

# Integrated water resource planning in the city of Cape Town

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## Abstract

Over the last decade the approach to dealing with an increasing water demand in the Cape Metropolitan Area (CMA) has progressively shifted from a supply oriented philosophy to one where strategies for reducing the demand are integrated with supply management. While there is still much to be done to implement a totally integrated approach, a firm foundation has been laid.

Water demand management as an approach became increasingly prominent in the CCT supply area in the mid 1990s. Accordingly, a Water Demand Management Section was formed in the Water Department of the former Cape Metropolitan Council (CMC). This section was instrumental in shifting the approaches to water demand management in the 6 local councils in the CMA.

Towards the end of 1999 it became increasingly clear that there was a need to adopt an integrated water resource planning approach to manage the future water demand. As a result, the former CMC appointed consultants to carry out an "Integrated Water Resource Planning" (IWRP) study. The results of the IWRP study indicate that a significant saving in water demand could be achieved through the implementation of water demand management initiatives. In comparison to the water supply options, the water demand management initiatives would have a significantly lower implementation cost, could be implemented in a shorter time frame and were generally more environmentally and socially acceptable. Recommendations were made to the new City of Cape Town (CCT) – formed in December 2000 through the amalgamation of the former CMC and the 6 local councils - on where to focus their resources and attention with the aim of meeting and managing the water demand.

The water demand in the CCT has decreased significantly since November 2000. This can be attributed to the recent water restrictions as well as the implementation of water demand management initiatives. The reduction in water demand has delayed the need for the implementation of additional water augmentation schemes other than the Berg Water Project.

## Introduction

Water is a scarce resource in the Western Cape, and historically there have been periods of water restrictions followed by the development of new water augmentation schemes. The approach to water supply was very much supply orientated with new water augmentation schemes being developed to meet the growth in water demand.

With the realisation that water demand management was becoming increasingly important in order to ensure future sustainability and affordability, the then Cape Town City Council began with water demand management initiatives 1995. In 1996 as part of the Western Cape Systems Analysis, water demand management was highlighted as one of the twelve options which required further investigation. In 1998 the former Cape Metropolitan Council (CMC) appointed a Manager to oversee Water Demand Management. This was followed by the development of a Water Demand Management Strategy and Policy which was officially adopted and approved by the CMC towards the end of 1998. The need to adopt an integrated approach to water demand management and water augmentation was identified, and towards the end of 1999 the CMC appointed a consortium of Ninham Shand and Arcus Gibb to carry out an "Integrated Water Resource Planning" (IWRP) study.

## Background and objectives of the IRWP study

The aim of the IWRP study was to investigate, at a pre-feasibility

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level, various water demand management initiatives along with 3 water supply options, namely, the Lourens River, the Eerste River and the Cape Flats Aquifer. In order to ensure a more holistic approach, this was extended to include schemes outside the CMA i.e. the Voëlvelei Augmentation Scheme and the Table Mountain Group Aquifer. The study highlighted which initiative(s) should be carried out in order to reduce the demand for water or alternatively increase the supply. Recommendations were to be made on where to focus resources with the aim of managing the water demand and how to initiate an integrated resource planning approach.

## Discussion and results of the IWRP study

The results of the study indicated that a significant saving in water demand could be achieved through the implementation of water demand management initiatives. In comparison to the water supply options, the water demand management initiatives would have a significantly lower implementation cost, could be implemented in a shorter time frame, and were generally more environmentally and socially acceptable. A summary of the options investigated and the overall scoring is given in Table 1.

Based on the IWRP Study, three "packages" were identified for implementation, namely:

- WDM options that can be implemented by the CCT (Package 1)
- WDM options to be implemented by individual consumers (Package 2)
- supply augmentation options to be implemented by the CCT (Package 3)

Package 1 comprises of pressure management, user education, the elimination of automatic flushing urinals, leakage repair and tariffs metering and credit.