

Purpose

The purpose of this presentation is to provide an overview of the City of Cape Towns updated Water Conservation and Water Demand Management Strategy

> Goals and Targets Current Situation and Success Interventions to be implemented Potential Impact

| INTEGRATED DEVELOPMENT PLAN (IDP) ALIGNMENT | | | | | | | | | |
|--|---|--|--|--|--|--|--|--|--|
| Strategic Focus Area | Objective | Programme | | | | | | | |
| 1. The Opportunity City | 1.3. Promote a sustainable environment through efficient utilization of | P1.3 (a) Sustainable utilization of scarce resources | | | | | | | |
| | resources | P1.3 (b) Water Conservation and Water Demand Management Strategy | | | | | | | |
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Water Conservation and Water Demand Management Strategy

Goals and Targets

Current Situation and Success Interventions to be implemented Potential Impact



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|----------|--|-----------------------|--|-------|--|
| | | large | i Sett | ing | |
| | Description | 2010/11 (Baseline) | 2010/11 2011/12 Targe (Baseline) 2015/1 | | Intervention |
| GOAL A | Water Losses | 19.8% | 15.3% | <15% | |
| | Apparent Losses (Unbilled Unauthorised Consumption) | 7% | 6.3% | 4% | - Meter replacement program - Meter Audits and data clean-up |
| | Unauthorised Consumption | 1.0% | 1% | 1% | Conforms to International benchmarks. Water Audits would be useful in reduce and maintaining |
| | Customer Meter Inaccuracies | 6.0% | 5.3% | 3%-4% | - Water Audits - Meter age analysis/Audits Meter replacement Program |
| | Real Losses | 12.8% | 9.3% | 8%-9% | |
| | Leakage on Transmission and Distribution Mains | 12.71% | 9.18% | 8%-9% | -Pressure Management -Leak Detection -Pipe Replacement |
| | Leakage on Overflows at Storage Tanks | 0.05% | 0.10% | • | Monitor and respond to concerns – pro- active maintenance and on demand maintenance/repairs. |
| | Leakage on Service Connections up to point of customer meter | Negligible | Negligible | - | - |
| GOAL D | NRW | 23.4% | 20.5% | <20% | |
| | Unbilled Authorised Consumption | 3.61% | 5.15% | 2%-3% | Metering and monitoring and pro-active maintenance SAP clean up |
| | Apparent Losses (Unbilled Unauthorised Consumption) | 7% | 6% | 3-4% | As stated in Goal A |
| | Real Losses | 12.8% | 9.3% | 8-9% | As stated in Goal A |













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|--|-----------|-----------|----------------------|--------------------|-----------|----------------------|----------------------|----------------------|-----------|------------------------|-----------|
| Initiative Proposed | | | | | | | | | | | TOTAL |
| | 2011/12 | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/2020 | 2020/2021 | 1 |
| | (Million) | (Million) | (Million) | (Million) | (Million) | (Million) | (Million) | (Million) | (Million) | (Million) | 1 |
| Pressure Management | R 14.35 | R 16.00 | R 20.00 | R 20.00 | R 20.00 | R 20.00 | R 20.00 | R 20.00 | R 16.50 | R 18.15 | |
| Pipe Replacement | R 83.80 | R 83.80 | R 96.99 | R 56.04 | R 117.94 | R 99.50 | R 77.50 | R 77.50 | R 159.09 | R 89.93 | 1 |
| Treated Effluent | R 6.19 | R 18.00 | R 28.60 | R 25.00 | R 25.00 | R 27.00 | R 25.00 | R 25.00 | R 30.70 | R 40.70 | 1 |
| Zone Metering | R 2.00 | R 2.40 | R 3.00 | R 3.30 | R 3.63 | R 3.99 | R 4.39 | R 2.00 | R 1.60 | R 1.24 | 1 |
| Logger installation | R 1.50 | R 1.50 | R 1.50 | R 0.00 | R 0.00 | R 0.00 | R 0.00 | R 0.00 | R 0.00 | R 0.00 | 1 |
| Water meter replacement | R 50.00 | R 50.00 | R 90.00 | R 147.00 | R 222.19 | R 18.00 | R 18.00 | R 18.00 | R 19.00 | R 19.00 | 1 |
| Capex | R 157.84 | R 171.70 | R 240.09 | R 251.34 | R 388.76 | R 168.49 | R 144.89 | R 142.50 | R 226.89 | R 169.02 | R 2 061.5 |
| 1 | Descend | Descend | Descend | Descend | Deserved | Deserved | Deserved | Descend | Deserved | Deserved | TOTAL |
| Initiative | Proposed | Proposed | Proposed | Proposed | Proposed | Proposed | Proposed | Proposed | Proposed | Proposed | TOTAL |
| | (Million) | 2012/13 | 2013/14 (Million) | 2014/15 (M2Eon) | (Million) | 2016/17 (Million) | 2017/18 (Million) | 2016/19 (Million) | (Millon) | 2020/2021 (Million) | |
| Retrofit and leak repair | R 6 00 | R 9 20 | R 9 40 | R 10.80 | R 12 70 | R 14 20 | R 11 00 | R 15.00 | R 16 50 | R 18 15 | |
| Community Engagement | R 6 50 | R 6 50 | R 6 00 | R 6 00 | R 6 00 | R 6 00 | R 6 00 | R 6 00 | R 6 00 | R 6 00 | 1 |
| Conditional Assessment | R 3 00 | R 3 00 | R 0.00 | R 0.00 | R 0.00 | R 0.00 | R 0 00 | R 0.00 | R 0 00 | R 0.00 | 1 |
| Water Management Device/ Smart Metering | R 0.00 | R 0.00 | R 35.00 | R 35.00 | R 35.00 | R 35.00 | R 35.00 | R 35.00 | R 35.00 | R 35.00 | 1 |
| Leak Detection Projects | R 0.00 | R 0.00 | R 3.00 | R 3.00 | R 3.00 | R 3.00 | R 3.00 | R 3.00 | R 3.00 | R 3.00 | 1 |
| Feasibility Studies/Research | R 1.50 | R 1.50 | R 1.50 | R 1.50 | R 1.50 | R 1.50 | R 1.50 | R 1.50 | R 1.50 | R 1.50 | 1 |
| Education and Awareness Campaigns | R 1.50 | R 1.50 | R 2.00 | R 2.00 | R 2.00 | R 2.00 | R 2.00 | R 2.00 | R 2.00 | R 2.00 | 1 |
| Pipe Maintenance | R 3.60 | R 3.00 | R 3.00 | R 3.00 | R 3.00 | R 3.00 | R 3.00 | R 3.00 | R 3.00 | R 3.00 | 1 |
| PRV Maintenance | R 2.50 | R 2.50 | R 2.50 | R 2.50 | R 2.50 | R 2.50 | R 2.50 | R 2.50 | R 2.50 | R 2.50 | 1 |
| Creation of DMA's | R 0.00 | R 0.60 | R 0.60 | R 0.60 | R 0.60 | R 0.66 | R 0.73 | R 0.80 | R 0.88 | R 0.97 | 1 |
| WDM Maintenance | R 0.00 | R 0.00 | R 2.40 | R 2.64 | R 2.90 | R 3.19 | R 3.51 | R 3.87 | R 4.25 | R 4.68 | 1 |
| Meter Audits | R 1.20 | R 1.20 | R 1.20 | R 1.20 | R 1.20 | R 1.20 | R 1.20 | R 1.20 | R 1.20 | R 1.20 | 1 |
| Oper | 0.05.00 | | | | | D 70.05 | D CO 44 | | | | 0.000.40 |

| Real Loss Reduction Intervention | Preferred Priority Implementation Order | Relative Benefit Ranking | Relevant Cost Ranking | Relevant Implementatio n Time Ranking |
|---|--|--------------------------------|--------------------------|--|
| Pressure Management | 1 | 1 | 1 | 1 |
| Active Leak Detection | 2 | 3 | 2 | 2 |
| Speed & Quality of Repair | 3 | 4 | 3 | 3 |
| Mains rehabilitation/ replacement | 4 | 2 | 4 | 4 |

Programs to Reducing Water losses

- District metering (and zoning)
- Pressure management
- Active leakage control (Leak Detection)
- Pipe replacement
- Leak response time and repair quality
- Leak repair (indigent households)
- Treated effluent re-use
- Education and awareness

Programs to Reducing Water losses

District metering (and zoning)

Pressure management

Active leakage control (Leak Detection)

Pipe replacement Leak response time and repair quality Leak repair (indigent households) Treated effluent re-use

Education and awareness

PRESSURE MANAGEMENT ALIGNED TO PIPE REPLACEMENT Prioritisation Criteria Pressure Management Pipe Replacement Pipe burst/leaks Pipe burst/leaks Pressure within the system Age of network (institutional knowledge) Water Losses Pipe material Quality of Water Quality of Water



Prioritisation Criteria >>Final Scoring

- Impact/ consequence (Ensure efficient service delivery)
- Cost Benefit
 - Interest and Redemption vs. Operation and Maintenance cost

and or Financial cost of water saved.



Optimised Programme

>> Pressure management and Pipe Replacement

- Required information from the Districts
- Analysed their five year pipe replacement programme which include the following data elements:
 - Frequency of burst
 - Cause of burst/incident
 - Pipe Material
 - Cost of replacement
 - Length to be replaced
- Further Analysed the information:
 - Operating static pressures
 - Impact/consequence
 - Operational methodologies

Snapshot - Outcome

| | Length of mains | Burst | | |
|----------------|-----------------|---------------|---------------|---------|
| AREA (Proposed | to be replaced | Frequency per | | |
| DMA's) | (m) | 100km | PRV INSTALLED | Year |
| KRAAIFONTEIN | 3 330 | 164.37 | | 2013/14 |
| ATHLONE | 31 865 | 142.22 | YES & DMA | 2013/14 |
| HELDERBERG | 17 807 | 139.00 | | 2013/14 |
| HOUTBAY | 5 220 | 124.00 | | 2013/14 |
| ATHLONE | 3 712 | 101.86 | | 2013/14 |
| KRAAIFONTEIN | 714 | 99.81 | | 2013/14 |
| DUYNEFONTEIN | 1 566 | 94.29 | | 2013/14 |
| CAPE TOWN | 150 | 93.72 | yes | 2013/14 |
| CAPE TOWN | 2 520 | 84.98 | yes | 2013/14 |
| KRAAIFONTEIN | 3 630 | 75.97 | | 2013/14 |
| TABLE VIEW | 820 | 74.90 | | 2013/14 |
| ATHLONE | 1 216 | 67.64 | YES & DMA | 2013/14 |
| DURBANVILLE | 700 | 66.02 | | 2013/14 |
| KRAAIFONTEIN | 10 120 | 63.24 | | 2013/14 |
| KENSINGTON | 1 380 | 62.57 | | 2013/14 |
| DURBANVILLE | 3 600 | 61.66 | | 2013/14 |
| ATHLONE | 2 330 | 58.80 | | 2013/14 |

Programs to Reducing Water losses

District metering (and zoning)

Pressure management

Active leakage control (Leak Detection)

Pipe replacement

Leak response time and repair quality

Leak repair (indigent households)

Treated effluent re-use

Education and awareness

Leak Repair and Retrofit on Indigent Households Proposed Budget R million No. of Assume an Average water saving of 4kl per household Properties Year 3100.00 R 9.40 2013/14 3500.00 R 10.80 2014/15 3800.00 R 12.70 2015/16 per month 4100.00 R 14.20 2016/17 3100.00 R 11.00 2017/18 17 600

Programs to Reducing Water losses

District metering (and zoning) Pressure management Active leakage control (Leak Detection) Pipe replacement Leak response time and repair quality Leak repair (indigent households)

Treated Effluent Re-use

Education and awareness

Potential Treated Effluent Upgrades

| Treated Effluent: Infrastructure Upgrade | 2013 Estimated Bud | 8/14 d Cost of get | 2014 Estimated Budg | /15 Cost of get | 2015 Estimated Budg | /16 ICostof get | 2016 Estimate Bud | 6/17 d Cost of get | 2017/18 Estimated Cost of Budget | |
|--|--------------------------|--------------------------|---------------------------|-----------------------|---------------------------|-----------------------|-------------------------|--------------------------|--|-------|
| Maccassar TE | R | 12.50 | R | 8.00 | R | 8.00 | R | | R | |
| Athlone TE | R | 15.60 | R | 4.70 | R | 13.70 | R | 7.70 | R | 0.70 |
| Potsdam TE | R | | R | 4.00 | R | | R | | R | - |
| Bellville TE | R | | R | 13.00 | R | 13.00 | R | 6.00 | R | 7.00 |
| Cape Flats TE | R | | R | - | R | | R | 28.00 | R | 4.00 |
| Mitchell's plain TE | R | | R | - | R | | R | | R | 29.50 |
| Other TE projects | R | 0.30 | R | 3.00 | R | 3.00 | R | 3.00 | R | 3.00 |
| Total | R | 28.40 | R | 32.70 | R | 37.70 | R | 44.70 | R | 44.20 |

Programs to Reducing Water losses

District metering (and zoning) Pressure management Active leakage control (Leak Detection) Pipe replacement Leak response time and repair quality Leak repair (indigent households) Treated effluent re-use

Education and Awareness

Education and Awareness

Sub Programmes:

- Generic consumer awareness campaign
- Domestic consumer education campaign
- School education (focus on schools)
- Special events

| OPERATIONAL BUDGET (R million) Initiative | Proposed 2013/14 | Proposed 2014/15 | Proposed 2015/16 | Proposed 2016/17 | Proposed 2017/18 |
|---|---------------------|---------------------|---------------------|---------------------|---------------------|
| Community Engagement | R 6.00 |
| Education and Awareness Campaigns | R2.00 | R2.00 | R2.00 | R2.00 | R2.00 |
| Total Opex | R 8.00 |

Education and Awareness

Objectives 1: Consumer Education and Awareness

- Inform consumers on the need to save water
- Inform consumers on how to save water
- Inform consumers of various projects or initiatives that
 may have an impact on them
- Create brands associated with WC/WDM



Education and Awareness

Objectives 2: Promote and Encourage (Events)

- National Water Week
- Annual Conference on Water Supply
- Others exhibitions and conferences (still to be determined)
- Service delivery programmes within informal settlements

How to measure impact?:

- Surveys
- Metering (where necessary)







WHAT ARE THE FACTORS WHICH IMPACT POTENTIAL SAVINGS

Review the implemented pressure/ pipe replacement

program

- Treated Effluent Users
- Maintenance of installed retrofit devices ("up-keep")
- Effectiveness of Education and Awareness



- Strengthening our Telemetry/ Scada system
- We currently in the process of installing DMA's which will allow us to make more informed decisions
- Condition Assessment Tender information will be used for modelling of the water network for pipe replacement and pressure management

