - 164 million m³ pa (450 Ml/day)
  - R15 b CAPEX and R1.2b OPEX
Accelerated Water Supply Schemes

• Increase supply in short to medium term
• Diversify water sources
• Mitigate against climate change and improve drought resilience
• Acquisition of baseline costing, yield and environmental information
Why accelerate water resource augmentation schemes:

- Increase supply in short to medium term
- Diversify water sources
- Mitigate against climate change and improved drought resilience
- Deal with uncertainty regarding water allocations (DWS - verification & validation)
# Accelerated Water Supply Schemes

<table>
<thead>
<tr>
<th>Scheme</th>
<th>Yield (ML/day)</th>
<th>Description</th>
<th>Status</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>TMG Aquifer</td>
<td>10</td>
<td>Development of well fields into deep aquifer at Steenbras, Wemmershoek and Theewaterskloof Dams</td>
<td>• Drilling tenders being evaluated • Contract commencement scheduled for end June 2017</td>
<td>R 85 million</td>
</tr>
<tr>
<td>Seawater Desalination Package Plant</td>
<td>5</td>
<td>Primarily for sea water quality data acquisition as well as to improve supply security in Atlantis</td>
<td>• Design underway • Construction tenders to be advertised in July 2017</td>
<td>R 100 million</td>
</tr>
<tr>
<td>Wastewater Re-use (drinking water)</td>
<td>10</td>
<td>Treatment of effluent from Zandvliet WWTW for direct or indirect injection into bulk water supply system.</td>
<td>• Design underway • Construction tenders to be advertised in January 2018</td>
<td>R 120 million</td>
</tr>
<tr>
<td>Cape Flats Aquifer &amp; Atlantis Aquifer</td>
<td>5</td>
<td>Incremental drilling of boreholes to abstract water from the Cape Flats Aquifer in Mitchells Plain as well as expansion of well fields in Atlantis</td>
<td>• Consultants to be appointed in June 2017</td>
<td>R 50 million</td>
</tr>
<tr>
<td>WC/WDM Strategy</td>
<td>100</td>
<td>Intensification of demand management measures: • Water restrictions • Pressure management • Water saving incentive schemes • Regulation of plumbing fittings and water using appliances • Informative water billing • Communication</td>
<td>• Level 4 restrictions to be considered by Council at end May 2016 • Network pressures are being reduced in the Faure, Blackheath and Northern Reservoir supply zones</td>
<td>R 10 million</td>
</tr>
<tr>
<td>Voelvlei Augmentation (Phase 1)</td>
<td>60</td>
<td>DWS Scheme – Pumped transfer of water from Berg River to Voelvlei Dam</td>
<td>• Comment period for EIA closed.</td>
<td>R 300 million</td>
</tr>
</tbody>
</table>
Recommendations for Business Sector

• Conduct regular water audits to understand and reduce your “operational” and “supply chain” water footprints.

• Set water efficiency targets and gain the support of your suppliers, customers and staff.

• Build long term resilience and plan for climate change by implementing green building and water sensitive urban design guidelines as well as considering alternate water sources (rainwater harvesting, groundwater, treated effluent, etc).

• Prepare for the possibility of intermittent supply in 2017 and 2018 by ensuring sufficient onsite storage and effective operation of pumping systems.

<table>
<thead>
<tr>
<th>User Category</th>
<th>Required Storage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial</td>
<td>8 hours process water requirement</td>
</tr>
<tr>
<td>Commercial</td>
<td>70 liters per 100 square meter gross area</td>
</tr>
<tr>
<td>Hospitals, Clinics, Old Age Homes</td>
<td>250 liters per bed</td>
</tr>
</tbody>
</table>

(Water Bylaw – excludes fire and air conditioning systems)
City launches water ratings system to promote savings

The City has developed a ratings tool to assess commercial and industrial customers’ use of water. The first phase of this initiative culminated in an awards ceremony today, recognising those industries and companies that participated in the assessment process.
Water Star Rating System

• About the Star Rating System
  – Developed a Rating Tool to encourage better on-site water management in Industries
  – The tool was designed to:
    • Monitor legal compliance
    • Encourage improvement in terms of water usage, water conservation and water discharge
  – The Tool considered green, blue and grey water management
  – Participation is voluntary.
  – Assessed 19 companies with the Rating Tool

• Purpose
  – The Management of Water must become everyone’s responsibility
  – Encourage self regulation
  – Interaction with industries in the past was mostly on non-compliance issues
  – Interactive approach to highlight water conservation and water pollution issues
Water Star Ratings

• Benefits for Companies
  – Reduce operating costs
  – Reduce consumption of raw material
  – Improve efficiency
  – Reduce pollution and impact to the environment
  – Compliance with Legislation and Bylaws
  – Improve companies image

• Advantages for the City
  – Promotes best practices in terms of water management
  – Promotes integrated water management across a wide range of industries
  – Consolidates information into one document system
  – Encourages companies to implement water related interventions
  – Creates awareness
Future Water Outlook

• **Key considerations:**
  – Growing regional demand and competition for water
  – Climate change requires diversification of water sources and improved water use efficiency
  – Unit cost of water is likely to increase as more costly alternatives to surface water schemes are implemented
  – The opportunity provided by the current water crisis must be maximized to effect a “quantum leap” change to the way water is resourced and utilized in CT.

• **Reposition Cape Town as a **Water Sensitive City** that:**
  – Optimises and integrates the management of all available water resources (surface water, ground water, wastewater and stormwater) to improve resilience
  – Places high value on water and strives to increase water use efficiency through water sensitive urban design
  – Is a liveable city with healthy waterways and coastal waters
The Future: Cape Town – a Water Sensitive City

- Alignment of Catchment and Stormwater Management Branch with Water and Sanitation – Completes the Urban Water Cycle.
- An integrated approach towards becoming a Water Sensitive City.
Thank You

Making progress possible. Together.