KWAZULU-NATAL COASTAL METROPOLITAN AREA WATER SUPPLY SYSTEM

Strategy Steering Committee (SSC) for the Implementation and Maintenance of the Reconciliation Strategy

MEETING 2: PROGRESS REPORT

March 2011

1. INTRODUCTION

The second meeting of the Strategy Steering Committee (SCC) was held on Thursday, 10 March 2011 to discuss the further progress made with regard to the implementation of the Water Reconciliation Strategy for the KwaZulu-Natal Coastal Metropolitan Areas and the potential supply challenges that exist in the area with regard to implementation.

A summary of the progress with the implementation of the main strategies between the first SSC meeting and the second meeting held is presented in this report. The progress with the various aspects of the strategy was supplied by the responsible authorities as follows:-

- The Department of Water Affairs (DWA) supplied information on the water balances with input from Umgeni Water.
- DWA provided input on the progress with the Mooi Mgeni Transfer Scheme, Hazelmere Dam Raising, Mkomazi Scheme and the Mvoti Scheme.
- eThekwini supplied information on the progress with study on the re-use of treated sewage effluent.
- eThekwini, iLembe and Msunduzi municipalities supplied information on the progress with Water Conservation and Water Demand Management (WC/WDM). DWA Water Use Efficiency provided some feedback on WC/WDM activities from a national perspective.
- Umgeni Water adressed progress with the Lower Thukela transfer scheme, upgrade of the North Coast water infrastructure and the desalination of seawater option.

2. PROBLEMS WITH WATER SUPPLY

The water situation in the KwaZulu-Natal Coastal Metropolitan Area is such that the water use already exceeds the assured supply of water. This poses a challenge in water security for this metropolitan area. The above average rainfall over the last few years has kept the major water supply dams full which has led to a false sense of security regarding the water supply situation.

This area is experiencing rapid growth in water requirements attributed to the migration of people from the rural areas, economic growth and development initiatives. A below average rainfall period in the area will result in the need for water restrictions which will have impacts on the local economy.

The Reconciliation Strategy for the KwaZulu-Natal Coastal Metropolitan Area Water Supply System identifies, prioritises and confirms the essential interventions necessary to meet the water requirements of the area for the next twenty five years (Department of Water Affairs, 2009). The strategy was developed by DWA in close collaboration with the eThekwini Municipality, Umgeni Water, other municipalities and stakeholders.

3. WATER BALANCES

The water balances depicting the water reconciliation situation in the Mgeni and Mdloti River Systems were updated with recent water requirement projections and the latest implementation schedule of the interventions as shown in the subsequent figures. The graphs indicate how the water requirements compare with the available resources and show both systems will experience deficits, which is depicted by red shaded areas where the water requirements exceed the available water.

3.1 Mgeni River System

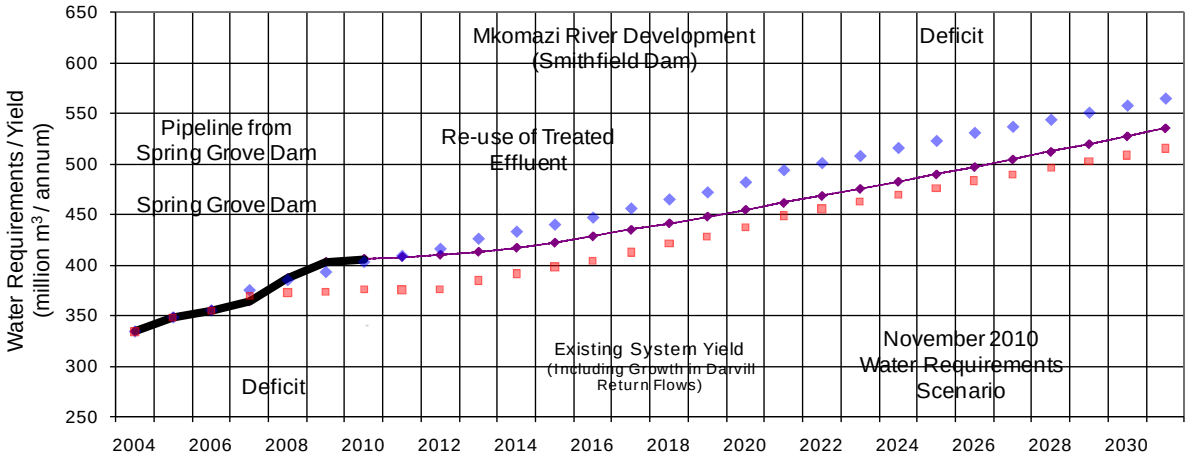


Figure 1: Water reconciliation situation in the Mgeni River System

Figure 1 shows the following:-

- The solid black line up to the year 2010 represents the actual water use.
- The dotted blue curve represents the high water requirement projection scenario without further Water Conservation and Water Demand Management (WC/WDM) as applied in the reconciliation strategy of August 2009.
- The dotted red curve represents the high water requirement projection scenario with further WC/WDM applied in the reconciliation strategy of August 2009.
- The purple line represents the revised water requirement projection scenario provided by Umgeni Water after consultation with the municipalities dated November 2010. This scenario incorporated the planned WC/WDM interventions of eThekwini Municipality.
- The red shaded areas indicate where the water requirement exceeds the yield of the system and deficits in supply and high risk of water restrictions will be experienced.
- The blue and pink areas represents the yield of the two phases of Spring Grove Dam added onto the existing yield of the Mgeni River System.
- The green area represents the planned re-use volume of treated sewage effluent.
- The increase in yield of the proposed Mkomazi River development and water transfer scheme (Smithfield Dam) is indicated by the grey area, showing sufficient water can be made available to the system to supply the projected water requirements beyond the year 2030.

Figure 1 highlights the following:-

- There is an immediate unacceptable high risk of water restrictions until Spring Grove Dam (Mooi-Mgeni Transfer Scheme) is scheduled to deliver water to the Mgeni River System;
- With both phases of the Mooi-Mgeni Transfer Scheme implemented, the system balance remains in deficit until the year 2016 when the effluent reuse scheme can deliver water.
- Achieving the implementation dates of the Spring Grove Dam and the effluent re-use schemes are crucial to reduce the risk of restrictions in the Mgeni River System.
- The importance of WC/WDM measures to reduce the deficits and risk of restrictions are illustrated by the difference in the blue dotted graph and purple line;
- The initial target WC/WDM scenario (represented by the red dotted curve) was not achieved and the November 2010 scenario (purple line) indicates that it is unlikely that the original target will be met.
- The implementation of the Smithfield Dam on the Mkomazi River is needed to be completed by 2020, however, the implementation timeline shows that first delivery is only possible by the year 2022.
- The studies for the Mkomazi River Development should start immediately so that the scheme can be implemented in time and possibly be expedited.
- The desalination of seawater is being investigated as a possible alternative option for the Mkomazi River Development and the re-use of treated effluent.

3.2 Mdloti River System

In the case of the Mdloti River System, the water balances are shown for two scenarios. The first scenario (see **Figure 2**) applied the implementation schedule for the interventions as defined in November 2010 and similar to the assumptions that were used in the August 2009 strategy reports.

The balance for the second scenario is shown in **Figure 3** and incorporates revised implementation schedules that were provided by the respective responsible organisations.

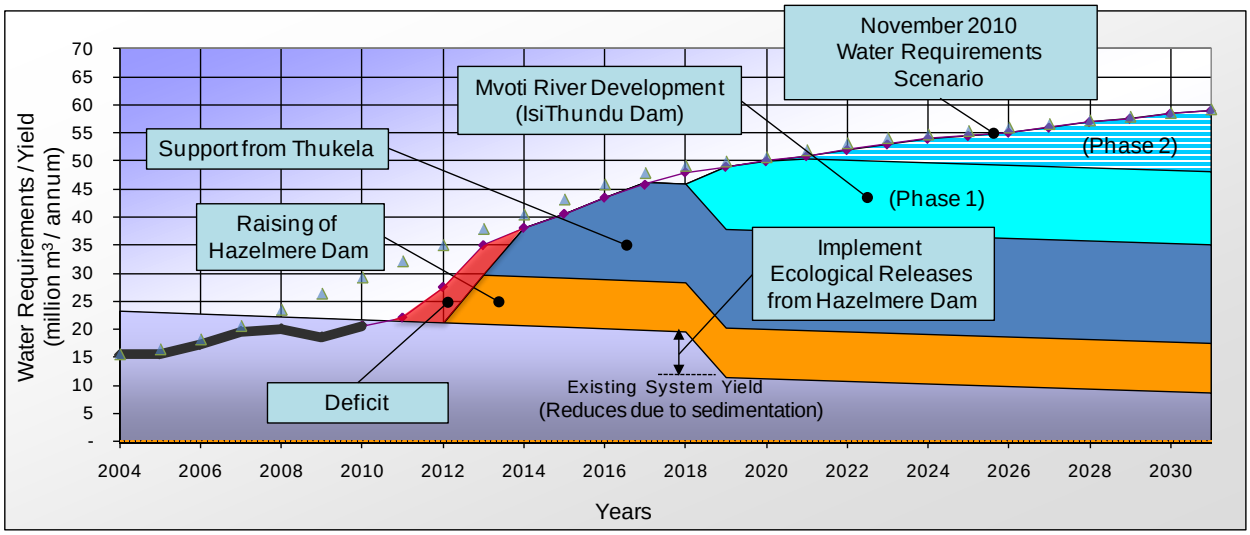


Figure 2: Water reconciliation situation in the Mdloti/Mvoti River System (November 2010)

Figure 2 shows the following:-

- The solid black line up to the year 2009 represents the actual water use. The drop in water use in the year 2009 is due to some of the water requirements normally supplied from Hazelmere Dam being supplied from the Mgeni River System.
- The dotted curve represents the water requirement projection scenario from the reconciliation strategy (August 2009).
- The purple line represents the revised scenario compiled by Umgeni Water – November 2010.
- The supply capability (yield) of the interventions (augmentation options) identified in the strategy are indicated in shaded area graphs stacked on top of the existing system yield.

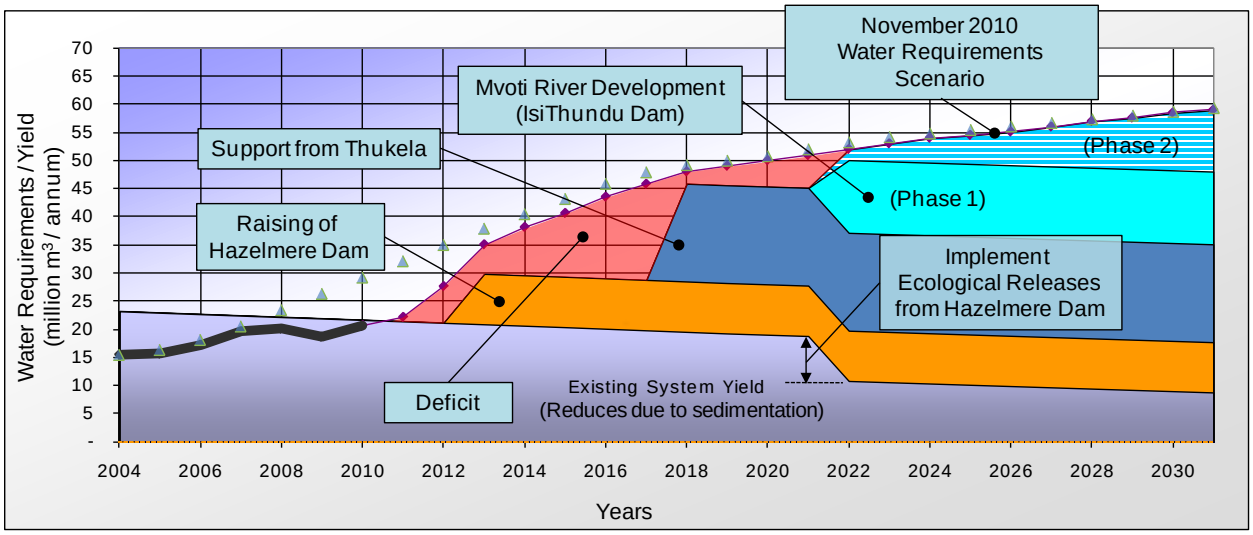


Figure 3: Water reconciliation situation in the Mdloti/Mvoti River System (March 2011)

Figure 3 shows the following:

- The same elements that were presented in **Figure 2** are indicated on **Figure 3**, however, implementation dates of both the Thukela Transfer and the Mvoti River Developments are delayed.
- The extent and duration of the supply deficits (red shaded area) are significantly higher compared to **Figure 2**, which indicates additional interventions will be necessary should the delayed implementation schedule occur.
- The Isithundu Dam or another dam on the Mvoti River is the next scheme planned for delivery of water by the year 2022. This scheme is planned to be developed in two phases.
- Once the Mvoti River Development is in place the Ecological Reserve will be able to be fully implemented in the Mdloti River system.

Umgeni Water reported that the water requirement projections used in the compilation of the water balance were compiled in September 2010. Since then a decrease in the water requirements was experienced probably due to the successful implementation of Water Conservation and Water Demand Management (WC/WDM) measures by the municipalities.

4. IMPLEMENTATION OF THE STRATEGY

4.1 Water Conservation and Water Demand Management

WC/WDM has been identified as an immediate action to deal with water shortages in the area.

eThekwini Metro, iLembe and Msunduzi municipalities have initiated a number of WC/WDM measures to reduce water losses and a number of successes were reported on at the meeting. WC/WDM measures being implemented in the municipalities are showing promising results in terms of non revenue water reduction and reduction of water leaks.

Implementation of WC/WDM measures still however remains a major challenge at the municipality level which has implications for water shortages in the area. Even if completely successful, WC/WDM measures will not be sufficient to ensure sufficient future water availability in the area and further significant interventions are required.

Feedback on WC/WDM activities from a national perspective was highlighted. These included the following:

- Compilation of a national Non-Revenue Water report.
- Alignment of Key Performance indicators (KPI) with other government departments.
- Training and capacity building.
- Implementation of WC/WDM by municipalities to reduce water losses and Non-Revenue Water and reporting on these quarterly to the Presidency against the target to reduce water losses by half by 2014.
- Publishing of regulations in terms of the National Water Act and the Water Services Act.
- Institutionalisation of WC/WDM within DWA and the CMAs.
- Municipalities and DWA to create WC/WDM forums with the aim to halve water losses by 2014.

Concerns were raised by SSC members regarding the proposed target to halve water losses by 2014. This was considered not feasible by most municipalities. It was indicated by the DWA KZN Regional Office that the proposed Water Committee for Province that was recently formed would discuss the targets set and that the SSC will be provided feedback with regards to the discussions of the Water Committee.

4.2 Spring Grove Dam and transfer system

Background

- Mooi Mgeni Transfer Scheme 2 (MMTS-2) will augment the water supply of the Mgeni System.
- The full scheme will increase the current system yield by 60 million m^3/a.
- The scheme consists of the Spring Grove Dam (MMTS-2A) and conveyance infrastructure (MMTS-2B)
- The Trans Caledon Transfer Authority (TCTA) has been instructed to implement the scheme on behalf of the Department of Water Affairs (DWA).

Progress

- The project has been advertised in the Government Gazette
- According to TCTA:

- Construction tender for the dam has been awarded February 2011.
- Construction started: February 2011 (to March 2013)
- Projected water delivery: April 2014.
- Funding for the scheme has not been secured.

- The following risks are being managed by DWA:
  - The agreement between the DWA and Umgeni Water is being finalised. The TCTA is driving the agreements with the municipalities which are also in the final stages. These agreements have to be finalised before the construction can commence.
  - The project schedule is very tight. To meet the proposed deadlines for construction and impoundment no slippage can be accommodated.
  - The land acquisition process is underway and has to be managed carefully.
  - Interest is payable in terms of the money loaned for the development.
- Delays experienced were caused by an appeal against the Environmental Impact Assessment for the associated pipeline as well as the time it took in terms of the negotiations with the agreements between TCTA, Umgeni Water and the municipalities.

Environmental Compliance:

- The appeal against the dam's construction was withdrawn.
- Minister of Justice upheld the appeal against the pipeline, the EIA must be re-done (12 months minimum).
- The design of the pipeline and pump station is not continuing at this stage.
- Design will continue in parallel with EIA.
- Construction will continue after environmental authorisation and contract award during 2012.

The concern raised by the SSC was that the MMTS Phase 2 cannot be delayed further. The critical path from now on will be to manage the contractors responsible for the construction of the dam, which are already one month behind the original schedule.

4.3 Raising of Hazelmere Dam

Background

- The project will augment the water supply to the KwaZulu-Natal North Coast (Mdloti to Thukela) and sustain irrigation downstream of the dam.
- The project entails the raising of Hazelmere Dam by installing radial gates to increase the gross storage capacity from 23.9 million m^3 to 43.7 million m^3.
- The storage capacity of the dam has been greatly reduced by sedimentation (2010: 11.4 million m^3) with the corresponding reduction of the yield.

Progress

- Letter to implement project as a Government Water Works was signed by the Minister of Water and Environment Affairs on 8 June 2010.
- A final draft of the Record of Implementation Decisions (RID) was completed and it is currently under review.
- The Mdloti Reserve was signed off by the DWA, Directorate Resource Directed Measures.
- The following programme was received from CD: ID:
  - Appoint Professional Service Provider and complete design: 2011.
  - Appoint Contractor and manufacture gates: 2011 /12.
  - Install gates and commission: 2012 /13.

- The capital cost for the project is estimated at approximately R116 million.
- Concerns were received from the Chief Directorate: Engineering Services on the risk associated with the operation of radial gates.

The raising of the dam is behind schedule thus no further delays can be accommodated. The SSC indicated further growth in water requirements is expected due to new developments and water uses in the north. The additional water requirements need to be included in the next update of the water projections for the area to determine if the current programme is acceptable. Confirmation of the date of water delivery is required as the commissioning of the gates during the rainy season was questioned.

4.4 North Coast Water Supply Infrastructure

Background

Extensive current and proposed future developments within the North Coast region have necessitated the augmentation of the entire North Coast Supply System. The following projects are being planned or implemented as part of this augmentation. These include:

- A pipeline has been constructed from Avondale Reservoir to Honolulu reservoir,
- A pipeline is currently being constructed to augment the North Coast Supply System from Honolulu Reservoir to Mvoti Balancing Reservoirs,
- A pipeline is planned to augment the line from Hazelmere WTP to La Mercy bifurcation,
- A new raw water pipeline is planned from the Hazelmere Dam to the Hazelmere WTP, and
- The Hazelmere WTP will be upgraded from 45Ml/d to 75Ml/d.

Progress

- The Avondale to Honolulu Pipeline was completed in November 2009.
- The Honolulu to Mvoti Pipeline was completed in September 2010.
- Umgeni Water is currently awaiting authorisation from DWA for the expropriation of a site for a pump station to boost pressure between Honolulu and Mvoti Balancing Reservoirs. Thereafter, a tender will be issued for the construction of the pump station. The construction of the pump station is expected to take 6 to 9 months.
- A tender has been issued for the construction of a pipe bridge across the Mvoti River. Tender documents have been received for this project and are currently being adjudicated. The river crossing will take approximately 6 months to construct.
- The design of the Hazelmere to Bifurcation Pipeline is complete and tenders are being issued for construction of this project.
- The design of the upgrade to the Hazelemere WTP and the Hazelmere Raw Water Pipeline is currently being undertaken.

Way forward

- The Mvoti River crossing and the Honolulu to Mvoti Pump Station will be constructed in 2011.
- The DWA is planning the raising of Hazelmere Dam and it is expected that this will be completed in March 2013.
- The Hazelmere WTP and the Raw Water Pipeline will be constructed once the design of these projects is complete. Both projects are planned for completion in July 2013.
- The Hazelmere to Bifurcation Pipeline will be constructed in 2011 / 2012.
- The Lower Thukela Bulk Water Supply (BWS) Scheme will be linked into the North Coast Supply System in 2018

- The Lower Mvoti BWS Scheme will be linked into the North Coast Supply System in approximately 2025.

4.5 Mkomazi River Transfer Scheme

The soonest water delivery can take place is January 2023

- The pre-feasibility studies conducted recommended that the Mkomazi Water Project Phase 1 should be studied further. The feasibility study will consist of:
    - The construction of the Smithfield Dam near Richmond – 58m high dam wall.
    - A 33 km long conveyance system
    - A new water treatment works at Baynesfield in the Mlazi River valley
    - A 22km long twin 1.6m diameter gravity pipeline to a reservoir at Umlaas Road.
- On 4 March 2011 it was advertised that proposals are requested for the feasibility study. It is anticipated that the study will take place over five years.
- Proposals for the environmental studies will be advertised in the next five months and it is estimated that these studies will be conducted over 4.5 years.

A Reserve determination for the Mkomazi River is required as a matter of urgency. Delays in the Reserve Study could impact on the timing of the feasibility study to be conducted.

4.6 Lower Thukela Bulk Water Supply Scheme

Background

This scheme is planned to abstract water from the lower reaches of the Thukela River near the SAPPI Mill, for treatment at a regional water treatment plant situated in close proximity. Potable water will be delivered southwards to local developments and rural communities and will link into the existing North Coast Supply System. Potable water will also be delivered northwards to the Mandini Municipality area to support development.

Progress

Infrastructure

- The detailed feasibility / preliminary design has been undertaken for the project. The following components of the study have been included:
    - Options analysis (Complete)
    - Geotechnical and cathodic protection surveys (Complete)
    - Physical Model study and site optimisation (Complete)
    - Weir, abstraction and de-silting works – Location, size and configuration (Complete)
    - Water treatment works – Location and configuration (Complete)
    - Pipelines, Pump stations and Reservoirs – Location and sizing (to be confirmed with Environmental Consultant)
- The draft feasibility / preliminary design report will be completed in March 2011.

Environmental

- The EIA was registered with DAEA in February 2010.
- The initial ecological assessment was completed July 2010. Additional work is, however, required on new routing options.

- A heritage assessment, wetland/riparian delineation and functional assessment, and aquatic impact assessment have been completed.
- A social impact assessment and public participation exercise is being undertaken. This has included consultation with Ingonyama Trust Board, landowners, tribal leaders and councilors and public participation
- The EIA scoping report was submitted to DAEA and has been approved. This report is now awaiting public comment.

Way Forward

- The draft feasibility / preliminary design reports will be complete in March 2011.
- Design consultants will be appointed to undertake the design of the scheme (May 2011).
- The Environmental Impact Assessment should be submitted to DAEA in July 2011.
- Close liaison with iLembe District Municipality on their reticulation bulk design/linkages.
- Construction of the scheme will commence in 2016.
- The scheme will be commissioned in 2018.

The need for earlier delivery of water was raised by some SSC members. Umgeni Water reported that the revised implementation dates were based on Umgeni Water's latest Capex budget, which is reviewed annually. The important fact at this point is that funds are available for the next step in the process, i.e. the detailed design, which is due to start in the near future. With a more detailed costing from the design process and updated water requirement projections the timing of the implementation of this project will be reviewed on an annual basis and a decision will be taken based on these updates.

4.7 Mvoti River Development

The project will augment the water supply to the KwaZulu-Natal North Coast. During the feasibility study a comparative analysis between desalination, the Mvoti Project and augmentation from the Thukela will be done.

It is anticipated that the feasibility studies will start by October 2011 and it will take 4 years to complete.

- EIA (including estuary): Start January 2012 (end January 2016)
- Detailed design: Start April 2016 (end March 2018)
- Construction: June 2018 (end June 2021)
- Water delivery: January 2022

4.8 Re-use of treated sewage effluent

- The Feasibility Study for the proposed project was completed in September 2010.
- The treated sewage effluent from the KwaMashu and Northern Waste Water Treatment Works (WWTW) will be collected and treated in separate re-use plants. The recommendation from the study is that:
    - Re-use plants situated at Northern (51 Ml/day) and KwaMashu (64 Ml/day) WWTW
    - Direct discharge to potable water network
- The EIA for the project which is planned to start in July 2011 will raise the public profile of the study. It is anticipated that the EIA will be completed by April 2012.
- DWA requested the determination of the Reserve on the Mgeni estuary before issuing of a water use authorization. Marine and Estuary Research was appointed in March 2011 to undertake the study. The results from the study will be presented to DWA in June 2011.

- Construction of the infrastructure required is planned between January 2014 and December 2015 with commissioning early in 2016.
- The Mgeni Estuary is already impacted on and the Reserve determination will clarify the extent to which the system can accommodate the impact of two re-use plants.

The public perception of water re-use remains a challenge and will probably be the major obstacle to the successful implementation of the project. Co-ordinated communication and support by all role players including national, provincial and local government is critical if the scheme is to be implemented.

The effective life span of the re-use plants is estimated at 8 years between 2016 and 2024, until such time that the Mkomazi Scheme is commissioned. The capital outlay is approximately R1 billion. Decisions on the need for the proposed re-use development in the context of its life span and other options such as the desalination of seawater need to be taken soon. A study comparing desalination, re-use and the Mkomazi Project will have to be undertaken.

4.9 Desalination of seawater option

The projected demand of the Mgeni Inland and Central systems is greater than the assured system yield. Umgeni Water is currently investigating the possibility of augmenting the supply to the Mgeni System through one or more large scale desalination plants. These plants would supply water to the coastal areas of KwaZulu-Natal thus freeing up water currently allocated to the Mgeni System.

Project Progress

- Pre-Feasibility report completed in May 2009.
- Workshops were held with Australian experts in February 2010 to better understand the requirements for a large seawater desalination plant.
- A review of possible desalination plant sites is currently being undertaken. This study will include both site specific attributes of possible sites along the coastline together with the options for linkage into the bulk supply network.
- Initial screening of identified sites was undertaken by Umgeni Water in July 2010.
- Workshops were held with interested and affected stakeholders in July/August 2010 to review potential sites.

Way Forward

- The site selection process will be completed for two sites, one on the South Coast and one on the North Coast (Mar 2011).
- GHD (Australia) are to be appointed as advisors to the project and to assist in compiling the terms of reference for the feasibility study (March 2011).
- A Terms of Reference will be compiled and consultants appointed (July 2011 – March 2013) to undertake the following at each proposed site:
    - A feasibility study / preliminary design of the inlet and outlet works;
    - Determination of desalination plant requirements and costs;
    - A feasibility study / preliminary design of the linkage to bulk supply network;
    - An environmental impact assessment; and
    - Compile and estimate of desalination plant costs and contractual requirements
    - Energy requirements.
- Feasibility level costing and economic analysis will be undertaken as part of the feasibility study and thereafter a decision will be taken on whether to proceed to the design of one or both desalination plants.

4.10 Management of System Operation

Further to the above interventions, it was agreed by SSC members that a Systems Operations Management Forum will be established that will work towards improving system management and manage water restrictions in the area in the event of a drought. The committee will include members from DWA, Umgeni Water and all municipalities.

An initiation meeting was held on 22 September 2010 which included representatives from DWA and Umgeni Water to deliberate the establishment of a System Operation Forum for the Mgeni River and Mdloti River systems.

The next meeting will be held on 15th March 2011 where the structure, procedures and protocols to enable the implementation of water restrictions will be established. The committee will thereafter meet again in May 2011 when dam level data will be assessed and a decision on the imposition of water restrictions will be taken.

In accordance with a recommendation made at the Technical Support Group meeting held on 24 November 2010, **Figure 4** and **Figure 5** were prepared to indicate at what storage level drought restrictions will be implemented in the Mgeni River System.

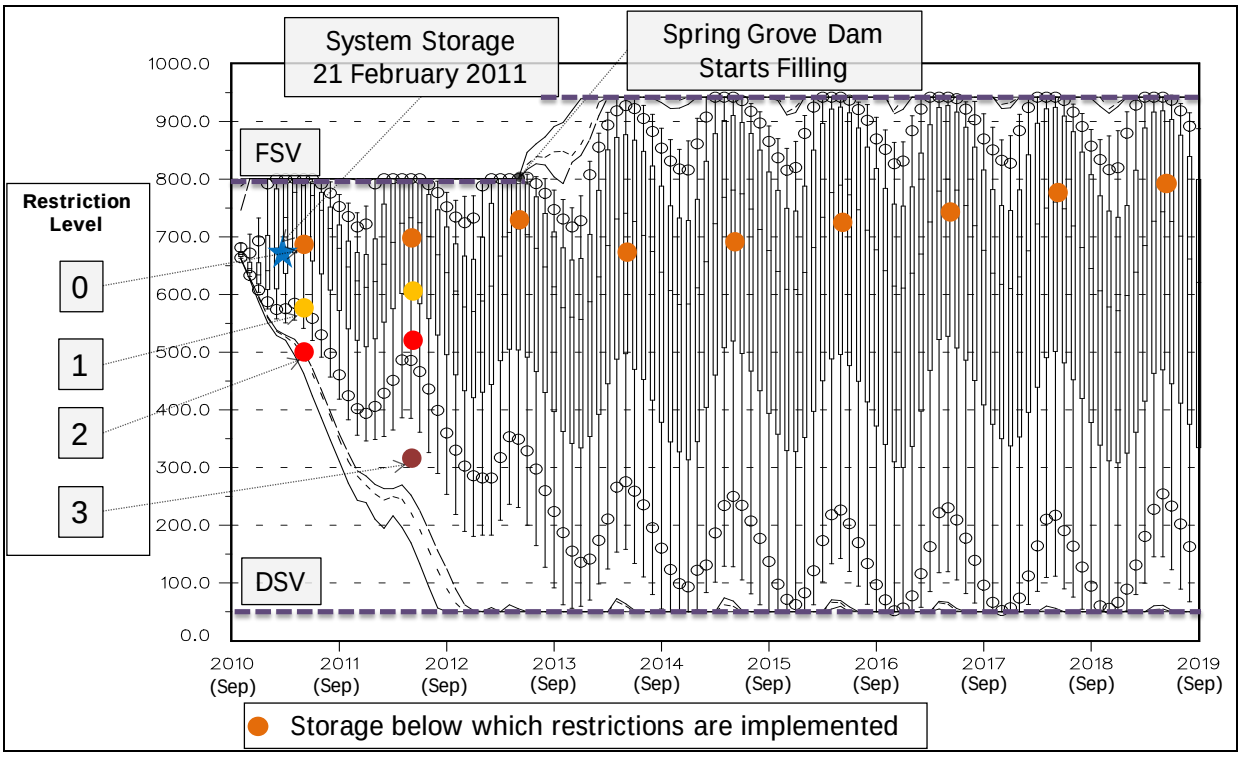
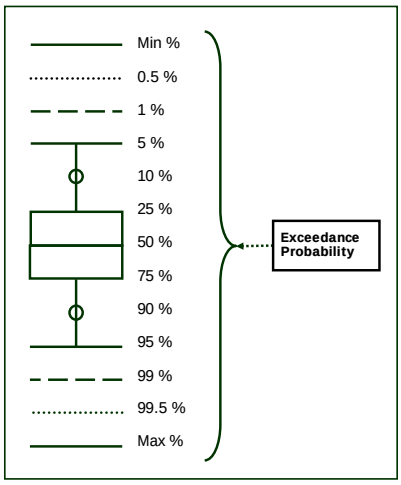


Figure 4: Monthly Mgeni System Storage Projection and levels below which restrictions are implemented

Figure 4 shows the following:

- The probability distributions (box plots) of monthly storage volumes are shown for the following exceedance probabilities:



[1]

- The storage volume box plots were obtained from simulation analysis carried out by Umgeni Water with the Water Resources Planning Model and using the storage state of all the dams in the system as on 1 September 2010 as the starting volumes.
- No drought restrictions were implemented in the simulation analysis and the storage level box plot graph shows that there is a 5% risk (95% exceedance probability) that there will be no water in storage by the November 2013. This represents an unacceptable high risk of a complete failure in supply and highlights the importance of the timely implementation of all the strategy interventions.
- The effect of commissioning Spring Grove Dam is illustrated with the increase in the Full Supply Volume (FSV) and the higher storage volumes projected from 2013 onwards.
- The colour dots give the storage volumes below which drought curtailments need to be implemented for the indicted restriction levels. (The magnitude of the restriction progressively increases with higher levels of restriction).
- The dots increase over time due to the increasing water requirements abstracted form the system. The additional yield from Spring Grove Dam results in a once of decrease in the dots (May 2014) followed again by continuous increasing levels.

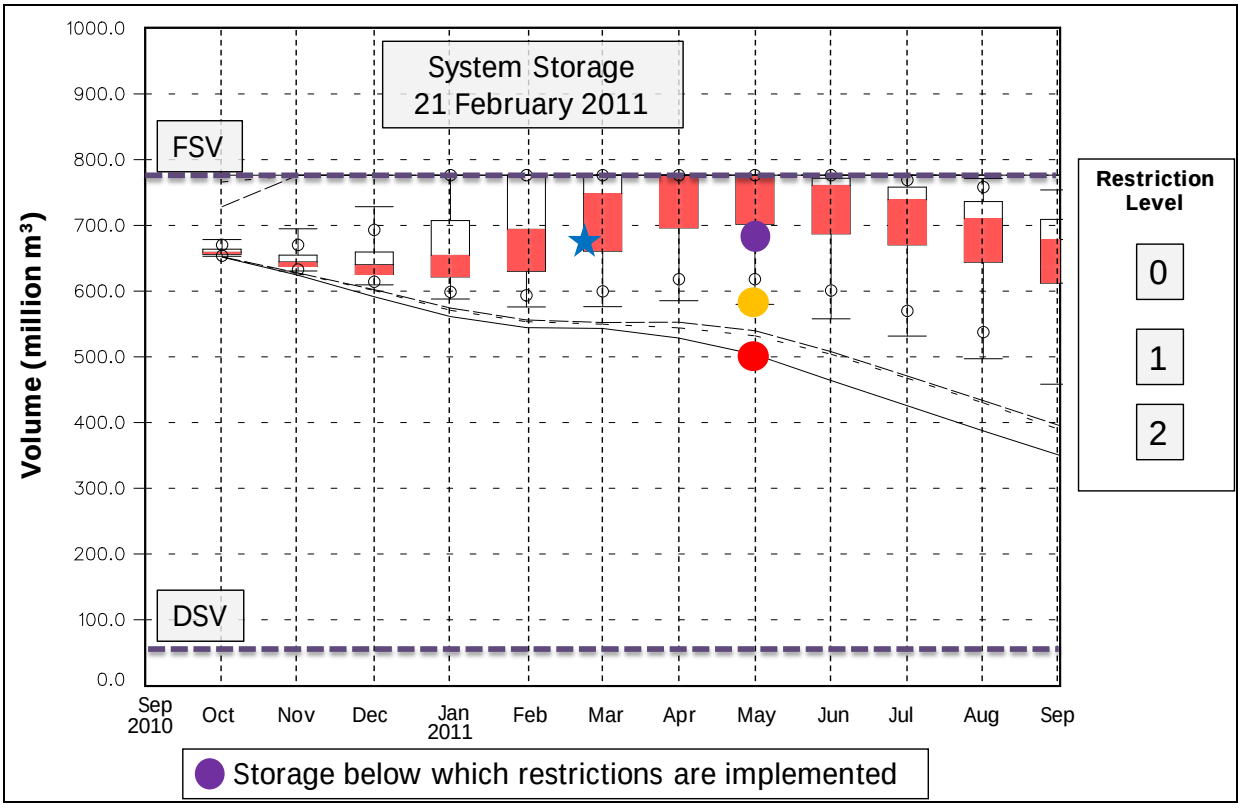


Figure 5: Mgeni System Storage Projection and restriction levels (first 12 months of analysis)

Figure 5 shows the following:

- Presents only the first 12 months of the Mgeni System Storage projection from **Figure 4**.
- The purple dot shows that there is a 75% exceedance probability (25% risk) that drought restrictions will have to be implemented in May 2011 and a 5% risk of a full level 1 restriction (yellow dot). These detail simulation analysis results are a further demonstration of the large deficits that are reflected on the projected water balance sections of the progress report.
- The system storage state as recorded on 21 February 2011 is presented by the blue star and indicates that substantial rainfall and inflow is required into the dams to prevent drought restrictions to be implemented from May 2011 onwards.
- Similar figures will be developed for the Mdloti River System.

5. IMPLEMENTATION SCHEDULE

The augmentation schemes and measures identified in the 2009 Reconciliation Strategy have not changed. No new supply options have been identified. The key to the successful implementation of the strategy is meeting the target dates for the various phases of the augmentation schemes. The revised set of dates is given in **Table 1**.

Table 1: Target dates of activities for augmentation schemes identified

MAIN SCHEME	Start Date	End Date
Mooi Mgeni Transfer Scheme Phase 2 A		
Spring Grove Dam		
Construction	Feb 2011	Mar 2013
Water Delivery	April 2014	April 2014
Mooi Mgeni Transfer Scheme Phase 2 B		

Pipeline & Pump station		
Additional EIA work (Re-alignment of pipeline & work on measuring weir on Little Mooi River)	April 2011	Jan 2012
Detailed Design	Jan 2012	Aug 2012
Construction	Oct 2012	Jan 2014
Delivery		Mar2014
Hazelmere Dam Raising (DWA)		
Decision on Gates	Sep 2010	
Detailed Design	April 2011	March 2012
Construction	April 2012	May 2013
Delivery		July 2013
Mkomazi Scheme (DWA)		
Feasibility Study	April 2011	Mar 2016
EIA (including estuary)	Aug 2011	Mar 2016
Detailed Design	April 2016	Mar 2018
Construction	June 2018	June 2022
Delivery		Jan 2023
Mvoti River Scheme (DWA)		
Feasibility Study	Oct 2011	Oct 2015
EIA (including estuary)	Jan 2012	Jan 2016
Detailed Design	April 2016	Mar 2018
Construction	June 2018	June 2021
Delivery		Jan 2022
Lower Thukela Transfer (Umgeni Water)		
Feasibility Study		31 Dec 2010
Detailed Design	1 Jan 2011	
Construction		
Delivery		
North Coast pipeline and Hazelmere Dam infrastructure upgrades (Umgeni Water)		
Construction North coast pipeline to Honolulu reservoir		30 March 2011
Raw water pipeline from Hazelmere Dam to Hazelmere WTW		31 March 2013
Upgrade Hazelmere WTW		31 March 2013
Desalination (Umgeni Water)		
Site Selection	1 Sep 2010	31 Jan 2011
Feasibility Study	1 Feb 2011	
Re-use treated sewage effluent (eThekwini Metro)		
PSP for Mgeni Estuary reserve appointed		March 2011
Results of Mgeni Estuary workshop		June 2011
DWA decision July 2011		July 2011
EIA process and approval	July 2011	April 2012
Tender preparation and adjudication	May 2012	Dec 2012
Tender award, financing and site establishment	Jan 2013	Dec 2013
Construction and commissioning	Jan 2014	Dec 2015
Water delivery		Jan 2016

6. UPDATE OF STRATEGY

Although some of the assumptions that were used to develop the strategy have changed and the reconciliation of requirements and resources has occurred no changes to the reconciliation strategy are required at this time.

Table 2: Summary of actions and responsible organizations resulting from the Reconciliation Strategy

Action	Responsible Organization
Priority infrastructure projects	
Spring Grove Dam and transfer system	DWA: National Water Resource Infrastructure Branch and TCTA
Raising of Hazelmere Dam	National Water Resource Infrastructure Branch
North Coast Pipeline	Umgeni Water
Priority Feasibility Studies	
Feasibility Study of the Mkomazi River Transfer Scheme	DWA Directorate: Option Analysis
Feasibility study of the Lower Thukela Transfer	Umgeni Water
Feasibility Study of the Mvoti River Development	DWA Directorate: Option Analysis
Feasibility study for re-use of treated sewage effluent	eThekwini Metro
Feasibility study for desalination of sea water	Umgeni Water (DWA)
Water Use Efficiency	
Implementation of Water Conservation and Water Demand Management measures	eThekwini, iLembe, Ugu, Msunduzi, Umgungundlovu Municipalities and DWA Directorate: Water Use Efficiency
Rain water harvesting	eThekwini Metro and DWA Directorate: Water Use Efficiency
Institutional Arrangements	
Constitute the System Operation Management Forum	DWA KZN Regional Office
Setup the Strategy Steering Committee (SSC)	DWA Directorate: National Water Resource Planning
Establish a forum to share WC/WDM experiences	Umgeni Water to coordinate
Embark on a media campaign to support the recommendation and actions	DWA KZN Regional Office and municipalities

7. ACTIONS RESULTING FROM THE SSC

The actions and the responsible organizations identified during the SSC meeting are listed in Table 3.

Table 3: Actions and responsible organizations identified during the SSC meeting

Action	Responsible Organisation
The catchment forums in the area where in existence and functioning must be invited to serve as members of the SSC.	DWA KZN Regional Office
The water delivery date for the raising of Hazelmere Dam must be confirmed and any changes must be reflected on the water balance graph.	DWA Directorate: National Water Resource Planning
The progress report, meeting minutes and the press release must be completed and circulated to SSC members by the 24th March 2011.	DWA Directorate: National Water Resource Planning
The progress report and the press release must be used to highlight the seriousness of the water supply situation. The documents must be used by the different organisations to take the message to the highest level.	All members of the SSC
Water requirements must be reviewed/updated based on the latest water requirement projections and the water balance graph updated accordingly (August 2011)	Umgeni Water and DWA Directorate: National Water Resource Planning
Achievable water loss targets for WC/WDM measures need to be set for the municipalities in the area. This needs to be addressed/tabled at a meeting of the Water Committee established for the region.	DWA KZN Regional Office
Feedback on the progress of the initiation of a Reserve Determination study for the Mkomazi River is required.	DWA Chief Directorate Resource Directed Measures
Feedback on the decisions taken at the SOMF is required at the next SSC meeting	DWA KZN Regional Office on behalf of SOMF
The establishment of a water savings forum has been identified as a need. This should be addressed/tabled at a meeting of the Water Committee established for the region.	DWA KZN Regional Office
Catchment management measures to support water conservation need to be investigated. The possibilities of land management activities and the proposed implementation thereof in the study area need to be assessed within the TSG and the findings thereof presented at the next SSC meeting.	DWA Directorate: National Water Resource Planning/Technical Support Group
Decisions regarding the feasibility of the desalination of seawater versus the re-use of treated sewage effluent need to undertaken once the all the necessary information is available to ensure the most cost-effective and practical approach to water delivery is implemented over the medium term to address the water deficit.	DWA Directorate: National Water Resource Planning/Technical Support Group/SSC

8. GENERAL INFORMATION

Detailed progress reports on the water resource management strategies can be found at the following link: http://www.dwa.gov.za/Projects/KZNWRMS/documents/aspx.

The Study Manager for the project is Mr. Niel Van Wyk, Chief Engineer at the Directorate: National Water Resource Planning (East).

The next meeting of the SSC (meeting 3) is on 27 September 2011.