Strategic Perspective of Water Losses in South African Municipalities

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Water Services Master Class #1
14 – 15 February 2012 – Durban

In a well managed water distribution system...
- the input volume will be known,
- leaks will be fixed,
- consumers will be metered and billed,
- few disruptions in supply,
- consumers will be penalised if they waste water
- assets are known and will be maintained

Contents
- Water Loss & Water Demand Management
  - What is it?
  - Why is it important in South Africa?
- Results
  - DWA Reconciliation studies
  - WRC NRW studies
  - DWA MuSSA
- Challenges
- Conclusions and Recommendations
- Future actions

In this:
- Asset Management & Maintenance
  - Training & Capacity Building
  - Infrastructure
- Water Services
  - Water Loss & Water Demand Management
- National NRW (2009)

Situation is far from ideal!!!!
Role players

- President Jacob Zuma:
  - What? → “half the current water loss”
  - When? → “by 2014”
- Who?
  - DWA
  - Treasury
  - DBSA
  - Office of the Presidency
  - Municipalities!!

DWA Water Resources All Towns Reconciliation Studies

Need to optimise limited resources!!!!

National NRW Assessment based on the standard IWA Water Balance

<table>
<thead>
<tr>
<th>System input</th>
<th>Authorised consumption</th>
<th>Billed consumption</th>
<th>Revenue water</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water loss</td>
<td>Non-revenue water</td>
<td>Physical losses</td>
<td>Commercial loss</td>
</tr>
</tbody>
</table>

Water balance and KPI’s Minimum Information Required

- Input volume
- Billed metered consumption
- Billed unmetered consumption which include
  - Free basic water + flat rate consumption
- Calculate Non-revenue water: volume and %
- Calculate litres per capita per day

Municipal Categories

- A: Metropolitan municipalities (x6)
- B1: Major cities – 21 x secondary cities, municipalities with largest budgets
- B2: Minor cities - 29 x municipalities with a large town as core
- B3: Rural dense - 111 x municipalities with large urban population but no large town
- B4: Rural scattered – 70 x municipalities with mainly rural population and maybe small town as core

Strategic Perspective % NRW

- Metros (A) are below national average – extensive WC/WDM programmes in most
- Large city (B1) municipalities above average – limited WC/WDM programmes, capacity, etc
- Small city (B2) municipalities below average – assume it is easier to manage
- Dense rural (B3) municipalities on average - various levels of implementation
- Scattered rural (B4) municipalities very high – standpipes with limited metering and billing
Strategic Overview

<table>
<thead>
<tr>
<th>Category</th>
<th>% NRW</th>
<th>I/c/d</th>
<th>% Potential Assessment</th>
<th>Records</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>34.3</td>
<td>291</td>
<td>84.0</td>
<td>6 of 6 (100%)</td>
</tr>
<tr>
<td>B1</td>
<td>41.3</td>
<td>241</td>
<td>63.6</td>
<td>20 of 21 (95%)</td>
</tr>
<tr>
<td>B2</td>
<td>30.5</td>
<td>229</td>
<td>65.7</td>
<td>26 of 29 (90%)</td>
</tr>
<tr>
<td>B3</td>
<td>37.0</td>
<td>164</td>
<td>55.7</td>
<td>55 of 111 (50%)</td>
</tr>
<tr>
<td>B4</td>
<td>72.5</td>
<td>65</td>
<td>46.4</td>
<td>25 of 70 (36%)</td>
</tr>
<tr>
<td>National</td>
<td>36.8</td>
<td>235</td>
<td>59.2</td>
<td>132 of 237 (56%)</td>
</tr>
</tbody>
</table>

I/c/d Strategic Perspective

- Metros (A) have highest I/c/d due to wet industries
- Large (B1) and Small (B2) city municipalities on average – some wet industries, wide spread of data (73 to 466 I/c/d)
- Dense rural (B3) municipalities on average – wide spread of data (29 to 661 I/c/d)
- Scattered rural (B4) municipalities below average - low (standpipes) level of service

Preliminary National NRW Assessment

% Non-revenue water per province

% NRW Distribution / Municipal Category

International NRW benchmark
Litres / capita / day

Municipal l/c/d Distribution /Category

International l/c/d benchmark

Estimated National NRW

Estimated Cost of NRW

Municipal Strategic Self Assessments (MuSSA): Vulnerability Check!
Challenges

- Poor data quality from municipalities
- Not all data elements captured by municipalities
- Data interpretation and feedback to municipalities required to raise awareness and improve data
- Municipalities need to take ownership of their water loss status quo

Conclusions (1)

- Current data represents ±76% of population
- National figures highly influenced by metro and major city data (79% of water supplied)
- Wide distribution of % NRW (1.5% to 100%)
- Wide distribution of I/c/d (6 to 661 l/c/d)
- Potential assessment indicates that WC/WDM is not sufficiently implemented
- % NRW and I/c/d in line with international trends

Conclusions (2)

- 105 (44%) of municipalities cannot supply a water balance
- 36 (15%) of municipalities have never submitted water balance data in a six year period
- 43 (18%) of municipalities have good water balance data with no gaps or questions

Recommendations

- Municipalities must be made aware that WDM is a strategic issue in a water scarce country and impacts significantly on water for growth and development
- Only continuous monitoring, analysis and feedback will improve results
- Municipalities must take ownership of WCWDM
- Study provides baseline for future monitoring

Current and Future Actions

- Educating Stats SA to ensure data quality improves with the 2011 survey
- The team will be working more closely with:
  - Municipalities
  - Stats SA
  - Dept of Cooperative Governance
  - Auditor General
  - Regulation
Thank You!!!!