Fact Sheet 1: Water Reconciliation Study

Background

In 2009 the Department of Water and Sanitation, DWS, (then Department of Water Affairs) developed the *Water Reconciliation Strategy Study for the KwaZulu-Natal Coastal Metropolitan Area*, a strategy to ensure adequate supply of water for the metropolitan areas in the central KwaZulu-Natal (KZN) region. The key objective of the Strategy is to identify, evaluate and prioritise the interventions that should be implemented to meet future water requirements. Within this context the Strategy is used as a decision support framework for making informed and timeous recommendations on interventions through a collaborative process involving stakeholders and institutions involved in the water supply cycle.

Study Area

The study area (Figure 1) of the Reconciliation Strategy extends from the Thukela River mouth on the KZN North Coast to the uMtwalume River on the South Coast and from Howick in the west to Durban in the east. It includes the eThekwini Metropolitan Municipality (MM), Msunduzi Local Municipality, as well as portions of uMgungundlovu, iLembe, and Ugu District Municipalities (DMs). The area consists of three main supply systems, namely the Mgeni Water Supply System (WSS), the South Coast WSS and the combined Mdloti-Mvoti WSS (on the North Coast).

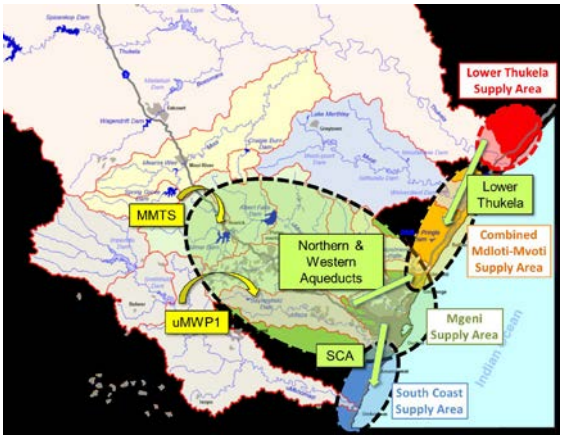

Figure 1: Study area of the reconciliation strategy

A key component of the Reconciliation Strategy is realistic and up-to-date water requirement projections that guide the need for and timing of intervention options. Continuous updating and revision of water requirement projections ensures that the Strategy remains relevant by taking into account the various socio-economic and dynamic influencing factors that cannot be predicted with absolute certainty.

Water requirement projections are developed for three supply areas in the study area. These are:

- North Coast from La Mercy to Zinkwazi;
- The Integrated Mgeni Water Supply System (WSS), which includes the main centres of Durban, Pietermaritzburg and Howick, and the surrounding areas supplied from the uMngeni River; and
- South Coast from Amanzimtoti to Mtwalume.

North Coast Water Supply System: In the reconciliation planning process, two intervention scenarios have been identified as long-term options for the North Coast, after the current interventions of raising of Hazelmere Dam, and the Lower Thukela Bulk Water Supply Scheme. The first scenario involves the construction of Isithundu Dam, the second includes the recently identified indirect re-use of water via Hazelmere Dam from return flows generated in the oThongati and/or Mvoti catchments. This potential intervention has been formulated as part of eThekwini's Total Outflow Strategy (Fact Sheet 2).

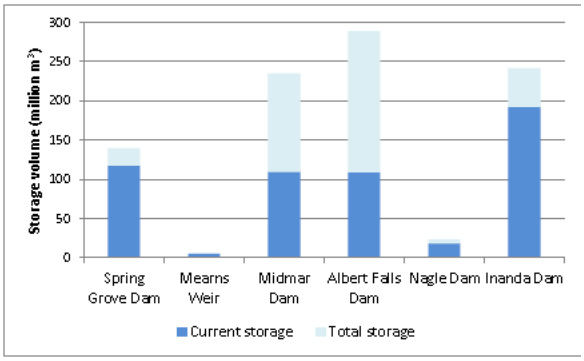

Figure 2: Storage status of dams in the Mgeni WWS

Integrated Mgeni Water Supply System: Despite the recently completed Spring Grove Dam, the Mgeni WSS needs further intervention. While there are a few smaller short term options for augmenting this WSS, the main long term intervention is the proposed Smithfield Dam as the first phase of the uMkhomazi Water project. Once implemented, this large scheme will be able to transfer water through a tunnel to augment the Mgeni

WSS over the next 30 years. Implementation timing is however critical with the scheme only being able to be completed by 2024.

From a short term perspective there is currently a less than ideal distribution of water in storage in the various Mgeni WSS dams, as shown in Figure 2. The storage levels in the upper dams, namely Midmar Dam and Albert Falls Dam, are low, while the level in Inanda Dam is higher. Normally the desired operation is to keep the upper dams fuller than lower dams to minimise spillage and for operational purposes (e.g. the water in Inanda cannot be supplied to users higher up in the WSS such as Pietermaritzburg).

To balance the Mgeni WSS, specifically during a critical drought period, water should be kept in the upper dams of the Mgeni WSS, as much as possible. This imbalance should be addressed through optimised system operations, including an increase in the pumping from Inanda Dam. Similarly, the transfer from the Mooi River via the Mooi Mgeni Transfer Scheme (MMTS) also needs to be maximised. The Systems Operating Forum (SOF) was initiated by the reconciliation strategy to manage the operations and times of drought in the WSS.

South Coast Water Supply System: The water balance for the South Coast WSS is shown in Figure 3. The existing water availability represents both local resources (shown in light blue) as well the support from the Mgeni WSS through the South Coast Augmentation (SCA) pipeline (shown in dark blue). Projected water requirements are shown as red lines, with and without the planned implementation of WC/WDM initiatives.

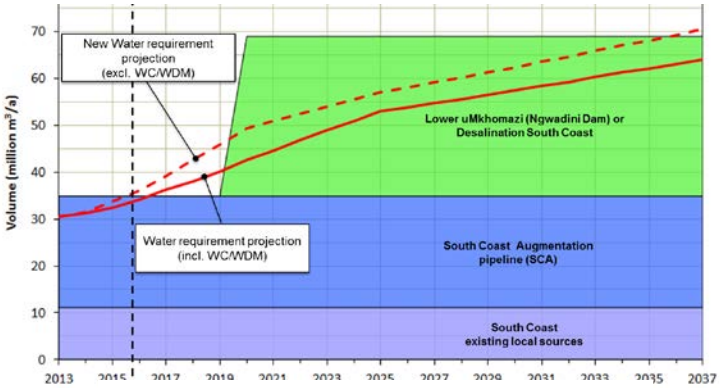

Figure 3: Water balance for the South Coast WSS

Figure 3 also shows the future augmentation of the South Coast by the implementation of either the proposed Lower uMkhomazi Bulk Water Supply Scheme (Ngwadini Dam) or the desalination of seawater (both shown in green) with earliest implementation in 2019/2020. (Both these proposed interventions are in the feasibility planning phase.) As such, a shortfall is already experienced, and may continue the implementation of an intervention.

Interventions

- Water conservation / water demand management
- North coast WWS:
  - Raising of Hazelmere Dam
  - North Coast Pipeline and Hazelmere Supply Infrastructure
  - Direct reuse of treated wastewater: Siza Water's wastewater recycling at Frasers Wastewater Treatment Works
- Integrated uMgeni WWS:
  - Mooi-Mgeni Transfer Scheme
  - Direct reuse of treated wastewater: eThekwini Municipality's outflow strategy
- South Coast WWS:
  - Direct reuse of treated wastewater: eThekwini Municipality's outflow strategy
  - Lower uMkhomazi Bulk Water Supply Scheme

Partners

Custodian	Professional Services Provider	Bulk Water Services Provider	Water Services Authorities
water & sanitation	AECOM	UMGENI WATER	

Other: A number of other government, private, and non-profit organisations contribute as strategy steering committee members