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Heavy droughts can now be expected every 15 years, UCT study finds

The recent drought which left dams like the Theewaterskloof Dam empty and saw the City of Cape Town's taps almost run dry, can now be expected once every 15 years, rather than every 50 years as previously assumed, University of Cape Town (UCT) researchers have warned.

These findings are part of the African Climate and Development Initiative (ACDI) cutting-edge research to quantify the long-term effects of humans on global warming. The research is aimed not only at reducing future risk but also enhancing on-the-ground responses to reduce the impact on populations of the global south.

Professor Mark New, co-leader of the international, multidisciplinary research team which has conducted extreme-event attribution studies in Africa, says: "Climate change poses serious development challenges for Africa, from both the greenhouse gas emissions reduction and adaptation to climate risk perspectives. For climate adaptation, African countries are among the most vulnerable to climate change and variability."

The 2015 to 2017 drought in the Western Cape – the worst in a century – has served as a backdrop for much of the innovative attribution science performed at UCT. This research, part of New's work as the holder of the AXA Research Chair in African Climate Risk, has already yielded valuable new insights that enable him and his team to look at a more comprehensive set of climate-related risks, including heat waves, wildfires and flooding.

This field of science determines how human influence on the global climate system, known commonly as global warming, is changing the intensity and frequency of weather extremes. "This is cutting-edge science led by African researchers, for African application," says New, adding that the research is specifically examining weather extremes that lead to water-related risks, initially focusing on drought.

According to Professor New, the recent droughts in southern Africa serve as a stark reminder of the region's susceptibility to the effects of climate change.

"This cutting-edge, joint-attribution research enables us to move from just looking at weather risk to a more integrated understanding of how changing weather risk propagates into impacts on the ground. This also provides information on how we might change our on-the-ground responses to minimise the impacts," he explains.

“Both the frequency and severity of climate-induced disasters are changing, often for the worse. For the Western Cape, the extent, duration and seasonal distribution of rainfall seem to be changing. Along with higher temperature levels and more evaporation, the implications of drought and climate change for river flows and long-term assurance of water supply are potentially serious,” Professor New warns.

He believes this is part of the ‘new normal’ we have to start getting used to in a warmer and drier world due to the impact of global warming on our regional climate.

Even in the best-case scenario, the Western Cape – like the rest of South Africa – is expected to become more vulnerable to food and water insecurity in the coming decades. This ups the urgency of implementing the best and most cost-effective adaptation plans in order to increase local resilience.

“In theory, the Western Cape’s water resource system should be reliable 49 out of every 50 years, but its designers did not completely consider the changing climate risk profiles. This is potentially an adaptation blind spot,” Professor New cautions.

Funded by the [**BNP-Paribas’s Foundation**](#), the initiative combines the strengths of scholars from UCT, the University of Oxford and Lawrence Berkley National Laboratory in the United States. It also relies on African climate experts and emerging researchers from South Africa, Benin, Nigeria, Liberia and Kenya.

[Read more about the ACDI’s work.](#)

Download high resolution Pictures: [Picture1](#), [Picture2](#)



The impact of drought on a future secure water supply for populations of the Global south is very serious.
Photo: Daniel McGahey



The recent drought which left dams like the Theewaterskloof Dam dangerously empty, and saw the City of Cape Town's taps almost run dry. Photo: Wikimedia

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