Seen from afar, Earth's water resources appear abundant. So it might be difficult to grasp an announcement by the WEF earlier this year that a widespread water crisis is now the number one global risk, based on the impact it could have on society as a measure of devastation.

The situation makes better sense taking into account that only 3% of the world's water is fresh and therefore suitable for human consumption and irrigation use. Furthermore, two-thirds of freshwater resources are held frozen in glaciers or are otherwise unavailable for use, according to the WWF.

Population growth, rapid urbanisation and the onset of climate change is fast increasing the already heavy burden placed on the planet's scarce freshwater resources.

It is estimated that there is enough fresh water on the planet for 7 billion people. Currently the world population stands at a little more than 7.3 billion and the UN projects that it will rise to 9.7 billion by 2050.

Already, according the UN's Water for Life programme, more than 1 billion people worldwide live in areas that are experiencing physical water scarcity, and another 500 million live in areas that are fast approaching a similar situation. There are also 1.6 billion people who face economic water shortage, where countries lack the necessary infrastructure to take water from rivers and aquifers.

The UN projects that by 2025, 1.8 billion people will be living in countries or regions with absolute water scarcity, and two-thirds of the world's population could be living in water-stressed conditions.

Sub-Saharan Africa has the largest number of water-stressed countries of any region. And to bring the crisis even closer to home, in 2013 then Water and Environmental Affairs Minister Edna Molewa announced that 98% of the freshwater resources in SA was already considered 'fully allocated'.

According to the current Minister of Water and Sanitation Nomvula Mokonyane, 12% of South Africans still lack access to clean drinking water.

A 2014 paper published by the Institute of Security Studies (ISS) clearly highlights the widening gap between water supply and demand in SA. Titled Parched Prospects: The Emerging Water Crisis in South Africa, the paper presents a forecast of the country's water demand for the next two decades and concludes that water scarcity could soon emerge as one of the most significant constraints on SA's human-development prospects.

'Low and unpredictable supply, coupled with high (and growing) demand and poor use of existing water resources, make South Africa a water-constrained country,' the paper states.

It goes on to describe the average annual rainfall as only 495 mm compared with the world average of 1 033 mm. Yet the country's average daily per capita water use of 235 litres was much higher than the world average of 173 litres.

The Water Research Commission has estimated that there will be a gap of about 17% between water demand and supply by 2030 if no significant policy shifts occur to update infrastructure and change water-consumption habits in SA.

The ISS paper explains in detail how the gap between water supply and demand is determined: since the reliable yield for a water source is based on the amount that can be extracted at the period of lowest flow (for example towards the end of the dry season when a river or dam will usually be at its lowest level) over-exploitation does not necessarily create a scarcity of water.

According to the paper: 'If the flow of a water system is above average for a given year, then withdrawing more water than the yield may not be a problem. If, however, a drought occurs, over-exploitation increases vulnerability to water shortages.'

The National Water Resources Strategy (NWRS) puts SA's total reliable water yield at 10.24 km^3 – that is enough water to fill the Gariep dam to maximum capacity twice over. However, based on studies carried out in 2004, the country's total exploitable yield was about 13.23 km^3 and total withdrawal was 12.87 km^3.

'While this implies a surplus of water still existed in South Africa in 2004, more than half of the water-management areas were already being overexploited,' states the ISS paper.

Using the most recent data available for water demand for municipal, industrial and agricultural use, it estimates that the country is currently withdrawing 15.6 km^3 of water per annum, while the total exploitable yield is 14.6 km^3.

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