

“No Trust in Miracles”

Leading Through a Water Crisis in Cape Town

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It was January 18, 2018, and Patricia De Lille, executive mayor of the city of Cape Town, was about to enter a crucial press conference. City Hallⁱ had been trying to respond to one of the worst droughts in Cape Town’s history. Two months into the dry season and with four more to go until the start of the rainy season, the situation was desperate. The dams that fed the city’s water system were extremely low, with water levels falling faster than expected. To avert disaster, drastic measures were called for.

For the past six months, a task team in City Hall had tried to supply additional water to the system, but it was now clear that the new water would not arrive on time. Some demand for water had been reduced through water restrictions, higher tariffs, and pressure management devices,ⁱⁱ but not enough. While all these measures had resulted in substantial reductions of citizens’ water consumption, further reductions were imminently needed, and City Hall was running out of options.

Communications were ramped up to change citizens’ behaviors including releasing a disaster management plan and describing what it would mean for the city to run out of water. One of the last ideas was to announce that, unless citizens cut their demand to the required levels, water taps would go dry in a few months’ time, on what had been labelled “Day Zero.” This was a moving date calculated using data on dam levels and user demand, set to occur when dam levels reached only 13.5 percent, and would trigger phase two of the disaster management response.ⁱⁱⁱ

No one wanted to admit that Day Zero was a possibility, even less so in what had been commonly known as the best-run city in Africa. There were also economic implications. The tourism industry, for example, which accounted for about 7.5 percent of the city’s GDP,¹ feared that communications around Day Zero would dissuade many potential travelers from visiting the city.

In that January press conference, amongst ongoing uncertainty and with companies and political colleagues alike pushing to tone down the messaging, De Lille had to decide whether to announce that Day Zero was likely to happen. As she prepared to enter the press conference, she tried to find the right words to deliver the message to a packed and expectant room.

ⁱ In South Africa, city hall is usually referred to as the ‘City of Cape Town,’ ‘the City,’ or the ‘the Metro.’

ⁱⁱ Pressure management devices can be used to reduce the amount of water that flows when taps are opened, cutting down the amount of effectively unused water and therefore pushing down the consumption levels.

ⁱⁱⁱ See Appendix 7 Critical Water Shortages Disaster Plan published in October 2017.

Cape Town’s Complex Water System

By 2018, over 4 million people called Cape Town home.² Proud to be one of the best financially run cities in South Africa,³ it was also one of its most unequal. With 18.4 percent of households living in informal homes in 2016,⁴ many city dwellers did not have access to proper water and sanitation services and needed to collect water from fixed points. The Day Zero report states: “those living in formal housing used two-thirds (66 percent) of the city’s water allocation, while those living in informal settlements only [drew] 4 percent.”⁵ This unequal access to water was intimately linked to Apartheid era laws such as the Group Areas Act of 1950, which gave authorities the power to decide where racial groups could settle and own property, resulting in the reallocation of Black and Coloured^{iv} people to more distant and poorer areas of the city, with limited access to water, sanitation, and other services.⁶ (See Appendix 2 for a map with the racial segregation patterns in Cape Town.)

Cape Town drew its water from a surface water system composed of a set of dams that filled with rain, particularly from May to October. Most of the system’s dams were operated by the national government. The city of Cape Town consumed the largest share of the water (58 percent), while the agricultural producers in the Western Cape Province consumed 26 percent, and other municipalities consumed 6 percent.^v This system created high dependency on rainfall but was also very affordable. (See Appendix 3 for a map with the location of the dams that feed Cape Town’s water system.) In cases of scarce rain and low dam levels, the national government enacted water restrictions on Cape Town, other municipalities, and the agricultural producers that drew water from the dams.

City Hall was in charge of managing the bulk water released by the National Department of Water and Sanitation, including the downstream pipes and the water that ran out of the taps in residential, industrial, and commercial buildings. City Hall’s main lever in times of drought was to manage water consumption by implementing restrictions, fixing leaks, increasing tariffs,^{vi} or managing pipes’ pressure to get through the dry season with the available water until the next rainy season. Increasing water supply capacity would require building additional dams, an infrastructure project that would be impossible without national government investment. Other sources of supply, such as desalination plants, had a water production cost eight times more than that of surface water.⁸ As a result, and although the city was highly dependent on rain, Cape Town’s system offered reliable water with an assurance level of 98 percent. This assurance level meant that the system would be able to provide water to the city through rainwater in all but extremely severe and rare droughts. Such a rare event, according to historical records, would only happen once in 300 years.

^{iv} According to *Oxford Dictionaries*, the term “Coloured” is used in South Africa as “an ethnic label for people of mixed ethnic origin, including Khoisan, African, Malay, Chinese, and white.” Oxford University. See <https://www.lexico.com/definition/coloured>. The Population Registration Act No 30 of 1950 divided the South African population into three groups: White, Black, and Colored. See

<https://omalley.nelsonmandela.org/omalley/index.php/site/q/03lv01538/04lv01828/05lv01829/06lv01838.htm>.

While some parts of the Coloured community use this term with pride, there are also efforts to change it. See

<https://www.enca.com/news/calls-term-coloured-be-abolished>.

^v The remaining percentage is lost to evaporation and leakage.

^{vi} See

<https://resource.capetown.gov.za/documentcentre/Documents/City%20research%20reports%20and%20review/Water%20Outlook%202018%20-%20Summary.pdf> and Appendix 5 for a chart with the tariff levels.

Cape Town had been working on managing its demand for water consumption since the early 2000s. The city’s population was growing at an annual average of 2.5 percent with 4 percent annual increase in water demand. Finding new dam sites was technically and economically difficult, so in the early 2000s, City Hall had put together a water conservation and demand management program which reduced the demand. (See Appendix 4 for a graph with total water use in Cape Town since 1970.) These efforts pushed back some of the plans and projects to build additional diversified sources of water supply such as desalination, groundwater aquifer drilling, or water reuse, since they seemed too costly for an already well-managed demand.

Patricia De Lille, from Unionist to Mayor

Brought up with six siblings in a Coloured family in the small town of Beaufort West in the Western Cape in the 1950s, Patricia De Lille had a long history in South African politics. Affectionately known to her supporters as Auntie Pat, De Lille was a cheerful yet tough politician. “She is a very strong, principled woman,” Nelson Mandela once said of his political opponent.⁹

De Lille started her political activity in the country’s union movement and became a parliamentarian with the Pan Africanist Congress (PAC) party in the first democratic election of 1994. She was attracted by the PAC’s founder’s non-racially based politics and said his belief that “an African was anyone who gave allegiance to Africa, regardless of their skin colour” gave her an identity and a home.¹⁰

During her time as parliamentarian, De Lille became a household name and a highly respected figure in South African politics. She led the call for an investigation of an alleged corruption scandal in the purchase of weapons by the national government that involved top leaders in the ruling party, Mandela’s African National Congress (ANC). In 2003 she broke with the PAC “to find a home where she could express her special talents and ‘to find space for myself,’”¹¹ and formed her own party, the Independent Democrats (ID). Out of the 400 seats of the National Assembly, the ID won seven seats in the 2004 general election and four seats in the following election in 2009.

In 2010, De Lille and the leader of the Democratic Alliance (DA), Helen Zille, announced that the ID would merge into the DA to better challenge the ANC in the 2014 election. The DA, the main opposition party to the ANC, was a liberal party and the one with the widest support among whites. Zille, former mayor of Cape Town and then leader of the Western Cape province, was seeking to expand the base of the DA, particularly among the Black and Coloured populations. This was particularly important in Cape Town, where no population group fully dominated: 42 percent of the population were Coloured or mixed race, 39 percent were Black, and 16 percent were white.¹² Cape Town was also the DA’s flagship location, where it pushed its model of good governance and used the city as a platform to compete in the rest of the country.¹³ As part of the merger, Zille supported De Lille internally to become the DA’s candidate in Cape Town’s mayoral elections of 2011.

De Lille was eager to become a mayor. “As an opposition politician, you wake up in the morning and you say to yourself, ‘What am I going to say today?’ As a mayor, you wake up and say, ‘What am I going to *do* today?’ As a mayor, you also see the impact of your actions in the daily lives of people.”¹⁴ With De Lille as the mayoral candidate in 2011, the DA obtained its biggest majority in the city. According to political commentator, Crispian Olver, “Part of the success was due to clever branding of the party,

with Helen Zille, Patricia De Lille, and Lindiwe Mazibuko, the party’s national spokeswoman, all appearing on the election poster. Three strong women leaders, representing the diversity of South Africa, presented a powerful and inspiring alternative to the ANC’s more race-based campaigning.”

De Lille was energized by the clear victory, but also felt the pressure to get things done. “Once you get over the celebrations, the anxiety steps in, because you know that 62 percent of the people in the city have put their trust in you, and you cannot let them down.” Yet, De Lille was also aware that the rigidities and dynamics of a large bureaucracy could play against this commitment to deliver. “I immediately convened all the senior managers . . . and said to them, ‘We are going to change the methodology of planning. You are looking at me as a five-year inconvenience for you, because you know I have been elected for five years, and then I need to contest elections again and you will still have a job.’ And I said to them, ‘No, I will not allow that.’ They were shocked because this had not happened before.”

During her first term, De Lille and a close aide, Craig Kesson, embarked on an ambitious organizational reform to try to break silos and expedite City Hall’s policymaking and service delivery. Kesson was an Oxford-educated civil servant with close connections to the DA who would play a crucial role in the design of the strategic response to the drought. In those days, as executive director for the Directorate of the Mayor, he was a key member of the mayor’s team and led a profound transformation of City Hall’s administration. Kesson and his team of young experts did face some resistance, however, seen by some as parachuters with an aim to centralize power in the mayor’s office, without understanding the internal dynamics of City Hall.¹⁵ De Lille also opened an office in informal settlements and poorer areas where people could talk to her directly some days without an appointment. “To get the trust of people, you need to interact. So, I changed a lot of things right from the beginning to say, ‘This is the foundation for the next five years.’”

De Lille also tried to bring diversity to City Hall and instill social-democrat policies to the DA’s agenda. During De Lille’s mandate, the proportion of non-white staff in top-tier roles in City Hall had increased substantially, and her agenda seemed to be paying off. In the 2016 mayoral election, De Lille was re-elected mayor of Cape Town with almost 67 percent of the votes, becoming the first mayor in the country’s democratic history to serve for two terms.¹⁶

Internally, De Lille was known for her high demands, orientation to solving problems, and extremely hard work. Outside City Hall, she gained global recognition and built close ties with leaders from other cities like New York and Paris. According to some, this sparked some opposition within her party. Ian Neilson, deputy mayor of Cape Town and one of the key leaders of the DA in the city, said that De Lille “thought she could do what she wanted and no one could stop her.”¹⁷ Others, like DA Cape Town councilor Suzette Little, disagreed, “Helen [Zille] and Pat are genuinely the same person. You can’t control them; they will achieve whatever they put their minds to.”¹⁸

A Black Swan in the Making

Despite her strong electoral support, De Lille’s second term as executive mayor started with major challenges. During 2015 and 2016, Cape Town experienced two of its lowest rainfalls in recent history. In May 2017, right before the rainy season, the dams were markedly low. Anxiety within City Hall was

brewing. “My worst fear was that Cape Town was going to become the first major city in the world that was going to run out of water,” recalled De Lille.

The engineers in the water and sanitation department, however, were quite confident that the system could be managed with the available tools to reduce demand while waiting for the rain and did not believe that building additional capacity was feasible or necessary. The political leadership, by contrast, held a different view. De Lille convened a scenario-planning session with her senior managers and a well-known expert. For De Lille, this exercise was revealing. “That really opened up our mind,” and it became clear to her that “we can no longer rely on rainwater to fill our dams, we need to look for other sources of water,” she said.

These different viewpoints started to erode her confidence in City Hall’s water department’s ability to manage the system. De Lille was disturbed by the experts in City Hall, who “were still relying on weather predictions. And I told them how many times the weather predictions have been wrong in the past five years because of climate change. Climate change is unpredictable. You cannot use the patterns of rainfall anymore.” According to Gisela Kaiser, then-executive director of water, sanitation, and informal settlements: “There was this absolute anxiety. ‘But what if it doesn’t rain?’ With some people in the room, if you said, ‘but it’s going to rain,’ you would virtually be booted out of the room.”¹⁹

Around that time, Kesson was appointed chief resilience officer, adding this responsibility to his ample portfolio.²⁰ He was among the city leaders who did not want to wait and see. “Around May or June 2017, the dams were at a very low level,” he said. “They dropped below 20 percent which, globally, would spark, long before that, an emergency response. And as winter months progressed in Cape Town, the rain was not coming. [. . .] for the outer frame of reference, it was a question of, if there is no rain, Cape Town is finished.”²¹

“At that point, I think the breaking down in trust started to show,” recalled Kaiser. In May 2017, before leaving the country for several weeks on a personal trip, Kaiser gave a talk entitled “Waiting for a Miracle” at Africa Utility’s Week. “The headlines caught on ‘waiting for a miracle.’ The mayor thought that I had spoken in public, and that the interpretation was, basically, pray for rain,” said Kaiser. After this event, De Lille put Kesson in charge of the response to the drought and the Water Task Team, a parallel structure set up by the council. According to the Day Zero Report, the Water Task Team met weekly and pulled together technicians and bureaucrats from departments across City Hall, as well as from provincial and national governments, so they could draw up a tactical response to the crisis, communicate effectively, and make quick decisions.

The Water Task Team assumed a scenario of scarce rain as the new normal and calculated the daily water consumption that would enable the city to run with no major disruption to human life, setting it at 500 million liters per day. The plan then sought to reduce demand to that daily consumption level through tariffs, pressure management, and citizen awareness. They would also build additional water production sources to secure the level needed, even if there was no rainfall. Of course, if it were to rain, this additional production would create redundancy in the water system, but that was considered a better option than to risk running out of water if the rain did not come.

On August 17, 2017, the mayor unveiled the new Water Resilience Plan including plans for desalination plants, water reuse, and groundwater drilling. (See Appendix 6 for more details.) The estimated capital cost was 2 billion rand^{vii} (almost a third of City Hall’s annual capital budget) and the estimated operating cost was 1.3 billion rand.²² During the press conference, the mayor said, “Bringing so many new technologies online simultaneously at multiple sites around the city is expensive . . . The road ahead is going to be very challenging. The City is throwing every available resource at ensuring that acute water shortages are avoided. Building water resilience is the number one priority of the city administration.”²³

Councillor Xanthea Limberg, the mayoral committee member for Informal Settlements, Water & Waste Services and Energy, was a supporter. “I was in support of the full augmentation plan only because I was so incredibly nervous about the risk of water scarcity,” she said. “I believed at that time that I had to take a worst-case scenario approach, and that waiting to see how things unfold would not necessarily assist us facing the new hydrological year ahead. I think some of my colleagues may have had a different perspective on it.”²⁴ Deputy Mayor Neilson, a civil engineer himself, was among the skeptics. “The engineers in the water department thought from early on that building that additional capacity was not realistic,” he said. “And that the only way to overcome the crisis would be reducing demand further down [. . .] but politically, it was not viable at that point.”²⁵

Trust within the Community Also Starts to Dry Out

The different views within City Hall translated into a lack of clear communication and engagement with the community. By October 2017, the relationship between the government and the business community had become quite tense. Mike Spicer, the deputy chairperson of Wesgro, Western Cape’s Trade and Investment Promotion Agency, was a leading voice for the business community and was seeking to rebuild that relationship. “Part of the exasperation of business was that they could not get clarity on what was the nature of the problem, what was the proposed strategy, what was the timeline for implementation, so that they could plan their ongoing business [...],” he said. “All they got was a cacophony of different views and no clarity.”²⁶

For the director of communications within City Hall, Priya Reddy, the need to communicate City Hall’s efforts to augment supply while asking citizens to cut their demand was very challenging. “By saying we have this augmentation rollout that was soon to happen, we were afraid that people would say, “Well, there is this silver bullet. We no longer need to save.”²⁷

Other members of the community were also starting to feel alienated by the lack of transparency. Thabo Lusithi was part of the water and climate change team at the Environmental Monitoring Group, working in many of the poorer communities of Cape Town, such as Khayelitsha or Mitchells Plain. He recalled that many of these communities received the news about the drought with suspicion. (See Appendix 1 for a brief historical explanation of water provision in Cape Town’s poorer communities.) Mavis Manyati was a community leader living in an informal settlement with no running water at home. She recalled how people in the settlement “complained that the people in suburbs are using

^{vii} 2 billion rand is equivalent to around 150 million US dollars, applying an exchange rate of 0.075 rand/dollar from August 15, 2017. See <https://www.xe.com/es/currencycharts/?from=ZAR&to=USD&view=5Y>.

more water, because, for example, we do not have pools, they have pools, we do not have baths, they have baths, we do not have showers, they have showers . . . But they also complain about us.”²⁸

Lusithi shared his bus ride to work with many people from his community, such as domestic workers in middle-class homes or those doing janitorial work in downtown office buildings. They would talk about the increasing discussions about drought in their workplaces. For them, water scarcity was an everyday reality and it seemed unfair to demand that they reduce their water use. Informal settlements accounted for only 4 percent of the city’s water consumption, and a substantial proportion of the residents in these settlements did not even have access to running water.²⁹ They, in fact, saw evidence of high water use in more affluent parts of the city. Lusithi recalled his daily bus ride: “Every time when we passed, you know, this curve in the N2 way and there is this City Lodge Hotel and the Mowbry Golf Club, and we would see the sprinklers.” While he knew that it was not potable water, he felt it symbolized “that when you leave Khayelitsha [. . .] there is no drought.”³⁰

Eusebius McKaiser, a leading South African broadcaster, articulated this when he asked his audience, “Do you think there is a deep reality here that is both racial and class in its nature? That when something happens to middle-class people or to white people, including Black middle-class people, suddenly it’s a crisis, but when it happens to poor people, which in our country means mostly poor Black people, no one takes any notice because it is just part of the natural landscape?”³¹ Charlton Ziervogel, managing director of the Community Organisation Resource Centre (CORC), an NGO supporting informal settlements, agreed: “We never sat down with our partners to talk about the drought because the challenges that informal settlements are facing are so different than what the middle class in the city was experiencing. These are people that have been experiencing Day Zero basically since they moved into the city.”³²

There was also some criticism that City Hall was not communicating as much about the drought in the poorest areas. According to Reddy, they were using all the channels available, but were focusing on the more affluent areas because they were the ones using more water.

Nevertheless, in October of 2017, city leaders still felt confident that they could avoid disaster with the augmentation plans. Right after visiting a site earmarked for development of a desalination plant at the V&A Waterfront, a privately owned 123-hectare mixed-use downtown neighborhood, De Lille said on the radio that her administration “will not allow a well-run city to run out of water.”³³

The Alarms Go Off

The prayers were not heard, and average rainfall in 2017 was even lower than in 2015 and 2016. In November, the end of the rainy season, the dam levels were at 38 percent, far below their usual full capacity at that time of year. This made the drought a one in 300-year event; the type of black swan event that the city’s water system was not built to face. In Cape Town, all the alarms went off. City Hall requested a review from the city support program at the South African National Treasury, who called a mission from the World Bank to assess City Hall’s response.

Discussions around the funding of the water resilience plan also started to create tensions between departments, as some City Hall services faced the chopping block. Mayoral committee member Xanthea Limberg was involved in these conversations. “These were very difficult discussions to have

because every service that the municipality renders is a critical service,” she said. “Even though the mayor understood there needed to be additional augmentation implemented to at least minimize the risk of water scarcity, there was great resistance on significantly changing the Integrated Development Plan [the political priorities committed to by the administration] and cutting back.”

As the crisis peaked, Capetonians were demanding different kinds of technical details, as well as reassurance that the government’s actions and the immediate demands that citizens reduce water usage would be effective. City Hall launched the Water Dashboard³⁴ and the Think Water³⁵ websites with information on dam levels, water restriction details, conservation tips, and a hotline to report leaks or people breaking restriction rules. City Hall, in collaboration with the University of Cape Town, also launched the Cape Town Water Map, which tried to nudge citizens towards responsible behavior through a flagging system to denote water use among neighbors as well as among suburbs.

These efforts, however, did not seem enough to rebuild trust in the city leadership. Council member Limberg recalled how “residents expect from you ongoing, constant, and clear information. One of the ways in which we believed we could attempt to bridge what the communities and stakeholders wanted and what we were able to communicate was the Water Outlook report developed by Executive Director Kaiser.” After initially being available on City Hall’s website, however, the mayor requested it withdrawn. “Perhaps in retrospect, we did not fully appreciate how much information people, and particularly journalists wanted. Because water can be very, very technical, the Water Outlook report. . . It was complicated,” said director of communications, Priya Reddy. “When I look back on it . . . I would say that in those instances, more information is better than less.”

As weeks went by, the sustained water crisis started to erode morale and relationships at City Hall. In addition to increasing tension with deputy mayor Neilson and other councilors from her own party, De Lille started to see clashes in her inner circle, even with Kesson.

The Strategy Changes

From November 1 to 14, the World Bank’s expert mission called by the National Treasury visited Cape Town and issued a report on City Hall’s response to the drought.³⁶ Signed by Spanish expert engineer, Manuel Mariño, it recommended changes to the augmentation plan, such as giving highest priority to the groundwater production in the Cape Flats’ shallow aquifer. It also recommended abandoning some of the emergency temporary desalination plants and focusing on a few of small ones and a large one in the harbor. The cost to produce desalination water was eight times higher than surface water, and it would also be very challenging to launch these projects on time. De Lille recalled being taken aback by one expert’s opinion on the old plan who “came and said to me, ‘Mayor, they are lying to you. It is never going to happen.’”

Kesson noticed a loss of support from the executive mayor. “There was a change in the political understanding of the drought,” he said. “We had proposed that, in order to deliver realistically the [augmentation] program, the City would need to reprioritize all of its program. But the political appetite for that decision was not there, nor was there appetite for the increase in tariffs that would be needed to finance part of that program.”

Given the increasing divergent views, in a move similar to what had happened with City Hall’s water department, De Lille took responsibility away from the Water Task Team led by Kesson and started chairing daily meetings and crafting a new strategy. Resolve, a crisis communications company, was brought in.^{viii} One of their consultants, Brownyn Nortje, said, “Our job was to very rapidly reduce consumption of water by the residents . . . Even though this message had been put out by the City, there was a lot of confusion around how serious the drought was, and it had suddenly become a lot more serious.”³⁷

Resolve’s goal was to create a message agreed upon by all stakeholders that could generate behavioral change. That was not easy since different stakeholders had different interests. For example, the private sector, particularly in the tourism industry, was very reluctant to put forth alarming messages that could drive down business. The statement that was finally crafted had three elements: (1) all residents must conserve water, (2) City Hall was doing everything in its power to increase supply and find other sources of water, and (3) if we all do this together, we will solve this crisis and avoid Day Zero.

While Day Zero had been coined by the disaster risk management team, it caught the public’s imagination and became a vivid image showing the drought’s consequences. De Lille and her team went to a potential collection point^{ix} and demonstrated how people would need to fetch water in the event of Day Zero. “That was one of the shock terror pieces,” she said. “When you feel the message is not working, what more can you do? And you show them, this is what Day Zero will look like.”

This change in strategy was not totally welcomed at City Hall. “What we discovered once we got into the City was an unbelievably antagonistic environment where there were very low levels of trust between departments,” recalled Nortje. “In a crisis situation somebody has to make a call, and prior to that there had not been this alignment of views [...] [but] reticence to really admit there was a problem, because there was a prior slogan saying that a ‘well-run city does not run out of water.’”

Things Fall Apart

Mid-November was a pivotal time in the water crisis. At first, De Lille’s approach had been to explain that City Hall had things under control, increasing the sources of supply to bring new water into the system. As months went by, however, her tone and message shifted to put more pressure on citizens to pull their weight in reducing demand.

Nortje was in charge of managing City Hall’s communications effort to reduce consumption. “If you want to communicate something, you have to be on message, in volume, and people need to be hearing it all the time,” she said. “And then they need time to digest it, and time is what we did not have.” In the process of launching a massive communications campaign to convince people to conserve, City Hall created strain on officials, particularly from the water department, who had to be out sharing the message all the time. Kaiser was one of them. “The last two months of 2017 were jampacked with activity, and trauma,” she said.

^{viii} Resolve was founded by executive chairman, Tony Leon, leader of the DA from 2000 to 2007.

^{ix} This was a temporary site set up to test planning and was not originally intended to be a media moment.

The tensions between Kesson and De Lille had been increasing since the end of August, arising from Kesson’s allegations against a senior manager and former transport commissioner of the city. On November 9, 2017, Kesson submitted a whistleblower affidavit alleging irregularities in city management citing De Lille, senior officials, and other council members.³⁸ The political infighting that ensued left the citizenry wondering who was steering the ship. It also affected City Hall’s communications and trust-building efforts that Reddy and her team were managing. “The political tension was also not easy,” she said. “Having too many cooks in the kitchen sometimes was hard for communications. The fact that it was such an ever-changing narrative that you would be communicating one thing and then be told tomorrow is a shift [to something else]. And to see public trust sometimes not at its highest was hard.”

The business community was also worried about the infighting and finger pointing. No one seemed to be able to convey the facts and decisions that were being made to handle the crisis. According to Spicer, the political infighting “led to long hiatuses in communication, and when the communications came, it was particularly stilted and unsuitable for what the public was demanding.”

In mid-December 2017, the DA federal executive announced that De Lille would be recalled as mayor, but that decision was never implemented and added to the widespread confusion.^x These tensions complicated the already critical water situation. “It was a difficult moment,” admitted De Lille. “We tried everything. Everything possible under the sun . . . I did not take Christmas holiday. . . . I mobilized those companies [for underground drilling] . . . I told Capetonians I will get you a Christmas present . . . Yeah, it was an experience that I will never forget.”

Yet, Christmas did not come with the desired present. Due to high water evaporation and substantial agricultural releases of water in the midst of a hot irrigation season, dam levels were falling faster than usual in January 2018. Four months before May, when the rains would hopefully come, the situation in the city seemed desperate, but De Lille could not falter. “I could not show any panic at the time,” she said. “Although, I did panic.”

The executive mayor had to decide whether to announce that Cape Town had to prepare for Day Zero by a specific date, which could push water demand reduction even further. Of course, such an announcement would send shock waves throughout the city, generating panic, affecting tourism and businesses, and unleashing other unpredictable consequences. Yet, the risks of not doing anything and running out of water seemed even higher. De Lille had to make a call. “You have to be steadfast,” she said. “You have to pull no punches; you just need to say things the way they are. People know me to be like that. That I am a straight talker and that they can trust me.”

^x According to some accounts “De Lille was infuriated by the DA announcement and said that the party did not have valid grounds to suspend her, and she threatened legal action if the DA tried to remove her through a vote of no confidence.” Olver, Crispian (2019). *A House Divided*. Jonathan Ball Publishers.

Appendices

Appendix 1 History of Water Provision to Low-Income Groups in Post-Apartheid Cape Town as reported in “Water governance and justice in Cape Town: An overview”

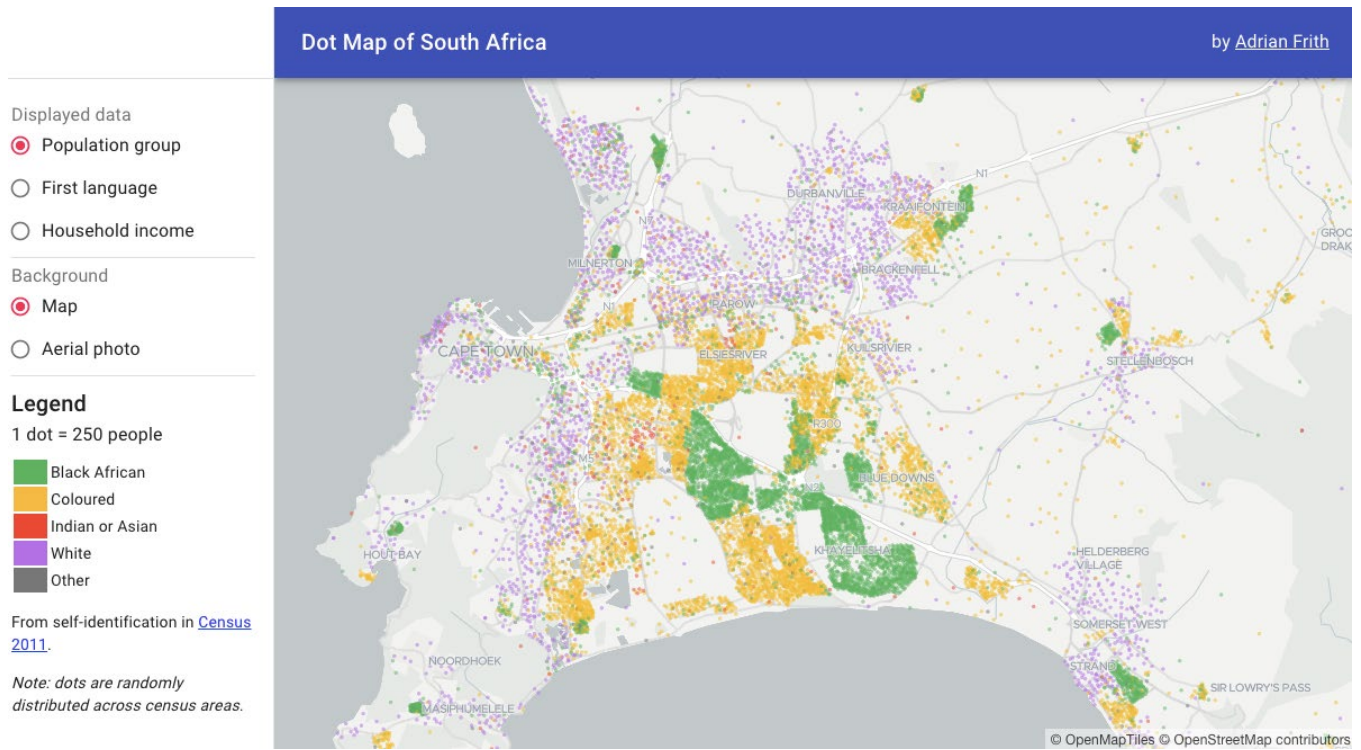
[After the Apartheid] The national government’s Water Act (1998) sought to support a more equitable service delivery and Black people’s access to water allocation rights by requiring community participation in water management and water services development (Beck et al., 2016). However, the Act also introduced formal requirements for water conservation and demand management which came to have an indirect negative impact on disadvantaged communities. Since infrastructure in low-income areas was often poorly maintained and leaky, some household water meters registered extreme usage levels adding further debt to thousands of households in Coloured and Black neighborhoods where nonpayment protest during apartheid had been common (Smith, 2004). High debts undermined willingness and ability to pay anything at all, which made it difficult for municipal authorities to meet market-based governance norms of full cost recovery for water services (von Schnitzler, 2008). Instead, authorities decided to cut off supply to indebted consumers. This was highly controversial and left some areas (usually Black African) without running water in 90% of the households (Smith, 2004).

More broadly, the formal requirements for water conservation and demand management represented a shift away from the previous water governance approach of building new dams to meet growing demands. Water use increased by 4.1% per year from 1965 to 2000, but actually decreased by 20% from 2000 to 2005 despite a growing population (Brown & Magoba, 2009; Smith, 2004). Since 1960, city authorities had gradually shifted toward “block tariffs,” where households using more water paid a higher rate per liter than those using less. After 1994, block tariffs were reinforced on the principle that medium users should cover the costs of themselves and the poorest, while high-end users would also pay for the cost of new water sources (Smith, 2004). The Berg River Dam, considered to be the last suitable dam in the catchment (Figure 1) was planned for years and was eventually completed in 2008 (Brown & Magoba, 2009).

The early 2000s thus represented a change of course for the City, both in response to the 1998 Water Act as well as to an increasingly constrained supply in its hinterland. The remarkable demand reduction was achieved through repairing leaks, public awareness campaigns, and introducing market-based pricing (Brown & Magoba, 2009; Smith, 2004). The results were impressive, but also a result of sacrifices made by the most vulnerable residents. A large part of the growing population ended up in informal settlements where most residents rely on public taps and therefore use less than a third of the water that other Capetonians do (DWS, 2018a; Rawlins, 2017). In households with indoor taps, government-installed “water management devices” (WMDs) became a tool from 2007 onward for the City to allow for a basic water allocation for nonpaying users but cut off supply in case of leaks or excessive use (City of Cape Town, 2007). WMDs come with a promise of debt relief and are therefore said to “help” low-income households detect leaks and limit their use to what they could afford (Beck et al., 2016; Mahlanza, Ziervogel, & Scott, 2016; Yates & Harris, 2018). As we return to below, devices became important during the most recent drought but faced strong opposition from community organizations and activists.

Source: Johan P. Enquist and Gina Ziervogel, (2019). “Water governance and justice in Cape Town: An overview,” available at <https://wires.onlinelibrary.wiley.com/doi/full/10.1002/wat2.1354>, accessed October 2020. Used with permission.

Appendix 2 Map of Population Group Distribution in Cape Town



Source: Adrian Frith’s personal website <https://dotmap.adrianfrith.com/?lat=-33.9645&lon=18.6462&zoom=4.85>.

Appendix 3 Map with Location of Main Dams of the Western Cape Water Supply System

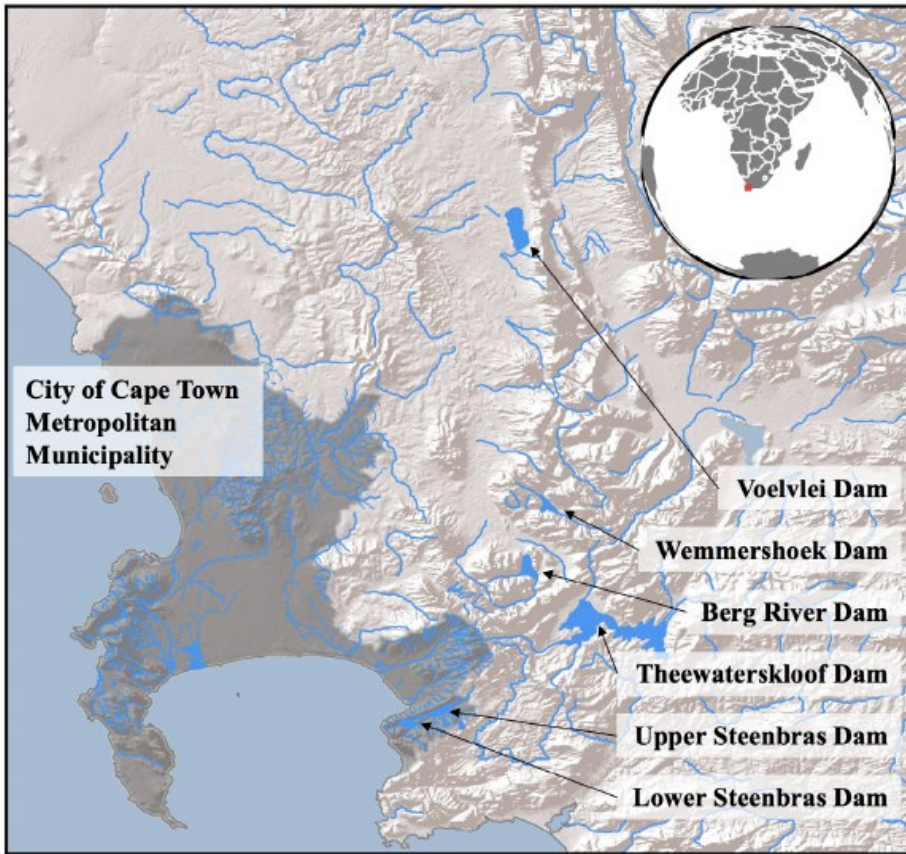
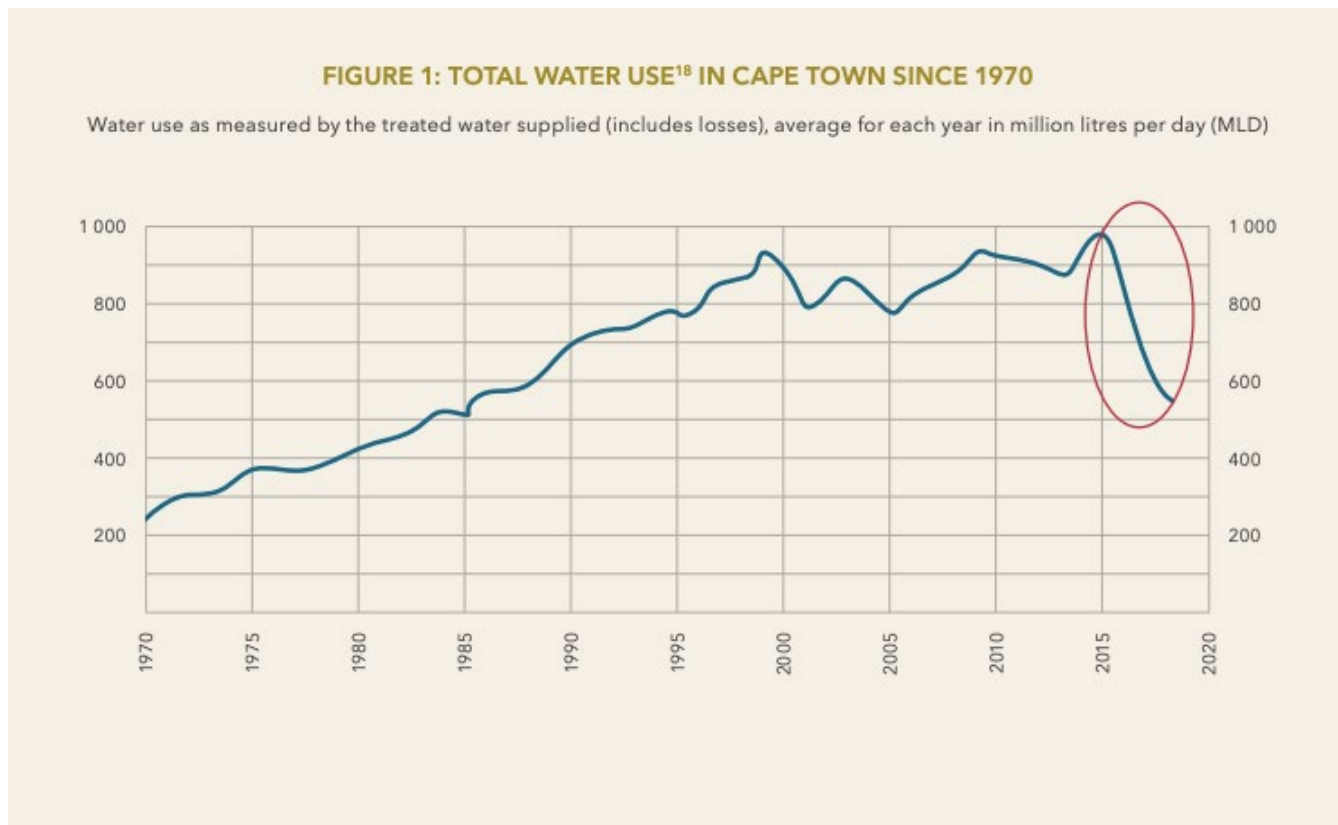


FIGURE 1 Location of the six main dams in the WCWSS. The largest dam, Theewaterskloof, is located outside the main catchment and supplies water to WCWSS through an inter-basin transfer. (Reprinted with permission from Atkins et al. (Submitted), Copyright 2019 Ffion Atkins)

Source: Johan P. Enqvist and Gina Ziervogel, “Water governance and justice in Cape Town: An overview,” May 26, 2019, <https://onlinelibrary.wiley.com/doi/full/10.1002/wat2.1354>, accessed October 2020. Used with permission.

Appendix 4 Total Water Use in Cape Town Since 1970



Source: Cape Town Water Strategy developed by the City of Cape Town, available at <http://www.capetown.gov.za/general/cape-town-water-strategy>, accessed October 2020.

Footnote 18 in Figure 1: The total water use is the total treated water supplied to Cape Town and includes water sold to other small municipalities. This encompasses all water uses—domestic, commercial, and industrial—as well as water losses.

Appendix 5 Chart with Level 6 Consumptive Tariffs of 2017/18

Tariffs were based on water use levels. Residential properties were based on a sliding scale or “stepped tariff.” In South Africa, regular droughts meant city officials relied on restriction tariffs to conserve water. Cape Town had historically utilized three restriction levels to reduce water usage by 10, 20, and 30 percent (or Levels 1, 2, & 3). By 2017, City Hall incorporated Level 4 restriction tariffs to address the increasing severity of drought. However, record low rainfall in the same year demonstrated further restrictions were necessary. In January 2018, City Hall, in conjunction with the Minister of Finance, responded by implementing restriction tariffs at Levels 5, 6, and 7.

Potable Water Domestic Full (Non-indigent) per kl	Rand Excluding VAT
Step 1 (0 < 6kl)	26.25
Step 2 (>6 < 10.5kl)	46.00
Step 3 (>10.5 < 20kl)	100.00
Step 4 (>20 < 35kl)	300.00
Step 5 (>35 < 50kl)	800.00
Step 6 (>50kl)	800.00

Source: Water Outlook 2018, City of Cape Town, available at <https://resource.capetown.gov.za/documentcentre/Documents/City%20research%20reports%20and%20review/Water%20Outlook%202018%20-%20Summary.pdf>, accessed October 2020.

Appendix 6 Water Resilience Plan Unveiled in August 2017

The augmented Water Resilience Plan was based on a Request for Information/Ideas (RFI) initiative conducted by City Hall. The response included over one hundred submissions with a range of proposed solutions: desalination at various scales, inclusive of container solutions; barges and ships; water reuse technology at various scales; aquifer and borehole options; engineering and infrastructure options; and water demand management options, among others. The figures below represent technology and schemes at full production.

Technologies	Total million liters per day per technology	Locations
Immediate and first tranche		
Groundwater extraction	100	Atlantis and Silverstroom, Cape Flats, Cape Peninsula, Hottentots Holland
Desalination – land-based containers	50	Koeberg, Silverstroom, Woodbridge Island, Granger Bay, Hout Bay, Red Hill, Strandfontein, Monwabisi, Harmony Park
Desalination – barge	50	Cape Town Harbour
Second tranche		
Water reuse	50	Treatment Works, Bellville Wastewater Treatment Works, Fisantekraal Wastewater Treatment Works, Potsdam Wastewater Treatment Works, Cape Flats Wastewater Treatment Works, Macassar Wastewater Treatment Works
Desalination – land-based permanent	50	Cape Town Harbour
Extreme tranche		
Desalination – marine-based	200	Cape Town Harbour Gordons Bay
Total	500	

Source: Infrastructure News, available at <https://infrastructurenews.co.za/2017/08/19/cape-town-announces-water-resilience-plan/>.

Appendix 7 Critical Water Shortages Disaster Plan Published in October 2017

The disaster plan had three phases:

Phase 1 involved disruption of water supply in some areas. This is what Cape Town experienced.

Phase 2 included a partial shutdown of the reticulation system to prioritize water to points of distribution, critical sites (e.g., hospitals), vulnerable areas, and economically important areas. Dam levels at 13.5 percent was the threshold needed to ensure this was enough water to run phase 2, and that phase 3 would be avoided.

Phase 3 would mean no more water supply from the dams.

[Detailed description excerpted from: Johan P. Enqvist and Gina Ziervogel, “Water governance and justice in Cape Town: An overview.”^{xi}]

After the record-low 2017 rains, the City’s Safety and Security Department published its Critical Water Shortages Disaster Plan in October. The plan serves to guide and coordinate the different departments required for disaster preparedness and outlines three phases in the City’s drought response. Phase 1: Preservation Restrictions was initiated at the Plan’s publication in response to DWS requiring Cape Town to cut its water use by 40% (City of Cape Town, 2017). This phase emphasized efforts to limit supply, manage water pressure in order to keep down the amount of available water in the system, and continued installation of WMDs [water management devices] in individual households to combat overuse (City of Cape Town, 2017).

Phase 2: Disaster Restrictions was to become more infamously known by the term Day Zero, referring to the date when the phase would be triggered: when Western Cape Water Supply System dam levels dropped to 13.5%. Day Zero would activate strict water rationing to make water last at least 3 months before hitting 10%—the point below which water might not be safely extracted from the dams (City of Cape Town, 2017; DWS, 2018a). Under Phase 2, the City would turn off supply to most private taps and direct citizens to municipal water collection sites (City of Cape Town, 2017). Lastly, Phase 3: Disaster Implementation would come into effect when all accessible surface water runs out and the collection sites would offer groundwater and bottled water for drinking purposes only. This phase is seen as a full-scale disaster, which is why Phases 1 and 2 include strict measures to avoid the further crisis escalation of Phase 3. The disaster plan thus balances between taking a “pessimistic approach”—assuming minimal new water sources will be added—and being prepared for the worst-case scenario (City of Cape Town, 2017).

^{xi} May 26, 2019, <https://onlinelibrary.wiley.com/doi/full/10.1002/wat2.1354>, accessed October 2020.

Endnotes

- ¹ Figures for 2016, according to a report by the World Travel & Tourism Council (WTTC). See [https://www.news24.com/fin24/companies/travelandleisure/tourism-contribution-to-cape-town-on-the-increase-wttc-report-20171229#:~:text=Cape%20Town%20%2D%20Cape%20Town's%20tourism,%26%20Tourism%20Council%20\(WTTC\)](https://www.news24.com/fin24/companies/travelandleisure/tourism-contribution-to-cape-town-on-the-increase-wttc-report-20171229#:~:text=Cape%20Town%20%2D%20Cape%20Town's%20tourism,%26%20Tourism%20Council%20(WTTC).). [accessed October 2020].
- ² Population estimates from the City of Cape Town Socio-Economic Profile developed by the Western Cape Government, available at https://www.westerncape.gov.za/assets/departments/treasury/Documents/Socio-economic-profiles/2017/city_of_cape_town_2017_socio-economic_profile_sep-lg_-_26_january_2018.pdf [accessed October 2020].
- ³ “City administration has received clean audits for years, and its level of irregular and unauthorised expenditure is the lowest of any metro.” (See Olver, Crispian (2019). *A House Divided*. Jonathan Ball Publishers).
- ⁴ City of Cape Town Socio-Economic Profile developed by the Western Cape Government, available at https://www.westerncape.gov.za/assets/departments/treasury/Documents/Socio-economic-profiles/2017/city_of_cape_town_2017_socio-economic_profile_sep-lg_-_26_january_2018.pdf [accessed October 2020].
- ⁵ Leoine Joubert and Gina Ziervogel, (2019) “Day Zero. One city’s response to a record-breaking drought” available at <http://dayzero.org.za/1-one-city-five-stories/>, pg.6, [accessed October 2020].
- ⁶ Johan P. Enquist and Gina Ziervogel, (2019) “Water governance and justice in Cape Town: An overview” available at <https://onlinelibrary-wiley-com.ezxy.ie.edu/doi/full/10.1002/wat2.1354> [accessed October 2020] and Olver, Crispian (2019). *A House Divided*. Jonathan Ball Publishers.
- ⁷ Interview with Rolfe Eberhard in the Film Library of the Drought Response Learning Initiative available at <https://www.drought-response-learning-initiative.org/> [accessed October 2020].
- ⁸ Interview with Rolfe Eberhard in the Film Library of the Drought Response Learning Initiative.
- ⁹ Portrait of Patricia De Lille published on 4 July 2013 in Brand South Africa’s website, available at <https://www.brandsouthafrica.com/south-africa-fast-facts/history-facts/bio-delille> [accessed October 2020].
- ¹⁰ Portrait of Patricia De Lille published on 4 July 2013 in Brand South Africa’s website, available at <https://www.brandsouthafrica.com/south-africa-fast-facts/history-facts/bio-delille> [accessed October 2020].
- ¹¹ “De Lille left PAC to ‘find space for herself’” published in *Independents Online* on 27 March 2008, available at <https://www.iol.co.za/news/politics/de-lille-left-pac-to-find-space-for-herself-103799> [accessed October 2020].
- ¹² Olver, Crispian (2019). *A House Divided*. Jonathan Ball Publishers.
- ¹³ Olver, Crispian (2019). *A House Divided*. Jonathan Ball Publishers.
- ¹⁴ Patricia De Lille, interview by authors, August 6, 2020. All further quotes by this individual from this interview unless otherwise noted.
- ¹⁵ Olver, Crispian (2019). *A House Divided*. Jonathan Ball Publishers.
- ¹⁶ Patricia De Lille, interview by authors.
- ¹⁷ Olver, Crispian (2019). *A House Divided*. Jonathan Ball Publishers.
- ¹⁸ Olver, Crispian (2019). *A House Divided*. Jonathan Ball Publishers.
- ¹⁹ Gisela Kaiser, interview in the Film Library of the Drought Response Learning. All further quotes by this individual from this interview unless otherwise noted.
- ²⁰ In September 2017, De Lille and Kesson co-authored a book “View from City Hall: Reflections on Governing Cape Town.”
- ²¹ Craig Kesson, interview in the Film Library of the Drought Response Learning Initiative. All further quotes by this individual from this interview unless otherwise noted.
- ²² “Water resilience plan revealed by the City of Cape Town” published in Cape Town Etc Magazine on 17 August 2017, available at <https://www.capetownetc.com/news/cape-town-water-resilience-plan/> [accessed October 2020] and City of Cape Town Budget 2017/18 – 2019/20 from May 2017 available at http://resource.capetown.gov.za/documentcentre/Documents/Financial%20documents/AnnexureA_1718Budget_May2017.pdf [accessed October 2020].

²³ Published in Infrastructure News on August 19, 2017, and available at <https://infrastructurenews.co.za/2017/08/19/cape-town-announces-water-resilience-plan/> [accessed October 2020].

²⁴ Xanthea Limberg interview in the Film Library of the Drought Response Learning Initiative. All further quotes by this individual from this interview unless otherwise noted.

²⁵ Ian Neilson, interview in the Film Library of the Drought Response Learning Initiative. All further quotes by this individual from this interview unless otherwise noted.

²⁶ Mike Spicer, interview in the Film Library of the Drought Response Learning Initiative. All further quotes by this individual from this interview unless otherwise noted.

²⁷ Pria Reddy, interview in the Film Library of the Drought Response Learning Initiative. All further quotes by this individual from this interview unless otherwise noted.

²⁸ Mavis Manyati, interview in the Film Library of the Drought Response Learning Initiative. All further quotes by this individual from this interview unless otherwise noted.

²⁹ Johan P. Enquist and Gina Ziervogel, (2019) “Water governance and justice in Cape Town: An overview,” <https://onlinelibrary-wiley-com.ezxy.ie.edu/doi/full/10.1002/wat2.1354> [accessed October 2020].

³⁰ Thabo Lusithi, interview in the Film Library of the Drought Response Learning Initiative. All further quotes by this individual from this interview unless otherwise noted.

³¹ Show hosted by Eusebius McKaiser aired on 25 January 2018 on 702/Cape Talk available at <https://www.capetalk.co.za/articles/289467/watch-eusebius-on-water-crisis-and-how-it-s-opened-wounds-along-class-lines> [accessed October 2020]

³² Charlton Ziervogel, interview in the Film Library of the Drought Response Learning Initiative. All further quotes by this individual from this interview unless otherwise noted.

³³ Interview by Kieno Kammies to Mayor Patricia de Lille on 30 October 2017, available at <http://www.capetalk.co.za/articles/278369/de-lille-a-well-run-city-will-not-run-out-of-water> [accessed October 2020].

³⁴ City of Cape Town Water Dashboard, available at <https://coct.co/water-dashboard/> [accessed October 2020].

³⁵ City of Cape Town, available at <http://www.capetown.gov.za/thinkwater> [accessed October 2020].

³⁶ Report by Engineer Manuel Marino as part of the World Bank mission in support of the South African National Treasury dated November 2017, available at <http://resource.capetown.gov.za/documentcentre/Documents/City%20research%20reports%20and%20review/2017%20Cape%20Town%20Water%20Crisis%20Analysis%20Report.pdf> [accessed October 2020].

³⁷ Brownyn Nortje, interview in the Film Library of the Drought Response Learning Initiative. All further quotes by this individual from this interview unless otherwise noted.

³⁸ Craig Kesson’s Whistleblower Affidavit under the provisions of Protected Disclosures Act No 26 of 2000 and as published in PoliticsWeb, available at <https://www.politicsweb.co.za/documents/cape-town-craig-kessons-whistleblower-affidavit> [accessed on October 2020].