



Project Sheet

Development of a Reconciliation Strategy for the Luvuvhu and Letaba Water Supply System

LOCATION: Limpopo Province; South Africa

PROJECT TITLE: Development of a Reconciliation Strategy for the Luvuvhu and Letaba Water Supply System

CLIENT: Department of Water Affairs

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STATUS: Completed **DURATION:** From 09/2011 to 01/2015

OBJECTIVE: The objective of this study is to compile a reconciliation strategy that will identify and describe water resource management interventions that can be grouped and phased jointly, forming a solution to reconcile the water requirements with the available water for the period up to the year 2040. Water availability assessment methodologies and tools applicable to the study area was developed to be used for decision support purposes for the planning and operation of the system as well as for compulsory licensing of water use.

CHALLENGE:

- To provide reliable hydrology and yield estimates for the current and possible future water resources
- To obtain reliable water requirements and return flows from all the different water case studies
- To provide a realistic and practical reconciliation strategy that is accepted by all the main stakeholders

DESCRIPTION

Update the current and future urban water requirements and return flows, runoff reduction

Complete update hydrology & groundwater interaction

Setting up water resources yield and planning models and carry out scenario analysis

Costing and economic benefit calculations of options

Formulate and analyze intervention options and develop reconciliation strategy for entire area

Management of the project

RESULTS

A total of 15 reports were produced from the study with the Final Reconciliation Strategy Report as the main report of the study. Natural runoff simulations taking into account groundwater/surface water interaction were produced for the entire Luvuvhu and Letaba catchments, based on reasonable to good calibrations.

Water requirements are expected to increase from 700 million m³/a in 2012 to 830 million m³/a by 2040 with ± 22% being supplied from groundwater resources. Various intervention options were identified and recommended to be able to maintain a positive water balance until 2040 in all the sub-systems. Water balances took into account the assurance of supply as required by the different water use sectors. These intervention options comprise a combination of options for most sub-systems such as water conservation and demand management (target saving of 9 million m³/a), raising of Tzaneen Dam, new dam on the Groot Letaba, a possible dam on the Mutale River, transfers from one sub-system to the other, further development of groundwater resources, the saving of losses in old canals by replacing it with pipelines as well as the eradication of invasive alien plants. These intervention options were screened based on the lowest economic, cost and environmental impacts. The final selected intervention options formed an integral part of the proposed reconciliation strategy with related short and medium to long-term actions identified for the implementation of the strategy.

