

What Next for Western Cape Water?



After two years in the grip of drought, and months of stringent water restrictions, the citizens of Cape Town are breathing a collective sigh of relief following good winter rains. Sue Matthews reports.

Water storage in the Cape's five major dams had reached an all-time low of 26,3% by 11 April, when a massive storm in the preceding 24-hour period dumped 127 mm of rainfall in the catchment area of the largest dam, Theewaterskloof. The storm heralded the start of good winter rains, and by 20 June overall dam storage had recovered to 50,3% – a fairly typical level for this time of year.

The water restrictions remain in force for now, but at least gardens are green again. The restrictions aim to ensure not only that there will be plenty of water in storage to see the city through summer, but also that the goal of a 20% reduction in water demand in the year to September has been achieved. By the end of June, only about 65% of the desired 66 million kilolitres of water had been saved.

When the water restrictions were introduced last September, water and sanitation tariffs were also raised, partly to recover the anticipated loss in

revenue due to reduced water sales, but also to promote water conservation by the public. Domestic users are not charged for the first 6 000 ℓ of water supplied and 4 200 ℓ of sewage treated per month, after which they are billed according to a steeply rising incremental tariff that discourages high consumption.

"We need to bring about an attitudinal and behavioural change in the ways water is used in our city," says Councillor Saleem Mowzer, mayoral committee member for trading services. "Being water-wise is a moral duty; it is everyone's business."

The City of Cape Town had no option but to implement water restrictions after the Department of Water Affairs and Forestry (DWAFF) announced that a second successive winter with abnormally low rainfall necessitated curtailing water supplied by the Western Cape Water Supply System by 20% over a year, in order to ensure the sustainability of the resource in the medium term. The system – made

up of the Theewaterskloof, Voëlvelei, Wemmershoek and Steenbras upper and lower dams – supplies water to the greater Cape Town area as well as municipalities and irrigation boards further afield. Agriculture uses some 30% of the water, while urban demand accounts for the remainder.

By the end of winter last year, storage levels of the Theewaterskloof and Voëlvelei dams, which together supply two-thirds of Cape Town's water, remained below 55%. Only the Steenbras upper and lower dams – situated in the cloud-trapping Hottentots Holland mountains near Grabouw – were relatively full at 92% and 73% respectively, but their combined yield meets less than 11% of the city's water needs.

This was the second time that water restrictions have had to be implemented in recent years, although many people abandoned the good water-use habits they adopted in the summer of 2000/2001. The Western Cape Water Supply System is clearly hard-pressed to meet Cape Town's

existing requirements during a drought cycle. So what does the future hold, given the city's growing population and burgeoning development?

Construction has already begun on the R1,5-billion Berg Water Project, which will increase water supply to the region by 18% when it becomes operational in 2007. Situated on the uppermost reaches of the Berg River near Franschoek, the 126 Mm³ dam will operate in conjunction with Theewaterskloof, to which it will be linked by the Riviersonderend inter-basin transfer tunnel. The supplement scheme involves diversion of water at a weir 9 km downstream into an off-channel storage dam, from where it will be pumped back into the Skuifraam Dam or Theewaterskloof via the tunnel.

"The Berg Water Project should keep us in water until about 2013 – that's assuming we achieve our water demand management objective," says Michael Killick, planning manager for the City of Cape Town's Bulk Water division.

He points out that the Berg Water Project was approved as a parallel process to the city implementing water demand management, and the target being worked towards is a 20% reduction in the projected demand for water by the year 2010. The WDM strategy incorporates measures such as user education, tariff structures, pressure management, leakage repair and elimination of automatic flushing urinals. The city is also promoting the use of recycled effluent from wastewater treatment plants for irrigating sportsfields and parks.

But even with all these initiatives, the total urban water demand is anticipated to increase at approximately 2% per year. So what happens after 2013, when demand is expected to exceed supply?

Various options for increasing water availability in the region have been

proposed in three major studies conducted over the past 15 years. Way back in 1989, DWAF initiated the Western Cape Systems Analysis to assess future water needs and means of meeting them, and the subsequent public participation process generated a dozen stakeholder-supported options. In 1999 the former Cape Metropolitan Council launched the Integrated Water Resource Planning Study to investigate water demand initiatives and supply schemes within its jurisdiction. The CMA Bulk Water Supply Study in 2001-2002 took a broader view, and recommended investigating three options – the Voëlvei Augmentation Scheme, desalination and the TMG Aquifer – in more detail.

Now DWAF is gearing up for a new three-year consultative study for the Western Cape, which will help decide the next scheme to implement after the Berg Water Project. It is the first of a number of Reconciliation Strategy studies to be done around the country.

"Essentially the study involves a reconciliation between water supply and demand, and the strategy needed to ensure that these somehow balance", explains Frans Stofberg of DWAF Head Office. "We will review yields that the current system can provide, forecast how demand will change in future, investigate possible additional developments, and then prioritise options and strategise how to achieve them. The idea is to revisit the plan of action developed in the Western Cape Systems Analysis, because it's amazing how things can change in ten years."

The initial list of options – each of which will be assessed in terms of technical, financial, environmental and socio-economic aspects – includes building new dams and raising existing dam walls, constructing diversions and transfer schemes, clearing alien vegetation, and implementing water-

efficient irrigation practices. The priorities for further investigation identified by the Bulk Water Supply Study will also be evaluated.

The City of Cape Town recently commissioned a feasibility study on desalination, including possible locations for a pilot desalination plant, technological requirements, conceptual designs, treatment costs and environmental impacts. Initial findings have indicated that although the costs of desalination have decreased significantly, they are still approximately double those of the Berg Water Project.

Another study – the TMG Aquifer project – aims to determine the feasibility of using the groundwater systems of the Table Mountain Group geological formation to augment Cape Town's water supply. The Western Cape's environmental authorities have recently given the go-ahead for exploratory drilling at 27 sites within the study area, which extends from Cape Hangklip in the south to Tullbagh in the north. No water will be extracted during the exploratory phase, other than limited pump-testing of two boreholes for a fortnight each.

"If all goes well we're looking at doing a pilot wellfield in a few years time, which would yield some 3-5 million cubic metres per year for three years," says Karen Shippey of Ninham Shand, the consulting group co-ordinating the environmental assessment. "We want to start very slowly because we're not sure what the impacts are going to be. So the TMG Aquifer is not likely to become a water source for Cape Town within the next 10 years, but it's important to investigate it for future planning." (See more on this project elsewhere in this issue)

It is comforting to know that some proactive thinking and long-term planning is taking place. But there is certainly no cause for complacency – after all, that curve ball called climate change may still knock us for a six! 