



Verona Veltman

# Start Saving or Start Paying Report Warns

***Unless South Africans want to see billions of Rands being spent on alternative water sources in the near future, such as the importation of water from the Zambezi River and the towing of icebergs, they will have to start saving water right now. This is the message from the Department of Environmental and Tourism's (DEAT's) latest state of the environment report.***

According to the *DEAT South African Environment Outlook*, officially launched earlier this year, there has been significant progress in the development of the country's policy and legal framework dealing with water resources since 1994. This includes the implementation of the National Water Act, the Water Services Act, and the National Water Resources Strategy, which has been recognised internationally

for its groundbreaking approach towards integrated water resources management.

A range of management tools is being developed, such as the establishment of catchment management agencies, while institutional restructuring is separating water supply from resource protection functions. However, the historical lack of capacity and financial

resources within the regulating bodies has led to inconsistent management and a lack of widespread enforcement.

Local government, in particular, faces many challenges, and for the most part does not yet have the skills or resources to integrate environmental considerations (including the protection of aquatic ecosystems) into development planning, or to

implement new statutory responsibilities. All of this has led to South Africans now having less water available, of poorer quality than before.

## FROM DAMS TO DEMAND MANAGEMENT

Most of South Africa's present water requirements are provided by surface water supplies (rivers and dams). Generally, these surface water resources are highly developed over the country, with about 320 major dams having a total capacity of more than 32 400 million m<sup>3</sup>, which is some 66% of the total mean annual runoff.

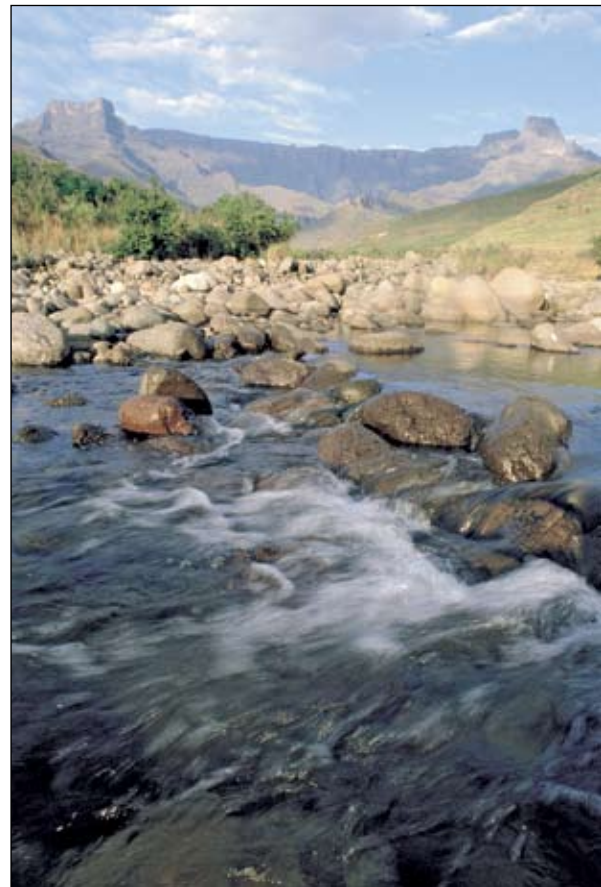
To date, present demands for water have been met mainly through large engineering projects requiring substantial capital investments in infrastructure. There is a noteworthy amount of water transfer between water management areas (WMAs), which can have adverse ecological impacts, for example, the introduction of non-endemic species to new catchments.

Evidence indicates deficits in available water in more than half of the WMAs, although there is a theoretical surplus in the country as a whole. In many areas, present levels of water use make no allowance for the need to sustain the ecological viability of the resource (the so-called ecological reserve).

With more people flocking to South Africa's cities, water demand in especially urban centres is expected to grow. Demand is expected to rise particularly from the main metropolitan centres where most economic growth is taking place. Further strong growth is also expected in the mining sector, with water demand for mineral exploitation concentrated in the country's northern regions.

Another potential growth area is power generation, with Eskom having announced an ambitious long-term programme comprising

*While generally the upper reaches of river systems remain in a good to fair state of health, concern has been expressed over the quality of lower reaches.*



Courtesy of SA Tourism

the construction of several new power stations, and the de-mothballing of older stations.

## **“Climate change has the potential to make a significant impact on the availability of and requirements for water in South Africa.”**

Much has been done to conserve water in agriculture – which uses more than 60% of the country's water resources. Although irrigated areas have increased in the last few years, the demand for irrigation water has remained constant. This appears to be the result of better consultation within the agricultural sector, improved irrigation practices and scheduling, a gradual increase in

tariffs (with associated reduction in subsidies), the introduction of compulsory licensing, as well as better training of irrigators.

To augment water supplies in South Africa, consideration has been given to other options and less conventional sources, including long distance importation of water from locations such as the Zambezi River, rainfall augmentation by cloud seeding, large-scale seawater desalination, shipping freshwater from the mouths of large rivers and towing icebergs. However, as the DEAT report points out, although these options are technically feasible, there are various environmental, political, legal and economic considerations attached to each. Present scientific understanding and costs preclude these options from being feasible.

“A concerted move to water conservation and water demand





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*Unless South Africans start saving water earnestly, large engineering projects, such as importing water from the Zambezi or towing icebergs, could become a reality in the near future.*



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management is required, and adequate resources need to be mobilised to fund public awareness and education programmes," the authors of *South African Environment Outlook* point out. Promotion of the recycling of wastewater, especially treated sewage and mine-water, is also advocated.

**"South Africans now have less water available, of poorer quality than before."**

The report points to the fact that South Africa's groundwater resources – which play a particularly important role in the country's rural areas – have not received enough attention. "Most of the nine million people supplied with water since 1994 have been supplied from groundwater resources. Yet there has been limited investment in the assessment and management of the country's groundwater resources. More research, especially on the issue of groundwater recharge, is required to improve our knowledge of this valuable resource."

### WATER QUALITY: A MIXED BAG

According to the DEAT report, water quality in the country is variable, with an overall deterioration since the last state of environment report (released in 1999). It is reported that the health of river ecosystems are generally declining, with effluent pollution continuing to grow.

Data gathered through national initiatives such as the River Health Programme show that the health of river ecosystems are generally good to fair in the upper reaches and tributaries, but fair to poor in the lower reaches, with most river systems in urban areas in poor condition.

It is not only the country's rivers that are affected. About 50% of South Africa's wetlands have been destroyed or converted, and the ongoing lack of recognition and degradation of these wetland systems constitutes a significant opportunity cost, the DEAT report points out.

### AN UNCERTAIN FUTURE

Climate change has the potential to make a significant impact on the availability of and requirements for water in South Africa. Rising temperatures and increasing variability of rainfall will generally affect surface waters, increasing drought in some regions and causing floods in others, as well as influencing groundwater recharge.

There is likely to be a general decrease of 5% to 10% of present rainfall, with longer dry spells in the interior and northeastern areas of the country coupled with more frequent and severe flood events. The probable effect is greater evapotranspiration and more stress on arid and marginal zones.

Wetting is generally expected over the eastern half of the country, particularly in the east coast regions. Parts of the Eastern Cape interior may experience increased late summer rainfall. Drying is expected in the west



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of the country, particularly around the Western Cape, which seems to be facing a shorter rainfall season, and in the far northern area of the country.

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Runoff is highly dependent on changes in rainfall, and groundwater recharge even more so. Parts of South Africa could experience reductions in runoff and/or stream flow of up to 10%, which could be evident in the western parts of the country as soon as 2015. Even if the average rainfall were to remain the same, increased variability of stream flow would result in reduced natural yields and reliability, and an increase in the unit cost of water from dams.

Should warmer climatic conditions prevail, the water requirements of plants, and therefore irrigation requirements, would also increase. A decrease in water availability will also



*Courtesy of WRP*

*Deteriorating water quality is having adverse effects on health in some areas, compounded by the lack of sanitation and the non-functioning of a number of basic water supply schemes.*



*Demand for water from the power generation sector is expected to increase.*

affect water quality, further limiting the extent to which water may be used and developed.

The DEAT report notes that interaction is needed among all water-dependent sectors to ensure that all available measures are considered, so as to adapt to changing

circumstances and reduce vulnerability. No development or investment decisions should be made that neglect to take into account the actual or potential effects of climate change on water resources.

- To access the report go to [www.deat.gov.za](http://www.deat.gov.za) 