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As one of the most severe urban droughts in modern history, the Cape Town water crisis has flooded South African and international news in recent months. After an unprecedented three-year drought, the city is set to meet 'Day Zero' by August 2018, with implications for public water access, agriculture, and industry. Although current conservation efforts could mean that Day Zero will be avoided, there are useful lessons the Cape Town experience can offer for effective drought management for other vulnerable cities across the world.

Background

The most obvious contributors to the crisis are environmental factors. The period between 2015 and 2017 was the driest in the region since the 1930s, affecting dam levels across the catchment area. Coupled with this, data from the University of Cape Town's Climate System Analysis Group (CSAG) shows that there has been a gradual reduction in annual rainfall over the past 84 years, which could suggest that anthropogenic climate change is affecting the return interval of droughts.[1]

However, there are also complex political, social and infrastructural factors at play – factors which are rarely examined by the media.[2] In this article, I will explain how hydropolitics and power have driven the water crisis, as well as how these factors have shaped perceptions, impacts, and responses. I will then suggest how political decision-making and narratives surrounding the crisis can be challenged in the hope of dealing with water crises better in the future.

Hydropolitics and power

'Politics' refers to the activities associated with the governance of a country, especially the debate between parties over power and 'who gets what, when, where and why'.[3] Hydropolitics subsequently refers to the politics affected by the availability of water and water resources, and vice versa. Power impacts the game of hydropolitics directly and

indirectly, and can be utilised tacitly through approaches such as economic strategising and blame shifting, so that actors can get what they want.

To understand how hydropolitical interactions have contributed to Cape Town's water crisis, it is important to understand how water is governed in South Africa. First, water allocations and major infrastructure are the responsibility of the national government. Legislative processes, including the 1998 National Water Act, the 1997 Water Services Act, and the Water Service Regulations and National Water Resources Strategy, act as a legal foundation for regulatory processes in the country. Nine provinces then provide oversight and support, under which metropolitan and district municipalities manage supply systems for water delivery.

Although the legislation is designed to coordinate the three-tiered framework, implementing the ambitious legislation has been problematic due to the lack of recognition of the complex historical context and associated inequalities in knowledge, power and water access in the post-apartheid era of South Africa.[4,5] Uncertainty and incoherence in water-related policy and legislation compound these issues.

A 'Perfect Storm'?

The interplay of South African politics with environmental factors has led to a 'perfect storm' in Cape Town (Figure 1). The combination of significant population growth, limited government resources and corruption undermining infrastructure investments, the misallocation of water – plus an unprecedented three-year drought – have all contributed to the water crisis.

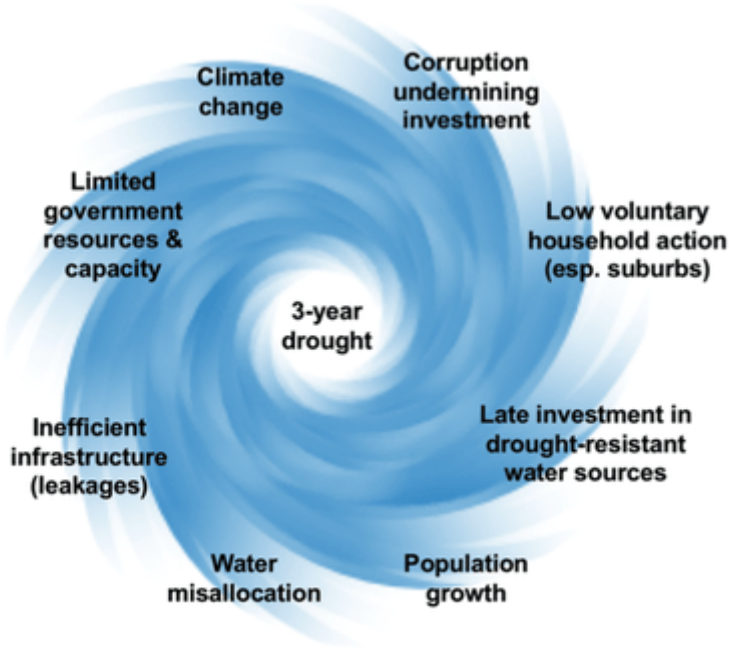

Figure 1: A 'perfect storm' of drivers of the Cape Town water crisis

Power asymmetries and collective action problems impacted many of the social aspects of the Cape Town 'storm'. For example, just 5% of the city's water is allocated to over 20% of the population in informal settlements[6], indicating disproportionate access to water across classes. Likewise, although the narrative of a collective crisis has now encouraged households to take action, individuals were slow to voluntarily adopt conservation behaviours. These factors, coupled with a lack of strict regulation by local authorities, exacerbated the crisis.

More broadly, there is concurrently a clear 'blame game' occurring amongst government officials, which is shifting resources away from crisis management. The blame game is a textbook political strategy for dealing with complex situations, and a way for politicians to manipulate narratives surrounding an issue. In South Africa, numerous politicians have declared the drought a consequence of climate change. While there is some merit in this explanation, as shown by CSAG's data, blaming an indirect cause such as the environment

for the crisis alleviates the need for politicians to take responsibility for their own political failings.

National-level politicians have also been engaging in tense disputes with both the provincial and municipal government in the Western Cape regarding responsibilities and water crisis funding for several years. This is not unexpected; both the Western Cape Province and City of Cape Town municipality are run by the main opposition party, the Democratic Alliance (DA), while the remaining eight provinces and national government, are led by the African National Congress (ANC). This complicates the political sphere.

Similarly, in late 2015, the Western Cape provincial government applied to the national government for funding for water supply strategies, such as water recycling, and to declare the Western Cape a drought disaster area. Although the claim was initially rejected due to high dam levels[7], the national government was eventually forced to declare five municipalities within the Western Cape disaster areas. The national government prolonged the process, however, with applications to declare the City of Cape Town a disaster area still being rejected as late as February 2017.

By avoiding declarations of disaster areas and shifting responsibility to the Western Province and City of Cape Town municipality, the national government was able to avoid drought relief funding. This type of financial mismanagement and corruption has been commonplace. For example, allegations against the Department of Water and Sanitation (DWS) are abundant, with public records indicating over R100million of overspending by the department in 2016-17.[8] Interestingly, much of this was attributed to unforeseen drought relief expenditure, despite DWS declaring that no amount allocated for the Western Cape's drought relief in 2017-18.

Blame shifting has also occurred in other interactions: a very public dispute between the Premier of the Western Cape (provincial level) and the South African Weather Service over

climate model interpretations indicates an underlying issue at the science-policy interface.[9] This highlights deeper issues around how science is, and can be, integrated into policy-making, and how scientists can communicate evidence-based arguments to politicians and the media more effectively.

Cape Town is facing its worst water crisis in modern history. Image supplied by author.

Ways forward

Both the scientific community and the public's response to the drought have the potential to challenge conflicting narratives around water management in South Africa. There is clear evidence that the scientific community first called for increased governmental coordination and focus on drought preparedness over ten years ago.[13,14] Yet, such calls were not integrated into drought preparedness, and limited knowledge and understanding of climate issues across all levels of government have continued to hinder drought responses.

This suggests that in the face of a water crisis, scientists and politicians need to communicate more effectively – scientists must stipulate the policy relevance of their findings, while politicians must engage and listen to the scientific evidence. It is clear that Cape Town's problems were driven not only by an unusual meteorological event, but also ongoing political incompetence and mismanagement across all levels of governance. To avoid a repeat of the Cape Town crisis, politicians must begin to actively engage with the scientific community regarding drought preparedness, and work towards more transparent monetary decisions.

Similarly, the public can play a role through challenging the status quo and encouraging government officials to take drought preparations more seriously. South Africans must take advantage of the current momentum surrounding the water crisis to ensure that the national government sufficiently plans for, and funds, drought strategies for the future.

Much has been said about the need for investment in alternative water supplies, and to increase water-use efficiency. However, cities such as Cape Town must ask important economic questions: what price are residents able, and willing, to pay for such technologies, and how much is the government expected to fund? With a government already struggling to balance its cheque-book it is difficult to see how it can subsidise expensive supply-side options in its current state. Even more worrying is how the cost of such efforts would be distributed across the unequal society living within Cape Town's borders.

Lessons learned

Drought in countries such as South Africa is inevitable. Indeed, long before the current crisis, Cape Town was identified by the national government as having the potential to be the first major urban region in the country where water demand could exceed supply if economic, population, and climate projections manifested.[14] Yet, what is not inevitable is the development of a crisis at the level witnessed in Cape Town.

What the Cape Town crisis shows is that preparing for drought requires a team effort – evidence-based science, pressure from the public, and political will. Cape Town's perfect storm was driven by the mismanagement of funds and a lack of political will, coupled with environmental factors, which all contributed to one of the most severe urban droughts in modern history.

Yet, Cape Town's water crisis is not an isolated event; many other cities around the world have similar potential to face such predicaments if they do not adequately prepare. For these other cities, it is important to remember that it is the decisions made, and resources allocated, that determine whether they can cope with drought events – and that such decisions are driven by politics and power, not meteorology.

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