

## *Drought disaster management: Lessons from the Western Cape*

### **Summary**

The extreme drought that affected Cape Town in 2016–18 was unprecedented for a major metropolitan region in South Africa. Ameliorative interventions by the national, provincial and municipal governments were comprehensive, if somewhat controversial and uncoordinated. Policy lessons and implications for future drought events emerged from a Human Sciences Research Council (HSRC) survey, conducted to elucidate lifestyle changes and water conservation methodologies adopted by Western Cape households, businesses and organisations. Responses varied from those who said the impact of the drought had been major (30%), considerable (30%) or small (32%) to those who said there had been no impact (7%). The impact was perceived to be the greatest for businesses, organisations and households in middle-income areas. Water-saving methods that were used were recycling water (34%); using less water (34%); storing grey, rain or run-off water (18%); and repairing leakages (2%). Households washed clothes less often, showered less, and used grey water for toilet flushing and garden watering. Although the city was satisfied with the management of the drought disaster and the resultant behaviour change, a significant proportion of the survey

respondents thought that officials had communicated poorly (20%) or only partly well (27%) about the water restrictions. Similarly, only 43% felt that the authorities had dealt very effectively with the drought and only 58% thought that the public had complied well with the water restrictions. Nonetheless, more than 80% agreed that 'most people in the Western Cape are now very aware of the need to save water'. The most effective methods of communication about the drought were television (60%), radio (57%) and posters (53%). Businesses and organisations had relatively high preferences for SMS (41%), WhatsApp (41%) and email (35%). Younger participants were keener than older people about receiving information online and via social media. Several policy implications emerge in respect of education and awareness creation, investment in water infrastructure, cooperative governance and communicational clarity in managing a drought disaster.

### **Introduction**

The occurrence of an extreme drought event in the Western Cape in 2016–18 was cause for widespread alarm and ameliorative intervention (especially in Cape Town, which recorded its lowest level of rainfall in a century of meteorological records). Average dam

levels dropped from 78% in 2016 to a low of 30% by early 2017 (Kaiser & Macleod, 2018), 38.5% at the end of the 2017 winter rainfall period and 28% by January 2018. In addition to its importance as a metropolitan region, Cape Town's prominence as an international tourist destination generated substantial media attention on the impending drought disaster. Warnings by the municipality were largely unheeded and water consumption patterns did not change significantly until the city declared that, at then-prevailing consumption rates, 16 April 2018 would be 'Day Zero'. Accordingly, a restriction of 50 litres of water per person per day was imposed, consumers collaborated and the use of water declined dramatically. The city established an online dashboard to keep residents up to date about the dam levels (City of Cape Town, 2019) and even to spotlight property owners who were not complying with restrictions. The research conducted by the HSRC to assess public response and adaptation has widespread policy implications. The research was guided by the vulnerability approach to disaster risk reduction, which elicits community-based problem solving and the application of local knowledge (Baumwell, 2008; Daskon & Binns, 2010). The goal of this approach is to reduce vulnerability in order to complement technocratic engineering solutions. The literature asserts that communities survive disasters by applying locally initiated practices, knowledge and skills. To this end, the Disaster Management Act 57 of 2002 provides a framework for consultation with communities and stakeholders.

## The problem

The unprecedented drought in a major metropolitan area required multilateral intervention to manage the slow onset disaster. A questionnaire survey conducted during January 2019 elucidated the lessons and policy implications from the views and

perspectives of the public regarding adaptations and water conservation methodologies implemented during the 2016–18 drought. The survey was conducted among a systematic random sample of households, businesses and organisations located in five Cape Town neighbourhoods (Brooklyn, Langa, Beacon Valley, Fish Hoek and Gatesville) and two small towns (Piketberg and Clanwilliam) in the Western Cape.

## Survey findings and implications

Responses to the HSRC survey were almost equally divided between those who said the impact of the drought on their households, businesses or organisations had been major (30%), considerable (30%) or small (32%), and a small percentage (7%) saying there had been no impact on them. Fewer households (28%) than businesses or organisations (38%) indicated that the drought had had a major impact on their operations. The impact was perceived as greater among residents in formal and middle-income areas than in low-income townships, and among older than younger respondents. It was also evident from the study that understanding composite socioeconomic vulnerability within settlements is critical in building resilient communities that are capable of mitigating and managing the risks associated with drought hazards.

Almost three-fifths (58%) of the survey respondents indicated that during the drought they had reduced their water usage, 29% said it had remained at the same levels and 12% said that it had increased. Reduced water usage had been achieved primarily by recycling water (34%); using less water (34%); storing grey, rain or run-off water (18%); or repairing leakages (2%). A small proportion (4%) indicated that they actually had not saved water. The specific nature of the impact at household level included less washing of clothes, less showering and/or bathing, and

using grey water for toilet flushing and garden watering. Although an interview with a senior city official reflected satisfaction with the management of the drought disaster and the resultant consumer behaviour change, there was no consensus about this among the public. A significant proportion of the respondents thought that officials had communicated poorly (20%) or only partly well (27%) about the water restrictions. Similarly, only 43% felt that the authorities had dealt very effectively with the drought. More than half (58%) of the respondents (66% of males and 55% of females) thought that the public had complied well with the water restrictions. Nevertheless, more than 80% agreed or strongly agreed with the statement 'Most people in the Western Cape are now very aware of the need to save water'. These findings provide an illustration of the impact of urban drought and how cities can develop mitigation measures accordingly.

The survey respondents made a range of suggestions about how the management of future droughts could be improved. These included the need for greater emphasis on water saving by everyone (22%); earlier and more transparent communication about the severity of the drought and the rationale for water restrictions (19%); better maintenance of existing water storage infrastructure and the establishment of new water storage capacity (18%); and subsidisation of the installation of storage tanks (7%) and boreholes (6%).

The most effective methods of communication about the drought were perceived to have been television (60%), radio (57%) and posters (53%). In addition, specifically businesses and organisations indicated relatively high preferences for SMS (41%), WhatsApp (41%) and email (35%). Younger respondents were more likely than their older counterparts to opt for online and social media communications.

The survey indicated a high level of awareness of the impact of the drought. After the drought, a new consciousness of the value and scarcity of water is evident among residents of Cape Town and the city's hinterland. Water consumption declined and has not risen to the pre-drought levels, suggesting that widespread behaviour change has occurred. In addition, participants in the local economy are now more acutely aware of its vulnerability to drought. The management of the disaster required strident messaging and warnings to residents, and these were largely heeded. However, an unintended effect was a sharp decline in tourist arrivals during the subsequent year, even after the drought had ended. Potential visitors to the city and province appeared to be particularly sensitive to the alarmist messaging carried in the media, and were inclined to change their travel plans accordingly.

There will be an ongoing need for public guidelines, ideas, suggestions and teaching modules that are customised to appeal to and attract the attention and activism of all the stakeholders. These should include but not be restricted to individuals of all ages, households, residents' associations, sports clubs, civil society organisations, office workers, school staff and learners, and hospital staff and patients. Municipalities should increase their efforts to achieve full and comprehensible transparency about water costs and municipal revenue. Methods of recouping lost income owing to reduced water consumption should be clearly explained, and good water conservation practices should be incentivised.

## Recommendations

The frequency and pervasiveness of droughts across South Africa dictate the need to nurture a culture of careful use and conservation of the country's scarce water resources. This is of critical importance in cities and towns, where demand for water is continuously high.

From the recent precarious experience in Cape Town and the Western Cape in general, several lessons were learned. Three essential sets of policy interventions are recommended in respect of drought awareness creation and education; investment in water storage and reticulation infrastructure; and management of drought disaster situations.

### 1. Awareness

- National and provincial education departments – in collaboration with water authorities, local governments and experts – should invest in continuous public engagement programmes that focus on educating and informing people about the sanctity of water resources, climate variation and the importance of water conservation by all.
- Course and message content should be customised and targeted to specific stakeholders (including learners, households, businesses and institutions) using media that are appropriate and accessible.
- Water management should factor in the public appetite for heavier restrictions on water usage for longer periods when necessary, with restrictions continuing even during wetter periods in order to nurture a water saving culture.

The envisaged outcomes are enhanced levels of civic responsibility, environmental awareness and neighbourhood resilience across the diverse segments of the Western Cape population, and greater community involvement and activism.

### 2. Investment

- The different spheres of government should develop multilateral agreements of

understanding related to the mandate and responsibility for ongoing infrastructure and bulk water management investment.

- There should be adherence to a systematic agenda of maintenance and upgrading of existing water infrastructure and reticulation networks in order to avoid costly emergency repairs during drought periods.
  - Medium- and long-term planning should be effected to cater for the demand for water that is expected as a consequence of population growth, migration and urban expansion.
  - Consideration should be given to subsidisation of the cost of acquiring water storage tanks and sinking boreholes for disadvantaged households, businesses or organisations.
  - The envisaged outcomes are enhanced management of scarce water resources in anticipation of the future occurrence of droughts.
- ### 3. Preparedness
- Municipalities that are exposed to drought should follow an integrated approach to drought risk analysis and mitigation, and should collaborate closely with their provincial and national counterparts to optimise the effectiveness of the management of a disaster.
  - Integrated analyses and projections of drought hazards should be conducted regularly to facilitate timeous support governance that inform management and planning, as well as official communication about the onset and implications of a drought.
  - Disaster risk communication messages should be crafted carefully for different segments of the population and in ways

that mobilise response, increase community resilience and limit the potential negative impact on the economy.

- The public and other stakeholders should be encouraged to share innovative methods of dealing with drought and other hazards prevalent in cities.
- Lessons from the Western Cape and Cape Town drought experience should be factored into the approaches of all the role-players, including the National Disaster Management Centre and its provincial offices; metropolitan, district and local municipalities; the corporate and small business sectors; research institutes; and civil society organisations, with a view to enhancing drought disaster mitigation methods and resources.
- Local governments should focus on strengthening urban water resilience to incentivise and facilitate easier adaption to climate change risk. This is achievable by improving data collection and communication, and engaging experts in disaster risk reduction to enable adaptive and agile decision making.
- The envisaged outcomes are informed and publically acceptable, appropriate and streamlined management strategies and interventions in the event of drought disasters.

## References

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