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Implementation and Maintenance of the Water Reconciliation Strategy for the KwaZulu-Natal Coastal Metropolitan Areas

WATER BALANCE UPDATE AND WATER SUPPLY SITUATION

11 SEPTEMBER 2012
SSC Meeting 5

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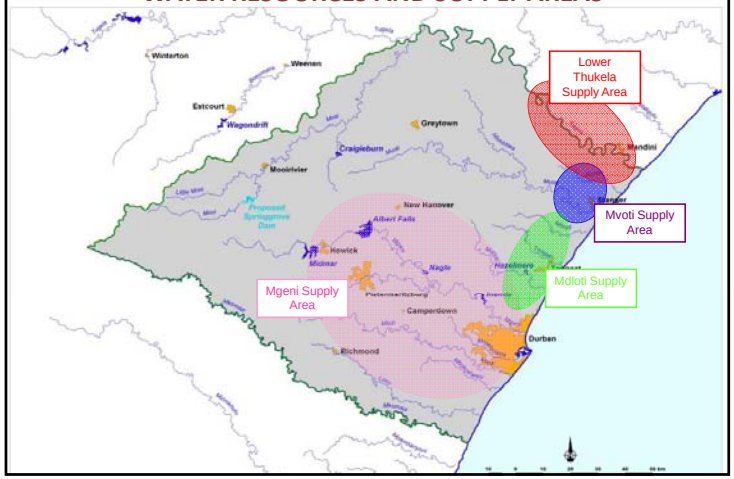
WATER RESOURCES AND SUPPLY AREAS



WATER BALANCE UPDATE

- The water balances depicting the water reconciliation situation in the Mvoti, Mdloti and Mgeni River Systems were updated based on the latest water requirement projections and augmentation intervention schedules

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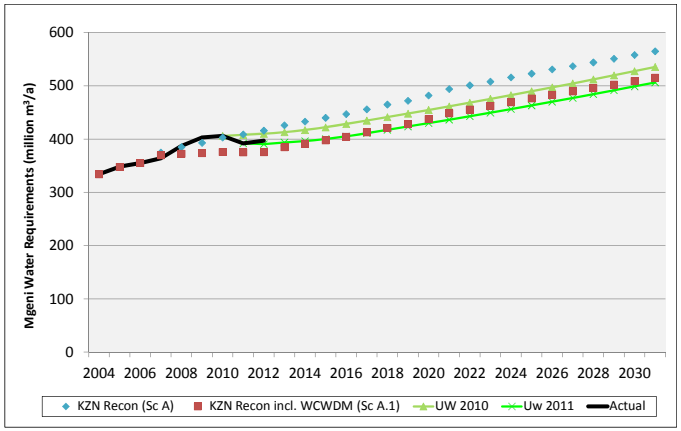
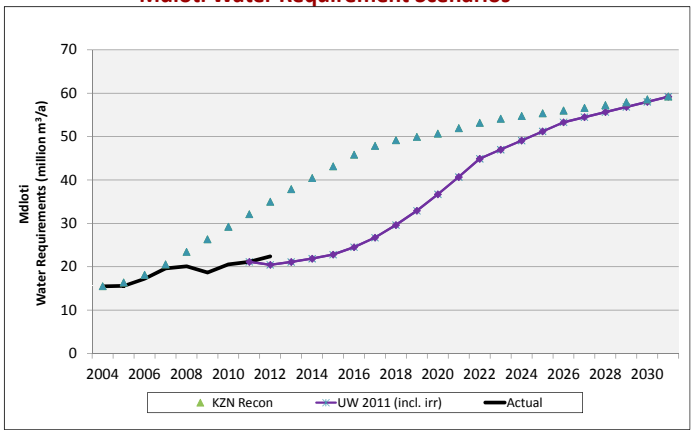
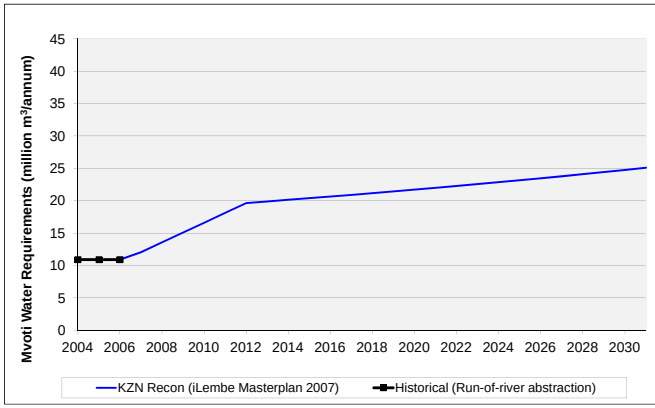
Mgeni Water Requirement Scenarios



Mdloti Water Requirement Scenarios



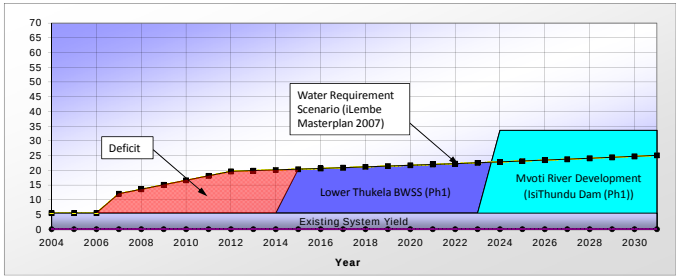
Mvoti Water Requirement Scenarios



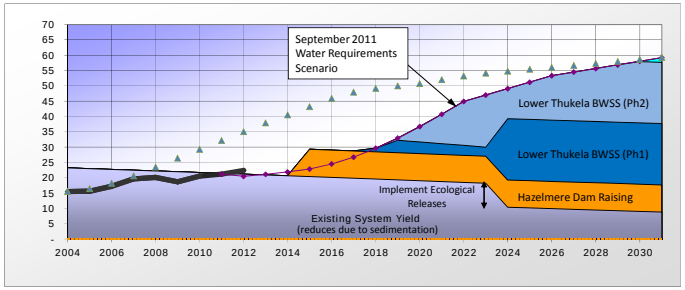
Water Balance Update

- **The water balances depicting the water reconciliation situation in the Mvoti, Mdloti and Mgeni River Systems were updated two scenarios:**
  - **Scenario A: Including re-use of treated effluent**
  - **Scenario B: Excluding re-use of treated effluent**

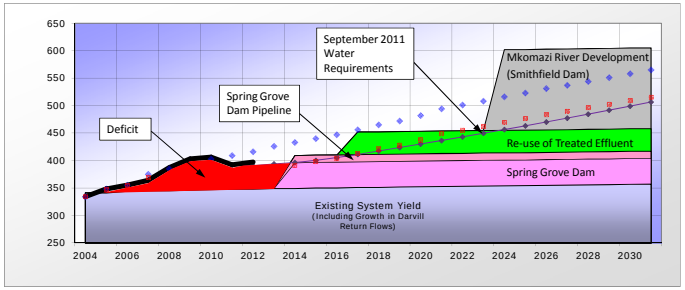
Scenario A: Mvoti River System



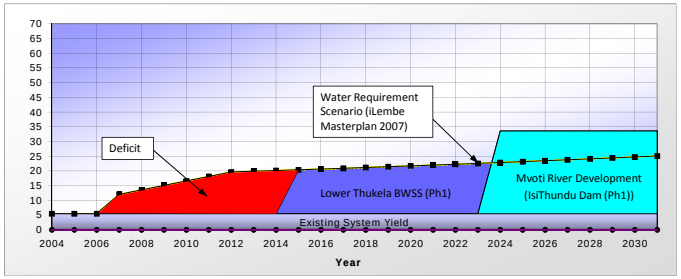
Scenario A: Mdloti River System



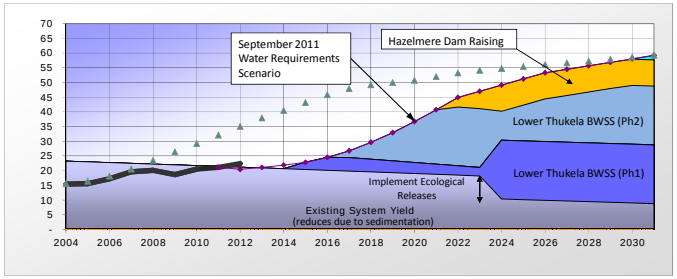
Scenario A: Mgeni River System



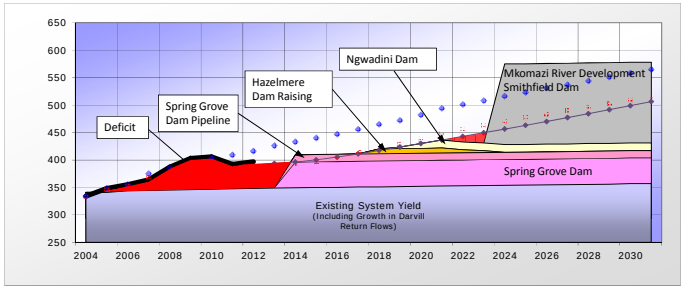
Scenario B: Mvoti River System



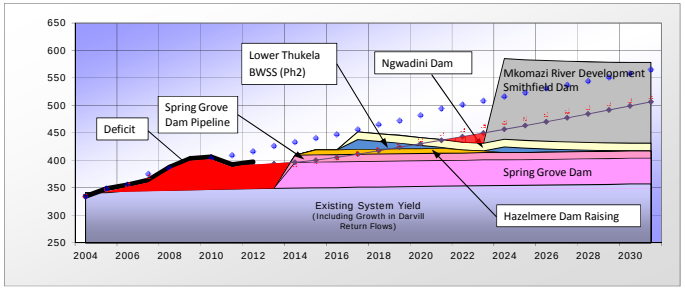
Scenario B: Mdloti River System



Scenario B: Mgeni River System



Scenario B: Mgeni River System (Full yield support)



CONCLUSIONS (1 of 2)

- High risk of water restrictions in the Mvoti River System until the Lower Thukela BWSS is scheduled to deliver water in 2014/15 (IM 2007 projection)
- Once the Mvoti River Development (IsiThundu Dam) has been developed, support is no longer required from the Lower Thukela BWSS
- Risk of water restrictions in the Mdloti River System over the 2013/14 period until the next intervention has been implemented (Sep 2011 projection)
- High risk of water restrictions in the Mgeni River System until Spring Grove Dam is implemented and starts to deliver water in 2013/14 (Sep 2011 projection)

CONCLUSIONS (2 of 2)

- Once Spring Grove Dam has been implemented:
  - Scenario A - Sufficient water is available from 2014 onwards provided that the re-use of treated effluent and the Mkomazi River Development projects are implemented
  - Scenario B - Sufficient water available until the 2021 to 2024 period where a deficit occurs until the Mkomazi River Development Project is implemented. The deficit remains even when supported by the total surplus yield from the Mdloti and the Lower Thukela BWSS
- Important that the augmentation options are implemented at the indicated implementation dates
- Manage the short term deficit situations through the continuous implementation of WC/WDM and early drought restrictions

RECOMMENDATIONS

- The continuous implementation of WC/WDM initiatives are of vital importance
- The water requirement projection for the Mvoti Supply Area should be revised and the actual water use should be monitored and tracked
- The actual water used for both the Mdloti and Mgeni River Systems exceed the water requirements projections (UW Sep 2011) slightly - revised projections will be available Sep/Oct 2012 (Umgeni Water)
- The water balances should be updated based on the revised water requirement projections

Strategy Actions (1 of 3)

Action	Responsibility
PRIORITY INFRASTRUCTURE PROJECTS	
MMTS 2 - Spring Grove Dam and transfer system	National Water Resource Infrastructure Branch & TCTA
Raising of Hazelmere Dam	National Water Resource Infrastructure Branch
North Coast Pipeline and Hazelmere Dam supply infrastructure	Umgeni Water

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Strategy Actions (2 of 3)

Action	Responsibility
PRIORITY FEASIBILITY STUDIES	
uMkhomazi River Transfer Scheme	DWA Directorate: Option Analysis
Mvoti River Development	DWA Directorate: Option Analysis
Lower Thukela Bulk Water Supply Scheme	Umgeni Water
Re-use of treated sewage effluent	eThekwini Metro
Desalination of sea water	Umgeni Water

Strategy Actions (3 of 3)

Action	Responsibility
WATER USE EFFICIENCY	
Water Conservation and Water Demand Management measures WC/WDM has been identified as an immediate action to deal with water shortages in the area.	eThekwini, iLembe, Ugu, Msunduzi and Umgungundlovu Municipalities & DWA Directorate: Water Use Efficiency.

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Strategy Actions

- **Progress on actions will be reported on by the responsible agents**
- **Various stages of development (some unforeseen delays have been encountered)**
- **Decisions on actions going forward will have to made soon with regard to the feasibility studies**
- **A process is currently underway to develop a decision making framework to support this evaluation (to be reported on later today)**

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HAZELMERE DAM RAISING

- **Geotechnical issues – stability of the dam were identified.**
  - **Would mean an increase in the capital cost/an increase in the implementation time frame. Made the raising of Hazelmere Dam less attractive and potentially comparable to other augmentation schemes.**
- **A high level preliminary assessment of the economics of the augmentation options was undertaken**
- **The findings was presented and discussed at an extraordinary SSC meeting held in May 2012.**
- **Based on this assessment and the available information, the raising of Hazelmere Dam as the first scheme to be implemented is the preferred scenario.**

MGENI SYSTEM: LOAD SHIFT

- **Updated modelling and risk analysis for the KZN coastal water supply area was done based on additional scenarios using the Water Resource Planning model (WRPM)**
- **Upper Mgeni system includes Midmar Dam with support from the Mooi (Spring Grove/ Midmar); while the Lower Mgeni System included the area from Albert Falls to Nagle and Inanda Dams**
- **Results will be presented in following presentation**

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STRATEGY MAINTENANCE STUDY

- This meeting constitutes the final meeting on the current Strategy Maintenance Study contract of the DWA
- Implementation actions will continue and will be monitored by the DWA until a further study is in place.

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