

water affairs
Department of Water Affairs
REPUBLIC OF SOUTH AFRICA

CITY OF CAPE TOWN

Msunduzi Municipality

Non-Revenue Water Reduction Program Update

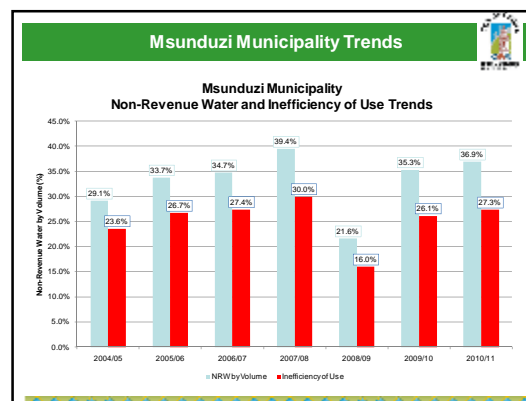
- ### Background to Program
- Non-Revenue Water is the difference in water volume between that bought from Umgeni Water and sold to all of Msunduzi Municipality's customers
 - This difference is made up of both physical leaks from pipes as well as unmetered customers and illegal connections
 - Non-Revenue Water in the Msunduzi Municipality for 2009/10 FY was previously reported as 63% (corrected figure 35.3%) and for the 2010/2011 FY was reported as 36.9%
 - The objective of this program is to improve both operational and financial efficiency of the Municipality in terms of water service delivery, and to meet a Presidential mandate of halving water losses by 2014

IWA Water Balance for 2010/2011 FY

System Input Volume 6 044 021 m³/year ± 5.0%	Unauthorised Consumption 390 114 m³/year ± 4.4%	Billed Unauthorised Consumption 390 114 m³/year ± 4.4%	Billed Metered Consumption 268 944 m³/year ± 5.0%	Potential Revenue Water 268 944 m³/year ± 5.0%
			Low Cost Housing 150 306 m³/year ± 25.0%	
			Unbilled 40 712 m³/year ± 5.0%	
			Unbilled 100 000 m³/year ± 20.0%	
			Unbilled 40 712 m³/year ± 5.0%	
			Unbilled 0 m³/year ± 0.0%	
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Total Water Losses 2 281 511 m³/year ± 11.1%	Unauthorised Consumption 390 114 m³/year ± 4.4%	Billed Unauthorised Consumption 390 114 m³/year ± 4.4%	Apparent Losses 19 219 m³/year ± 26.0%	Non-Revenue Water 2 281 511 m³/year ± 11.1%
			Real Losses 1 868 241 m³/year ± 10.1%	
			Unbilled 434 058 m³/year ± 33.8%	
			Unbilled 134 091 m³/year ± 3.3%	
System Input Volume 6 044 021 m³/year ± 5.0%	Unauthorised Consumption 390 114 m³/year ± 4.4%	Billed Unauthorised Consumption 390 114 m³/year ± 4.4%	Apparent Losses 19 219 m³/year ± 26.0%	Non-Revenue Water 2 281 511 m³/year ± 11.1%

IWA KPIs for last 7 Financial Years (Corrected)

Indicator	Financial Year						
	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Total No of Connections in the Municipality	46942	49421	51351	52337	53902	55167	54443
NRW by Volume (%)	29.1%	33.7%	34.7%	39.4%	21.6%	35.3%	36.9%
Efficiency of Use (%)	23.8%	26.7%	27.4%	30.0%	16.0%	26.1%	27.3%
Infrastructure Leakage Index (ILI)	5.9	6.9	7.0	8.3	4.3	7.4	8.2
Total Water Losses per Connection (l/cor/day)	804	940	940	1149	609	1024	1148
Average S/V (kl/day)	129637	137618	139102	152576	151853	160252	169442
Average Water Sales (kl/day)	91908	91180	90840	92433	119024	103741	106935
Real Loss Volume (kl/day)	30560	36686	38127	45709	24293	41818	46255
Unauthorised Consumption (kl/day)	3952	6561	6956	11199	4370	11062	12509
Total Water Losses (kl/day)	37729	46438	48262	60143	32829	56511	62507
Non-Revenue Water Volume (kl/day)	37729	46438	48262	60143	32829	56511	62507
Metering Inaccuracies (kl/day)	3217	3191	3179	3235	4166	3631	3743
Legal Consumption (kl/day)	3952	6561	6956	11199	4370	11062	12509



- ### NRW Reduction Program Details
- Total approved program budget for Phase 1 is R22,1 million, of which the Department of Water Affairs is contributing R3 million
 - Commenced in December 2010, but practically in January 2011
 - Phase 1 targeted completion 30 June 2011
 - Eight unique interventions targeting the reduction of water leaks and pipe bursts
 - Eight unique interventions targeting billing improvement
 - 2010/11 FY Expenditure R14 858 046 (67%)

Implementing Best Practice

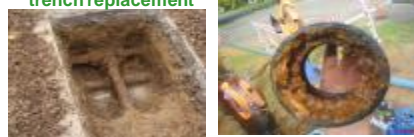
Through the Non-Revenue Water Reduction Program:

- officials are being trained and mentored in best practice management
- existing policies are being refined and enforced
- a comprehensive Operations and Maintenance Plan will be developed and implemented
- a comprehensive Refurbishment Plan will be developed and implemented

Reducing Water Leaks

Replacement of Ageing Pipeline Infrastructure in the CBD:

- JK Structures was awarded Phase 1A of the pipeline replacement initiative in June 2011 and began preparatory work in July 2011
- 3.4km of pipelines would be replaced via trenchless technology and 3.6km will be open-trench replacement



Reducing Water Leaks

Leak Detection and Repair:

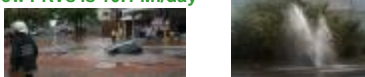
- Munitech were awarded the Leak Detection and Repair Contract in February 2011 to carry out work on 1 350km of reticulation
- As of August 2011, 1 617km or reticulation has been surveyed in the east of the Municipality
- 1 687 visible and non-visible leaks have located and 1 619 leaks have been repaired with an estimated 2.1 MI/day being saved thus far



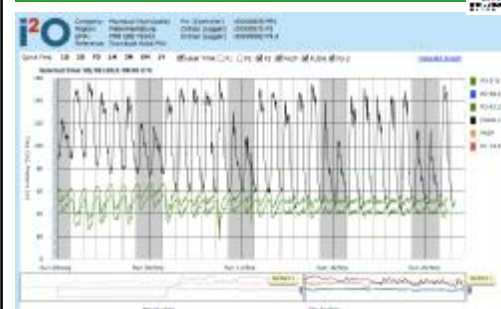
Reducing Water Leaks

New PRV Designs:

- Reservoir zones were logged in an effort to quantify Minimum Night Flows (MNF) thereby helping prioritise zones with the highest Real Losses
- New PRV designs have been completed on 6 focus areas taking into consideration the new pressure regime of 3bar minimum pressure and a maximum of 6bar
- A conservative estimate on savings for installing 27 new PRVs is 10.1 MI/day



Reducing Water Leaks



Reducing Water Leaks

Existing PRV Maintenance and Optimisation:

- 62 PRVs and BPTs were visited, inspected and maintenance on any problems found were fixed
- Optimisation of existing PRVs has been completed for 2 reservoir zones thus far to reduce any excess pressure in a zone. Slow progress has been made due to line valves either not being maintained in the past or not being found
- 2 advanced controllers have been installed on PRVs feeding the CBD. Commissioning has commenced and once completed the savings shall be in excess of 2 MI/day

Reducing Water Leaks


Reservoir Inspection and Repair:

- 7 reservoirs were visited and prioritised for repairs required
- Due to budgetary constraints and the severity of the repairs required for Hathorns reservoir a tender document was prepared, advertised and adjudicated. Award of the tender is imminent
- Hathorns has been by-passed successfully to allow for the winning tenderer to start in earnest once the award has been made

Improving Billing

Meter Maintenance and Replacement of Damaged and Inaccessible meters:



- Exception reports gathered from meter readers from November 2010 till March 2011 were collated and all duplicates removed
- Approximately 10 600 consumer meters needed to be either replaced or maintained
- Plumbing Contractors from the Municipality's database were contacted to tender on a rate's based meter maintenance and replacement Contract and 7 were successful
- To date 4 137 meters have either being maintained or replaced since March 2011 resulting in no longer estimating those users' consumption



Improving Billing

Top Consumer Analysis and Meter Replacement:

- Using past billing information, over a 24 month period, and 200 of the largest consumers in the Municipality were chosen and visited
- New design drawings using correct specifications for above and below meter installations have been completed
- 85 meters were prioritised for changeout and a tender document was prepared, advertised and adjudicated. Award for this Contract shall be made in September 2011

Public Awareness

Schools Programme:

- Thus far 19 primary and secondary schools have been visited and presented the Water Awareness Programme and more schools shall be visited during the rest of the programme
- A schools soccer tournament is also planned for October 2011 with 18 schools participating and the Water Awareness Programme being the central theme using local businesses as sponsors
- A poetry contest for all schools is also in the planning phase and would be implemented towards the end of the year

Job Creation Opportunities



...student learnership programs ...

...and labour-intensive pipe replacement...

Keeping the Public Informed



...in schools...

TO REPORT WATER LEAKS AND ILLEGAL CONNECTIONS PHONE 0800 001 886

Keeping the Public Informed

MSUNDUZI MUNICIPALITY
WATER AND SANITATION

PLEASE REPORT
ALL ILLEGAL
CONNECTIONS

PHONE: 0800 001868

MSUNDUZI MUNICIPALITY
WATER AND SANITATION

BE WATER
WISE - DON'T
WASTE WATER

PHONE: 0800 001868

MSUNDUZI MUNICIPALITY
WATER AND SANITATION

WATER
PRESSURE
REDUCTION

PHONE: 0800 001868

MSUNDUZI MUNICIPALITY
WATER AND SANITATION

PLEASE
REPORT ALL
LEAKS AND
BURSTS

PHONE: 0800 001868

MSUNDUZI MUNICIPALITY
WATER AND SANITATION

LOWER
PRESSURE
HELPS
CONSERVE
WATER

PHONE: 0800 001868

...and on street poles...

Program Budget Requirements

- The total required budget to implement the reduction of Non-Revenue Water within the Msunduzi Municipality area of jurisdiction over the 5-year period is R 205 276 940.70 excluding VAT.
- Of this total R 182 738 638.82 (excl VAT) is capital budget requirements, and R 22 538 301.88(excl VAT) is operating budget requirements.
- A total capital budget of R 57 020 837.44 (excl VAT) is required for meter installation and replacement purposes