Algoa Water Supply System
Reconciliation Strategy

ABBREVIATED STATUS REPORT NR 1

1. Purpose of this report

This report provides information on the current water availability situation and the activities relating to the implementation of the Algoa Reconciliation Strategy. It provides pertinent background, progress made to ensure a sustainable long-term water supply to the Nelson Mandela Bay Municipality (referred to as the Metro), key issues to be addressed and recommendations on the way forward.

2. Background

The Algoa Reconciliation Strategy was completed in 2011 by the then Department of Water Affairs in cooperation with the Metro and other stakeholders, to secure a sustainable future water supply for the Metro and the other towns served by the Algoa Water Supply System. The major irrigation schemes that are situated around the Metro are also covered in the strategy. Implementation of the Strategy will ensure that interventions to augment the water supply will be studied and implemented in time to prevent unacceptable risks of water restrictions.

The purpose of the Strategy is to:

- Annually determine the system water balance,
- Annually update possible future water balance scenarios for a 25-year planning horizon,
- Track progress of the planning and implementation of interventions and update relevant information,
- Monitor other information relevant to the Strategy and activities that may impact on the Strategy.

3. Progress

a. Management of the Strategy

The Strategy Steering Committee (SCC) monitors the implementation of agreed strategies/actions, updates the strategy as it becomes necessary, and informs all stakeholders and the public of progress with the implementation of the Strategy and the reigning water availability situation in the Algoa Water Supply System. They are supported in this by the Administrative and Technical Support Group. These committees were constituted in 2011. The SSC meets twice a year and the Administrative and Technical Support Group (ATSG) meets two weeks before and after each SSC meeting, and sometimes in-between as required. The last ATSG meeting was held on 12 July 2016, and the next SSC meeting will be held on 21 September 2016.

b. Communication

The Reconciliation Strategy Study aims to facilitate input from stakeholders and the public. A media release is released after each Steering Committee meeting, with the next planned release in October 2016. A Strategy Status Report will be compiled, disseminated and presented annually during September. A web page is also available on the DWS web site with all information and reports relevant to the study. The web page can be accessed at http://www.dws.gov.za/Projects/Algoa**.**

c. Improving the confidence of water availability: proposed water availability assessment study

As the surface water resources of the Kromme and Kouga catchment areas could be under stress, the need for verification and validation (V&V) of water use for these areas was identified. The verification and validation of water use of a significant part of the Kouga River catchment has been completed. The validation for the Langkloof area is complete but the verification has not yet been done. This will be done under the V&V project that has recently been awarded for the whole of the Eastern Cape. The validation process for the Eastern Cape as a whole is about 95% complete. Stakeholder engagements have commenced and are due to be completed by the end of Oct 2016. This will inform the verification process to follow. The PSP's contract ends in March 2017 but verification by DWS is likely to be on-going thereafter. The information gathered by

the V&V studies will be used as input to the future Water Availability Assessment Study for the Kromme and Kouga catchments. This study is expected to be initiated after the verification and validation has been completed.

d. Coega Industrial Zone Water Requirements

The Coega IDZ is "home to 29 operational investors" that have invested R1.2 billion, while a further R7.5 billion is at the implementation phase and further projects worth R8.1 billion are currently being negotiated. In addition, projects worth R116.3 billion are the subject of feasibility studies.

The estimates of the bulk water studies for the uptake of industrial water requirements has remain consistent over the past two years. However, a lack of certainty exists in respect of the new heavy industries which have previously committed and then either postponed or withdrawn their proposed developments. Future uptake of industrial water will remain uncertain until such time that the availability of industrial water supplies and power can be confirmed. The supply of industrial quality water is a requirement of the environmental authorisation for establishing large industries at the Coega IDZ. The lack of confirmed availability of industrial quality water can pose serious challenges to attracting future development to the Coega IDZ.

In terms of the future water requirements, according to projections done under this Strategy Support Study and the Water Master Plan Review document of the Metro, surplus potable water will be available from the Nooitgedagt/Coega Low-Level Scheme once completed. This potable water can be cost-effectively used as an interim industrial water supply to the Coega IDZ. The interim use of potable water in the IDZ has been accommodated through an amendment to the existing environmental authorisation for the large water user.

e. Water Conservation and /Water Demand Management

There is concern that the Metro's current water conservation and water demand management (WC/WDM) interventions being implemented are not adequate to ensure that WC/WDM targets will be met. There is further concern that adequate measures are not in place to curb the significant growth in water use and that WC/WDM has not recently received adequate resourcing and funding from the Metro's Council. The very significant losses still experienced at schools are especially of concern.

f. Implementation of the Nooitgedagt/Coega Low-level Scheme

The Metro is constructing the Nooitgedagt/Coega Low-Level Scheme (NCLLS) as an extension to the existing Nooitgedagt High-Level Scheme that will treat Orange River water, delivered through the Orange-Fish-Sundays River system, to drinking water standard for supply into the Metro's water supply system.

The Metro is completing the outstanding works on the project in a phased approach, in line with the capacity of its capital budget. Phase 1 will ensure an average supply of 90 Ml/day (32.9 m^3/a). Phase 2 will be implemented to ensure an average supply of 125 Ml/day (45.6 m^3/a), with a peak of 160 Ml/day. Phase 3 will ensure an average supply of 160 Ml/day (58.4 m^3/a) which is the full allocation of NMBM from the OFS Scheme, making provision for a peak supply of 210 Ml/day (76.7 m^3/a).

The implementation status is as follows:

Phase 1 was implemented by the Metro and is practically complete (upgrading of settling capacity and sludge handling systems at Nooitgedagt WTW, rising pipeline from Nooitgedagt WTW to the Olifantskop reservoir site; 10 Ml reservoir at the Olifantskop site; gravity pipeline from the Olifantskop site to the Coega IDZ boundary and to the Motherwell reservoir; two new booster pump stations at the Motherwell Reservoir and Stanford Rd).

Phase 2 is being implemented and funded by the Metro (R128 million, excl. VAT) (additional 6 filters and low-lift Pump Station at Nooitgedagt WTW, under construction for completion in March 2017, three separate contracts for civil works, WTW mechanical and electrical works, pump station mechanical and electrical works).

Phase 3 will be funded by the DWS, who has appointed Amatola Water as the implementing agent (R287 million incl. VAT) (single contract for additional 70 Ml/day (peak) module at Nooitgedagt WTW (civil, mechanical and electrical works), 45 Ml reservoir at Olifantskop, cathodic protection and AC mitigation measures on Nooitgedagt and Churchill pipelines, and rehabilitation of Chelsea-Motherwell pipeline). It is expected that a contractor will be appointed by October 2016, with construction to take 24 months.

g. Other interventions

Groundwater: After extensive investigations that included geophysical and resistivity as well as magneto-telluric analyses, the Metro appointed a driller and drilling started in March 2014 in the Coega Kop area. Twenty seven probe/exploration holes have been drilled during 2014/15. It was decided to commence with the construction of one production hole, of which the design and tender document is currently being finalised. Because the aquifer is artesian, boreholes will be so designed and constructed to ensure that they do not leak when not in use. Care will be taken to minimise the surface impact with strict environmental control, and most importantly, future abstraction will be designed to ensure that the aquifer cannot be over-pumped. The "sustainable yield" of the aquifer is estimated at between about 35 - 43 Ml/day. The Metro has applied for a groundwater use license of 26 Ml/day which includes the flow from the Uitenhage Springs. Water quality testing still needs to be completed to determine the actual iron and manganese content of the water. This is critical to determine whether blending with water from the Nooitgedagt Low-Level Scheme is an option. The entire well field still needs to be test-pumped.

Water re-use: The scheme involves large-scale supply of treated water from the Fish Water Flats Waste Water Treatment Works to industries in Port Elizabeth and the Coega IDZ. The first phase of supply is based on the understanding that the Metro will supply 30 Ml/day of Category 4 industrial process water from the Fish Water Flats WWTW via a balancing storage reservoir at Coega Kop to the IDZ. The second phase of the scheme will increase the water re-use scheme to 60 Ml/day and will incorporate new storage reservoir(s) at Olifantskop. This will be constructed at a future date and is excluded at this stage. The environmental impact assessment for the scheme to supply the IDZ has been approved by DEDEAT. The design is mostly complete and a 17 Ml reservoir at Coegakop is about 85% complete. The Coega Development Corporation needs to procure additional funds to complete the reservoir. The implementation of the remainder of the scheme is dependent on the water requirements from large water users establishing in the IDZ. The construction will take 18-24 months to complete and R600 million is needed to bring the bulk supply conveyance infrastructure to the Coega IDZ boundary.

Upgrade of Fishwater Flats WWTW – Phase 1: This upgrade involves a new inlet works (170 Ml/day), upgrading of dewatering facilities, upgrade of the existing biological reactors with fine bubble, diffused aeration, addition of 45 Ml/d membrane biological reactors (MBR) to increase capacity, bulk electrical upgrade and general upgrade and refurbishment of the entire plant. Programming for overall upgrade of the plant is currently scheduled to be completed by 2016/17 but this is dependent on the availability of funding.

Desalination of seawater: The Metro's Siting Investigation and Detailed Feasibility Investigation for a 60 Ml/d desalination plant recommended the Schoenmakerskop (inland) site, located on the coast to the west of the Metro, as the preferred site. Preliminary design of the scheme was done and the bathymetric survey and marine geophysical surveys for this site has been completed, but not yet the land-based geophysics. The environmental impact assessment was initiated. The study has recently temporarily been put on hold, without reporting having been completed. The Metro invited expressions of interest for identifying and developing a desalination site at the Coega IDZ during July 2016.

Evaluation of the Raising of Kouga Dam: In light of the latest information available, no major dam safety rehabilitation work is necessary for the dam wall and the previously planned dam safety activities has been put on hold.

4. Recommendations

The most significant challenges being experienced that requires support is the following:

a. Funding: R600 million funding of the Metro's Fishwater Flats WWTW Re-use Scheme is needed, for water supply to the Coega IDZ (industrial quality process water). Without this development being assured, it is unlikely that significant industries will commit to development in the Coega IDZ.
b. Water use of the Metro is in excess of allocations: There is concern about the significant increase in the water use of the Metro, which has been in excess of their water allocations from the Kromme System for years and recently also from the Nooitgedagt WTW.

c. Inadequate WC/WDM within the Metro: There is significant concern that adequate measures are not in place to curb the growth in water use and that WC/WDM is not receiving adequate resourcing and funding. The very significant losses at schools are especially of concern.
d. Reducing of non-revenue water is a long-term programme that must be funded on a continuous basis to achieve the goals set out in the Integrated Water Resources Management Strategy.