Innovative solutions for a water-scarce SA possible, but action must start now

South Africa's water crisis presents us with "an enormous range of opportunities" and should not be seen only as "insurmountable problems".

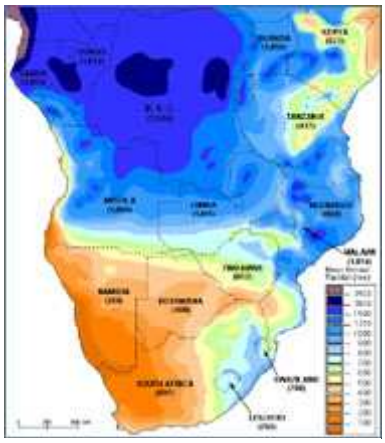
However, that also implies that the country should start making innovative plans now if it wants to achieve national water security in 15 years' time. The options available could include everything from building pipelines from the water-rich Congo to small-scale trapping of fog and mist.

Dr Pete Ashton

Speaking is CSIR principal scientist Dr Peter Ashton, after he took part as one of the specialist speakers in a country-wide seminar series on the country's water crisis presented by the pharmaceutical and chemical manufacturing giant, Merck South Africa.

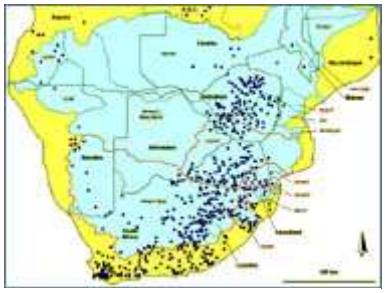
Water crisis dimensions

Ashton said the dimensions of the water crisis need to be seen in terms of availability, quality and security: "In South Africa, water is usually found in one of three forms, there is either too much, or there is too little, or it is too dirty."



A biophysical map shows clearly how water-stressed South Africa really is. While our mean annual rainfall is 497 mm, the world average is nearly double that at 860 mm. Angola (1050 mm), Zambia (1011 mm) and Mozambique (969 mm) are far above the world average.

If one considers that the country already captures nearly 74% of all runoff and that there simply are very few suitable sites left to build more large dams, the need for strategic alternatives becomes evident. South Africa already has 497 large dams and over 5 000 smaller dams, placing it 11th on the international scale of the number of large dams per country.



Africa has a total of 1 269 large dams - 827 (65%) of these are in the SADC countries, which hold 37% of Africa's impounded water.

However, we cannot go on as usual: "Over 95% of our water resources are already allocated to existing uses. With our available water resources and at the current rate of economic and population growth, we will find ourselves in a water scarce situation by 2025, even if we maximise water recycling and develop new water storage and treatment facilities," he warns.

Expecting South Africa to be a 'water secure' country is unrealistic if we continue with a 'business as usual' approach. However, the country can be structurally water secure if it starts planning now.

'Structural' water security implies looking at innovative solutions to our water supply and water storage problems.

Change of perception

Ashton feels very strongly that national water security can only be achieved if water is viewed as a public good: "Changing our attitude towards water is the first step on the road to achieving water security. For example, we need to stop using good quality tap water to water the garden with a sprayer for hours on end.

"Water is a scarce and essential public good - therefore it is a public responsibility and some public finance is essential to achieve water security. Water management should not only include the local public, government, industry, non-government organisations or agriculture. It should also, and foremost, include the silent generations - our children and our children's children. Only then can we come up with strategic visions to plan for water security for generations to come."

Possible solutions

Ashton suggests that innovative solutions in the following key areas are necessary to secure a water rich South Africa in the future:

- Extensive additional water supply infrastructure is needed throughout the country, as well as improved maintenance of existing systems
- There should be greater focus on water quality and improved pollution control throughout the country
- Catchment management agencies should be better resourced
- Management processes and the efficient use of ground water should be improved
- There should be greater application of water conservation and demand management
- South Africa has to improve interactions with neighbouring countries on shared river basins.

Possible new sources of water could include the desalination or direct use of seawater; importing water from the Congo or Zambezi rivers via pipelines and canals; bringing water from the mouth of the Congo River in massive containers - such as plastic bags - towed by barges; accessing deep groundwater; transporting icebergs to the Cape; trapping fog and mist; modifying rainfall patterns; or reducing evaporation through new water storage systems underground, for example.

The alternative, or 'business as usual' approach, will see prolonged and severe water shortages in the drier regions of the country; the deterioration of certain rivers if their ecological flows cannot be kept up; less water for our neighbours in shared river basins; increased water quality problems; and eventually, increased conflict between users trying to access progressively scarcer water resources.

The bottom line to achieving a water-secure future remains the same: "We have to change the way we value and use water."

- Wiida Fourie

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