

# LEARNING FROM CRISIS

A series of modular learnings from the  
2017-2018 Cape Town water crisis

THE RESILIENCE SHIFT

THE CAPE TOWN  
DROUGHT RESPONSE  
LEARNING INITIATIVE

module

# 3

## Effecting household behaviour change

Dramatic water usage reduction by households over a short period saved the day. Of the range of measures deployed, the most effective were restriction level increases and the Day Zero communication strategy.

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Text component of module 3, accompanying the film [www.vimeo.com/cinesouth/ctdri-trs-lfc-module-3](http://www.vimeo.com/cinesouth/ctdri-trs-lfc-module-3)

Duration: 15:57

## Effecting household behaviour change

Dramatic water usage reduction by households – as much as 50% over a two-year period – saved the day during the Cape Town crisis. A range of demand management policy instruments were deployed over an extended period, including tariff increases, restriction level increases, behavioural nudges, and communication campaigns. The question is which of these were the most effective. Empirical research shows that of the overall 50% reduction in usage, about a third was achieved with the early restriction level increases to levels 2 and 3, and about another third later in the crisis by the announcement of the disaster management plan and the Day Zero communication strategy, which coincided with the rollout of other sources of information by the city government. Households across the board, over a range of income levels, made huge behavioural changes when they were presented with clear, salient information.



*The success story of the Cape Town drought is the way that Cape Town managed demand*

*Dr Rolfe Eberhard*

*Reduction of water use was the only way we could get out of that predicament*

*Dr Piotr Wolski*

*What we did get right was our ability to reduce our consumption*

*Councillor Xanthea Limberg*

**KEY POINTS**

- A range of demand management policy instruments were deployed over an extended period by the city government to effect household behaviour change and water usage reductions
- Collectively, these were successful in effecting a reduction of consumption by around 50% over a two-year period, which got the city through a multi-year drought of unprecedented severity
- Not all measures were equally effective; empirical research has been done to determine which measures were effective and which less so
- Prices in Cape Town are too low to have an effect; on a theoretical basis economists did not expect even large price increases to have a significant impact; this was borne out by the data
- Restriction level increases on the other hand were effective: a third of the overall 50% reduction was achieved by the early restriction level increases to levels 2 and 3
- An effect can be seen where price increases were bundled together with restriction level increases
- This demonstrated that through simple restrictions the city government was able to deliver a clear message to households
- While traditional measures did reduce demand, it had not been reduced sufficiently given the severity of the drought; further reductions were needed, and a more extreme communication campaign was launched by the city government to achieve this
- Another third of the overall 50% reduction was achieved later in the crisis by the announcement of the disaster management plan and the Day Zero communication strategy, which coincided with the rollout of other sources of information by the city government
- Releasing clear, salient information to citizens empowered them to make big behavioural and lifestyle changes to which there had been previously been substantial inertia

**Interviewees in order of appearance:****Dr Rolfe Eberhard**

Independent public policy advisor

**Dr Piotr Wolski**

Research associate: Climate System Analysis Group, University of Cape Town

**Councillor Xanthea Limberg**

Mayoral Committee Member for Informal Settlements, Water and Waste Services and Energy,  
City of Cape Town

**Prof Martine Visser**

Professor: School of Economics, University of Cape Town

**Alderman Ian Neilson**

Deputy Mayor: City of Cape Town

**Claire Pengelly**

Water programme manager: GreenCape

**Craig Kesson**

Chief Resilience Officer: City of Cape Town

Full interviews on [Cape Town Drought Response Learning Initiative](#) website

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Opinions expressed by interviewees are personal viewpoints  
and do not necessarily reflect those of their organisations

**STRUCTURE**

00:00:05

Hooks:

- The success story was the way Cape Town managed demand (RE)
- Water use reduction was only way to get out of predicament (PW)
- What we did get right was ability to reduce consumption (XL)

Initial demand management strategy using traditional policy instruments had some success: demand was reduced but not sufficiently, given the extreme circumstances; more extreme measures were required and implemented, and these were successful in inducing more reductions:

00:00:50

**DEMAND MANAGEMENT POLICY INSTRUMENTS: WHAT WORKED?**

- Range of policy instruments: pricing mechanism, restrictions, behavioural nudges
- Prices in Cape Town too low to have an effect; confirmed empirically
- First real dramatic reduction (third of overall 50% reduction): achieved with restriction level increases to levels 2 and 3
- Surveys confirmed that across the board and across income levels households made huge behavioural changes (MV)

00:06:27

**NEED FOR FURTHER DEMAND REDUCTION: DAY ZERO****COMMUNICATION STRATEGY AND DISASTER MANAGEMENT PLAN**

- Consumption of around 600 million litres per day was above quota level, which was equivalent to 478 million litres per day (IN)
- Further demand reduction needed, but had not been achieved anywhere in the world, or previously in Cape Town (CP)
- Need to jolt people out of comfort zones (CK)
- Uncertainty of what lay ahead triggered decision to intensify communication strategy (XL)
- The announcement of the disaster management plan brought about the second large drop in consumption (18% compared to two years prior) (MV)
- Releasing clear, salient information to citizens empowered them to make big behavioural and lifestyle changes (MV)
- Day Zero as a communication tool was very effective (PW)

00:15:34

Close:

“We have the ability, we know how to live off a little bit less water than everybody else” (PW)

## INDEX

- 00:00:50 “Over this two-year period we saw a dramatic reduction of almost 50% in terms of drop in consumption amongst households across the city ...; so it’s really a phenomenal story and then what one wants to know is, well, given that the City has rolled out these interventions, there were restrictions, there were tariff increases, there were campaigns, what worked, what really sort of engendered this big change? If you look at the ambit of policy instruments available for water demand management it’s interesting to see what people were more responsive to and what they were less responsive to, but also how one can combine them in practical ways that are effective”; pricing mechanism, restrictions, behavioural nudges; range of carrot and stick approaches to inducing changes in behaviour; “I think right from the start we knew and most economists sort of are of opinion that the tariffs in Cape Town is just way, way too low compared to what it is internationally, it doesn’t value, you know, water as a scarce resource ...; and so the tariff structure really isn’t at a level where small or even more dramatic increases in tariffs would have had any effect; and that’s exactly what we saw ...; where we did see that it had an effect was when the tariffs were bundled with certain restrictions”; early restriction level increases (to levels 2 and 3) effected the first real dramatic reduction; “of the overall 50% reduction that we saw amongst the domestic households in the city, level 2 and 3 together accounted for about a third of the overall, of that reduction; so that is really an interesting learning, that through using simple restrictions you can get a very clear message across to households ...; people really feel that they made a difference themselves by changing their behaviour, because that’s what they did; I believe that the citizens of Cape Town really saved the day”; surveys among households with different income levels showed that across the board huge behavioural changes were made in order to meet the demands around the drought; what is different obviously is the level of investments people were able to make; “I think there was a huge behavioural response; people felt actually quite empowered by seeing the level to which they could reduce their own consumption”; both surveys and empirical data show that high and middle income households did not respond that much to pricing changes – for them it was more the notions around social responsibility that drove their change in behaviour (MV)
- 00:06:27 The quota the city was given for the hydrological year that started November 2017 was equivalent to 478 megalitres a day; the city was using around 600; “So although we got it down, we hadn’t got it down enough”; already overused on quota, so had to make up during the rest of the year; “but that was the key – you see, this was the key matter, was not getting augmentation in place, it was getting the consumption down to the quota level; if we got it down to the quota level we would have got through” (IN)
- 00:07:21 The kind of demand reductions needed from citizens to get through the summer had not been achieved anywhere in the world, and had not been achieved to date

within Cape Town either; hard threshold around 600 megalitres per day; trying to push it down for number of months, but not budging; “it just felt like we weren’t going to be able to get to it (CP)

00:07:48 “That risk, with no information at hand around rainfall patterns, that was I think the trigger point for intensifying the communication strategy in communicating very honestly and clearly where we were, and if we didn’t change our behaviour patterns where we were going to potentially end up”; it may seem dramatic and unfair to have landed that message but we have to bear in mind that Cape Town had already achieved quite a large reduction in consumption; low-hanging fruit had already been achieved; “but what the uncertainty of what [lay] ahead required was for us to do so much more, and that’s what led to having to take a far more extreme approach, particularly around communications and the behavioural change initiatives that needed to be initiated to drive a impact or a result that required us to do so much more and go far and beyond what we had already achieved”; difficult to do when you’ve already cut back and streamlined so much; “it seems unfair to place an even greater demand on the public, but the time called on us to do that and that’s what informed the messaging in early 2018” (XL)

00:10:29 “We had been battling to break through the sound barrier with Capetonians on getting them to reduce their water consumption ...; there was something that was needed to jolt people out of their comfort zones”; Capetonians had already been on water restrictions technically for ten years; “there had already been behaviour change over time, and something more was needed” (CK)

00:11:11 “The second really big intervention that we saw made a big difference was the announcement of the disaster management campaign”; huge media hype, newspapers articles about the national defence force getting involved if we were to run out of water, the City rolled out its plans for situation when we do run out of water; reduction of almost 18% compared to two years prior; “that is really again remarkable how releasing salient, clear, information to the citizens empowered them to make a change, a big behavioural change, lifestyle changes that there previously had been a big inertia in implementing; so I think for me one of the big lessons in terms of what works was really this roll-out of clear salient information”; at that point also the water dashboard and other forms of information made public by the City; “I think that was very powerful” (MV)

00:12:30 “The strategy of demand management was very very successful. The concept of Day Zero as a tool, as a means of communicating the need to save water, to reduce water use was very powerful and very effective; the inhabitants of Cape Town reduced their water use very considerably”; reduction of over 50% during summertime and in order of 20 to 30% in wintertime achieved; and summertime is very significant because that’s when majority of use happens; running now for extended period on roughly 500 million litres of water per day; compares to

roughly 800 to 900 million litres per day in wintertime previously, and over 1,100 to 1,200 million litres per day in summertime previously; “that required quite a lot of behavioural change, transformation of how we use water, what we use water for ...; we managed to stay with that low water use, and that’s very important, and we managed to stay like this for a long time; in the beginning when the restrictions were proposed or implemented everybody was like, you know, it’s impossible to comply, we can’t do this because you are used to, you know, running lots of water through your taps, through your bathrooms, through your garden watering, but once you get used to this, to the new situation, to the situation where you save water, you can see you can do it, and it doesn’t become, it’s no longer a nuisance, it’s a normal thing ...; and that’s an important, very important lesson that Cape Town has learnt; and I think in general we are in the forefront of the world in this, because many different cities all around the world will have to learn that lesson, will have to go through that at one time of the future, because we’re not going to have more water, we’re going to, in many different places we’re going to hit the limits to the resource and situations like this will be there” (PW)

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**Suggestions for discussion:**

- What do these lessons on water demand reduction from the Cape Town experience offer you in your circumstances?
- Given the lessons learnt, how would one deploy the various demand reduction policy instruments differently next time around?
- When in your view is the right time in an urban drought scenario for the water authority to ring the alarm bell and give the public a sense (as was the case in Cape Town with the Day Zero communication strategy) of a potential disaster?

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**Further references:**

- Module 2 of the *Learning from Crisis* series, dealing with the related topic “Data, information, communication, trust”
- For an alternative opinion on the relative effectiveness of the tariff increases, restrictions, pressure management, communication and the Day Zero campaign, see interview with Dr Rolfe Eberhard in the Cape Town Drought Response Film Library: 00:15:50 and 00:18:28
- For more on the research using big data, see full interview with Prof Martine Visser in the Cape Town Drought Response Film Library

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Source material from the Cape Town Drought Response Film Library,  
a research resource of the University of Cape Town’s African Climate and Development Initiative



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