KWAZULU-NATAL COASTAL METROPOLITAN AREA WATER SUPPLY SYSTEM

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

PROGRESS REPORT

September 2010

1. INTRODUCTION

The first meeting of the Strategy Steering Committee (SCC) was held on 02 September 2010 to discuss the progress in the implementation of the Water Reconciliation Strategy for the KwaZulu-Natal Coastal Metropolitan Areas.

The purpose of the SSC is to ensure that:

- the Reconciliation Strategy for the KwaZulu-Natal Coastal Metropolitan Areas is implemented;
- the strategy is updated regularly;
- deliberations and decisions of the SSC are communicated to interested and affected parties.

A summary of the progress with the implementation of the main strategies, as well as the response from the SSC is given below. The presentations made to the SSC are given in Appendix A. A membership list of the SSC has also been attached to this report.

2. PROBLEMS WITH WATER SUPPLY

The water supply to the KwaZulu-Natal Coastal Metropolitan Area is experiencing serious difficulties and the area faces almost certain water restrictions in the near future. The above average rainfall over the last few years has kept the major supply dams full which has led to a false sense of security regarding the water supply situation. A below average rainfall period will result in the need for water restrictions with their associated impacts on the local economy.

The KwaZulu-Natal Coastal Metropolitan area is the third largest contributor to the national economy and has the second largest population concentration in the country. It is the economic hub of KwaZulu-Natal. The continued economic growth and development in the area requires an assured water supply in line with DWA's policy of water for growth and development.

A Reconciliation Strategy for the KwaZulu-Natal Coastal Metropolitan Area Water Supply System was finalised in 2009 by the Department of Water Affairs (DWA) in close collaboration with the eThekwini Municipality, Umgeni Water, other municipalities and other stakeholders. This Strategy identified, prioritised and confirmed the essential interventions necessary to meet the water requirements of the area for the next twenty five years. One of the recommendations of the Reconciliation Strategy was that a Strategy Steering Committee (SSC) be constituted to take responsibility for the implementation of the strategy by providing strategic advice and guidance and to make recommendations on long-term planning activities required to ensure ongoing reconciliation of water requirement from and available supply to water supply area.

In the reconciliation strategy for the area, the high risk of restrictions was identified and a number of interventions were assessed to reduce the risk. The immediate interventions of constructing the Spring Grove Dam and pipeline and the raising of Hazelmere Dam have fallen behind schedule. The risk of restrictions have escalated to unacceptable levels and the SSC members should be communicating the extent of the problem to the decision makers at the highest level so that the appropriate action can be taken to overcome the stumbling blocks to the implementation of these projects.

3. WATER BALANCE DIAGRAMS

The water balance diagrams depicting the water reconciliation situation in the Mgeni and Mdloti/Mvoti River Systems are shown in Figure 1 and Figure 2 respectively. The diagrams indicate the proposed timing of interventions to address the shortfalls in yield.

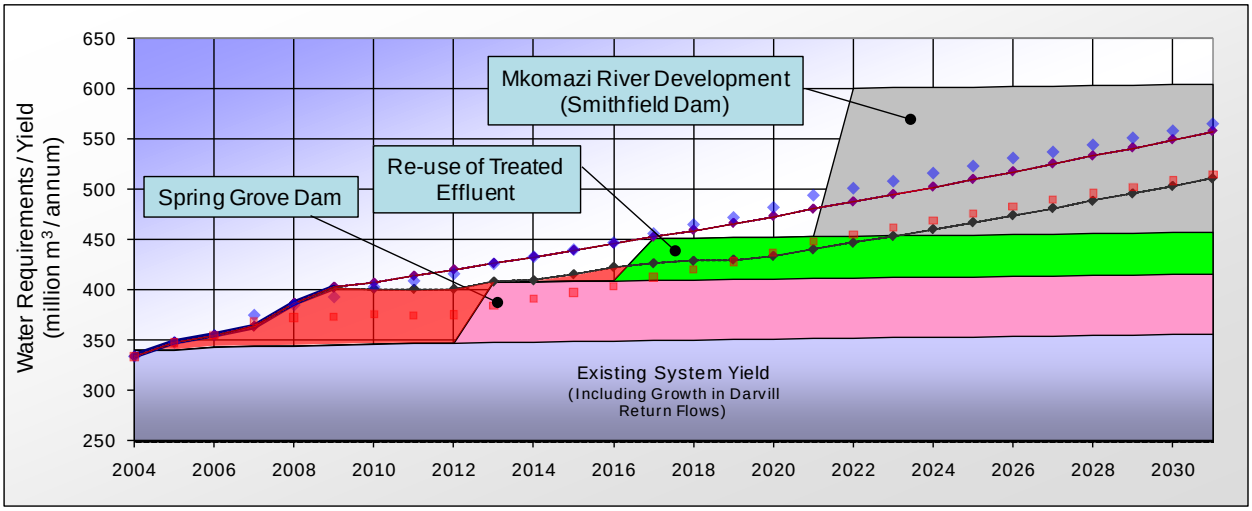

Figure 1: Water reconciliation situation in the Mgeni River System

Figure 1 shows the following:-

- The solid blue line up to 2009 represents the actual water use.
- The dotted blue curve represents the high water requirement projection scenario without further WC/WDM as applied in the reconciliation strategy.
- The dotted red curve represents the high water requirement projection scenario with further WC/WDM applied in the reconciliation strategy.
- The purple line represents the revised water requirement projection scenario compiled by Umgeni Water in February 2010.
- The black line represents the revised low water requirement projection scenario compiled by eThekwini (with further WC/WDM).
- The red shaded areas indicate where the water use exceeds the yield – shortfall in yield.
- Pink area represents the yield 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.

Figure 1 highlights the following:-

- The immediate risk of water restrictions up until 2013 when Spring Grove Dam was scheduled to deliver water to the Mgeni River System;
- The importance of WC/WDM measures (red dotted and black line) in reducing the water requirement projection curve which will reduce the risk of water restrictions up until 2013;
- The successful implementation of WC/WDM will allow the proposed implementation schedule for the Spring Grove Dam and the treated effluent re-use to meet the water requirement projections after 2012 and beyond.
- The implementation of the Smithfield Dam on the Mkomazi River is needed to be completed by 2021.
- The implementation dates of the Spring Grove Dam and the effluent re-use schemes are crucial to achieving a water balance for the Mgeni River System.
- The studies for the Mkomazi River Development should start immediately so that the scheme can be implemented in time.
- The desalination of seawater (a proposed option) could replace the Mkomazi River Development.

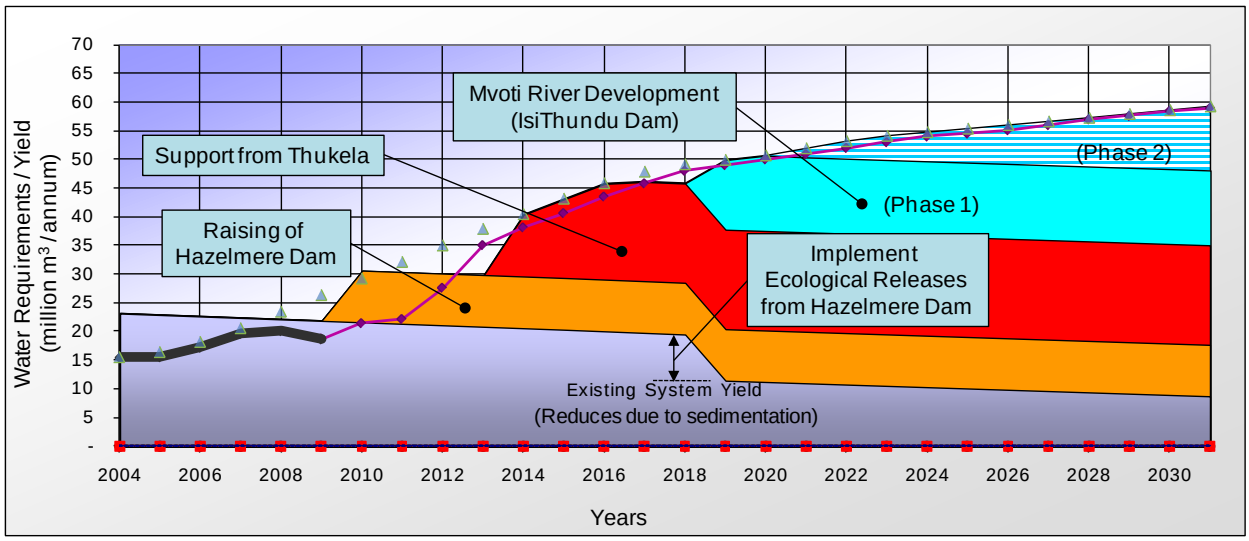

Figure 2: Water reconciliation situation in the Mdloti/Mvoti River System

Figure 2 shows the following:-

- The solid line up to 2009 represents the actual water use. The drop in water requirements 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.
- The purple line represents the revised scenario from Umgeni Water – February 2010.

Figure 2 highlights the following:-

- The raising of Hazelmere Dam would have been required by 2009 if the original reconciliation strategy water requirement projection was realized. For the revised projection the dam raising will need to be completed by 2011.
- The transfer from the Lower Thukela River is planned for implementation by 2013.
- The Isithundu Dam or another dam on the Mvoti River is next scheme planned for development by 2018. 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.

4. IMPLEMENTATION OF THE STRATEGY

4.1 Water Conservation and Water Demand Management

The first option to deal with water shortages is water conservation and water demand management (WC/WDM). The eThekwini Metro is addressing water losses through replacement of leak prone asbestos cement pipelines, leak detection, pressure reduction, rezoning and the improvement of reservoir integrity. The real losses in 2009/2010 was 37.5% and the target is to reduce this to 28% by 2013 and 25% by 2018. eThekwini Metro did however warn against having high expectations and that to achieve the target savings in water losses will take a concerted team effort from all parties involved and especially the community. The iLembe District Municipality has also recently embarked on the implementation of five year non-revenue water reduction Master Plan as a means to minimize water losses in the area of supply. It's real losses in 2008/2009 was 49%, the target is to reduce this to 26%. Other municipalities are expected to follow suit in initiating WCWDM programmes.

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.

4.2 Spring Grove Dam and transfer system

The progress with the Mooi-Mgeni Transfer Scheme (MMTS) is as follows:

- An appeal has been lodged against the pipeline route. A decision on the appeal is to be made by the Minister of Justice. A date has not been set for the Minister of Justice to decide on the appeal. Design of the pipeline has been stopped until the appeal process has been finalized.
- There is a possibility to continue with the construction of the dam, at risk, because there were no appeals against the Spring Grove Dam. If there is legal actions by the pipeline applicants, construction on the dam will have to be stopped until the legal actions has been concluded.

However there are still other delays that are also slowing down the progress of the project.
These include:-

- Funding for the scheme has not been secured due to the back to back agreements between TCTA, Department of Water Affairs (DWA), Umgeni Water and eThekwini Metro not being finalised. Agreement is however imminent.

Projected water delivery will be in April 2013 if project remains on schedule. This represents a delay of 13 months from the original programme where delivery of water was due by March

2012. The concern raised by the SSC was that the MMTS Phase 2 cannot be delayed further and the necessary political pressure should be brought to bear at the highest level to get the situation resolved.

4.3 Raising of Hazelmere Dam

The progress on the raising of the dam with the installation of radial gates as reported by DWA is as follows:-

- Appoint Professional Service Provider (PSP) to do the design in 2010.
- The appointment of the contractor and the manufacture of the radial gates will take place in 2011.
- The gates will be installed and commissioned in 2012.

The raising of the dam is delayed by two years. The Mdloti System will be at serious risk of water shortages if the original water requirement projection is realized. If the growth in water requirements follows the revised projection then the current programme is acceptable. However no further delays can be tolerated in the raising of the dam. It must also be pointed out that the drop in requirements on which the new curve was based, implies a higher demand on the Mgeni system with an increase in shortages on that system.

4.4 North Coast pipeline and Hazelmere Water Works Upgrade

The progress and schedule for the upgrading of the northern supply system was reported by Umgeni Water as follows:-

- The construction of the Honolulu to Mvoti Pipeline will be completed by 2010.
- Completion of the upgrade of the bulk supply from Hazelmere Dam is as follows:-
    - Raw water pipeline from dam to waterworks by 2012
    - Upgrade of Hazelmere Waterworks to 75Ml/day by 2013
    - Upgrade Hazelmere Waterworks to the Bifurcation Pipeline by 2013
- The Lower Thukela Transfer Scheme into the North Coast Supply System by 2014.

The Mvoti Development Scheme will be linked into the North Coast Supply System by 2019.The upgrade of the North Coast pipeline and Hazelmere Waterworks fits the schedule for the raising of Hazelmere Dam and the planned transfer of water from the Lower Thukela River by 2014.

4.5 Mkomazi River Transfer Scheme option

The soonest water delivery can take place is 2022 because of lead times required for planning and construction. The Department of Water Affairs and Umgeni Water is currently developing Terms of References for the project. DWA will be responsible for the planning of raw water infrastructure and will lead the EIA studies for the whole project. UW will be responsible to planning the potable water infrastructure. The professional service providers for the raw water infrastructure will be appointed in January 2011.

4.6 Lower Thukela Transfer

The progress on the different components of the scheme as reported by Umgeni Water is as follows:-

- The location and configuration of the site for the river abstraction works will be completed in September 2010.
- The preliminary designs of the water treatment plant and the associated off channel storage dam have been completed.
- The preliminary design report of the pipeline and pump station was completed in April 2010. The geotechnical work has been completed except for the components of the work that relate to the abstraction works. This will be finalised once the location of the abstraction works has been finalised.
- The scoping report for the EIA has been submitted for public comment in July 2010.
- The current work being undertaken is the assessment of different abstraction options. The final selection of the abstraction system will be completed by November 2010.
- The project will enter the detailed design phase in 2011 with the appointment of the design consultant.
- Construction is planned for commencement in January 2012 for delivery by 2014.
  This scheme is on track according to the current planning. At this stage there are no complications are foreseen.

4.7 Mvoti River Development

Previous studies indicated that the iSithundu Dam site is the preferred site for development; it is a possibility that the site may not be the preferred site after changes took place. The feasibility study for the Mvoti River Project will have to revisit the site selection proves. It is anticipated that the feasibility studies will start by August 2011.

4.8 Re-use of treated sewage effluent

This study is being undertaken by eThekwini Metro. The study has progressed to Phase 4 which is the development of the implementation plan for the preferred option. This will be completed by December 2010. The assessment of the options resulted in the direct re-use option being identified as the preferred option. The treated sewage effluent from the KwaMashu, Phoenix and Northern works will be collected and treated to a potable standard before pumping into the Northern Aqueduct. The project will now enter the Environment Impact Assessment phase.
The project is on track to deliver water by 2016 as planned. There is potential to move the project forward if required. However there are still concerns about the public perceptions of direct re-use. This could delay or prevent the implementation of the re-use option.

4.9 Desalination of seawater option

The potential of seawater desalination as a water supply option for the Durban area was further investigated by Umgeni Water in a pre-feasibility study that was completed in May 2009. The study showed that desalination of seawater is technically and environmentally feasible and competitive with the cost of the Mkomazi River Development Project. Two 150 ML/day plants are planned, one on the north coast and the other located on the south coast. Umgeni Water is busy with the site selection process. Umgeni Water is initiating further more advanced investigations into sea water desalination.

Due to the seriousness of the future water supply security in the area the SSC felt that investigation into sea water desalination should be accelerated. The results have a bearing on the planning of the Mkomazi River Development Project and possibly the Mvoti Scheme. Desalination of seawater might be able to be implemented more quickly than the surface water projects.

4.10 Management of System Operation

Further to the above interventions it was agreed by SSC members that a Systems Operations Committee will be established soon 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.

5. SUMMARY OF RECONCILIATION STRATEGY

Table 1: 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 options	Ethekwini Metro

Action	Responsible Organization
Feasibility study for desalination of sea water	Umgeni Water (DWA)
Water Use Efficiency	
Implement further Water Conservation and Water Demand Management measures	eThekwini, Ilembe, Ugu, Umgungundlovu Municipalities and DWA Directorate: Water Use Efficiency
Rain water harvesting	eThekwini 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

6. UPDATE OF THE STRATEGY

Some of the assumptions that were used to develop the strategy have changed and the reconciliation of requirements and resources will be reworked to determine if changes to the strategy are required.

7. ACTIONS RESULTING FROM THE SSC

The actions and the responsible organization identified during the SSC meeting are listed in Table 2.

Table 2: Actions and responsible organizations identified during the SSC meeting

Action	Responsible Organisation
The SSC terms of reference must be revised and circulated to all members for review and acceptance. Membership must be revised as agreed upon.	DWA Directorate: National Water Resource Planning
The TCTA and Infrastructure Branch of DWA must be invited to the next meeting to present progress with the MMTS and the raising of Hazelmere Dam	DWA Directorate: National Water Resource Planning
The progress report and the press release must be used to highlight the seriousness of the water supply	All members of the SSC

Action	Responsible Organisation
situation. The documents must be used by the different organisations to take the message to the highest level. The delays with the MMTS must be addressed at the highest level.	
The progress report and the press release must be completed and circulated by the 17th September.	DWA Directorate: National Water Resource Planning
A letter from the SSC highlighting the water supply crisis in the KZN Metropolitan area must be drafted and submitted to the DWA Minister/Top Management	DWA Directorate: National Water Resource Planning on behalf of SCC
The other local municipalities in the study area must be invited to attend the next SSC to present progress with WC/WDM. The seriousness of the water supply situation must be emphasised to them.	DWA KZN Regional Office
The seriousness of illegal water connections and the threat posed to the success of WC/WDM measures in municipalities must be addressed. Support is required from DWA National Office.	DWA Directorate Water Use Efficiency
The reconciliation strategy is to be updated before the next SSC meeting in 6 months time. A meeting of the Technical Support Group to be held before the next SSC to confirm the inputs so that the correct information is presented to the SSC	DWA Directorate: National Water Resource Planning
A meeting is to be convened within three weeks to set up Operational Management Forum. This is crucial as the risk of water restrictions in the near future is high. The plan of action to determine the restrictions and how to implement them needs to be put in place.	DWA KZN Regional Office
The programme for the feasibility study for the desalination of seawater must be finalised. This process may be fast tracked depending on the outcome of the other studies in particular the re-use of treated sewage effluent.	Umgeni Water

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 is on 10 March 2011.