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„Think Water - Approaching concepts of Cape Town as a
resilient city

Investigating the Dynamics of (water) infrastructure regarding the constitution of citizenship in
the context of policy-making and interventions during the water crisis in Cape Town”

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Content

List of Abbreviations.....	iii
List of Illustrations	iv
List of Tables.....	iv
1. Cape Town, the first city to run out of water? – An Introduction.....	1
1.1. Statement of Problem(s) and Research Objectives	2
1.2. Research Structure and Guiding Questions.....	4
2. Research Design, Methods and Methodology – A Discourse Analysis.....	9
2.1. Research Process	10
2.2. Methodology – Qualitative Social Research Approach	10
2.2.1. Positionality and Post-colonial Perspective	13
2.2.2. Participant Observation	14
2.2.3. Semi-structured Narrative Interviews	15
2.2.4. Interview Analysis: Using the Grounded Theory	18
2.2.5. Methodological Triangulation.....	21
3. Governmentality, Biopolitics and the Resilient City	23
3.1. Theoretical Contextualisation	23
3.1.1. Infrastructure and the Urban Metabolism	23
3.1.2. Power, Subjectification and Neoliberal Implications.....	25
3.1.3. Critical Urbanism and The Right to the City	33
3.2. Contemporary Debate	36
3.2.1. The Infrastructure of Anthropology	36
3.2.2. Water Governance and Public Participation	38
3.2.3. Drought Management and Day Zero.....	39
4. Historical Implication and the Making of Cape Town	41
4.1. Camissa – The Origins of Cape Town	41
4.2. The Making of Apartheid Infrastructure	44

4.3.	The Period of Transformation and the Neoliberal Turn.....	47
4.4.	Cape Town Today	52
5.	Water Governance and Hydropolitics.....	55
5.1.	Water Management and Political Frameworks	55
5.2.	Water – economic or social good?	62
5.3.	Day Zero – A Chronology.....	66
5.4.	Water Management during the drought: Strategies and Interventions.....	71
5.5.	Cape Town – a Resilient City?.....	82
6.	The Water Crisis and the Constitution of Hydraulic Citizenships.....	87
6.1.	Technologies of Government – Technologies of the Self.....	87
6.2.	Active Citizenship, Public Participation and Activism	99
6.2.1.	DearCapeTown – Encouraging Participative Governance.....	100
6.2.2.	The Water Crisis Coalition and the Anti-Privatisation Movement	104
6.2.3.	Justice4CapeTown – Representing Cape Town’s Vulnerable Groups	107
6.3.	The Right to the City – Dreaming different Dreams.....	110
7.	Conclusion.....	113
7.1.	Summary of the Results	113
7.2.	Outlook.....	118
	References	120
	Internet Sources.....	127
	Media Sources	129
	Government Documents.....	130
	Appendix	132
	Appendix A: Abstract.....	132
	Appendix B: Kurzfassung	133
	Appendix C: List of Dialogue Partners	134
	Appendix D: Network of Relationships	136

List of Abbreviations

ACDP - African Christian Democratic Party

CoCT – City of Cape Town

COSATU – Congress of South African Trade Unions

FBW – Free Basic Water

GEAR – Growth, Employment and Redistribution Programme

IDP – Integrated Development Plan

NP – National Party

NPO – Non-Profit Organisation

PAJA – Promotion of Administrative Justice Act

RDP – Reconstruction and Development Programme

SDG – Sustainable Development Goal

SKAD – Sociology of Knowledge Approach to Discourse

VOC – Verenigde Oost Indische Compagnie (Dutch East India Company)

WCC – Water Crisis Coalition

WCEDP – Western Cape Economic Development Partnership

WHO – World Health Organisation

WMD – Water Management Device

WSA – Water Service Authority

WSDP – Water Service Development Plan

List of Illustrations

Figure 1: Process-Model of Coding	20
Figure 2: An Ideal Apartheid City.....	45
Figure 3: Cape Town - patterns of racial neighbourhood integration and segregation	52
Figure 4: The Water and Sanitation Sector	58
Figure 5: Screenshot Water Dashboard.....	73
Figure 6: Communication Campaigns of CoCT	75
Figure 7: Screenshot of the Cape Town Water Map	76

List of Tables

Table 1: Cornerstones of Water Policy (1994).....	56
Table 2: FBW-Policy (2000).....	60
Table 3: Restriction-Levels	79
Table 4: Level 6B Water Restrictions	80
Table 5: Alternative Water Sources	81

1. Cape Town, the first city to run out of water? – An Introduction

With these words, many national and international newspapers announced the appalling water scarcity that haunted the major city for almost three years. At the beginning of the year 2018, the situation reached its peak and the City of Cape Town (CoCT) intensified its restrictions and penalties. *Day Zero*, the day the taps would run dry – meaning the storage reservoirs of the city would sink below the limit of 13.5% – was steadily inching closer. ‘Day Zero’ meant that the CoCT would cut off the water supply and the water would have been distributed through 200 water allocation points. In the first half of the year 2018, Day Zero could be pushed back continuously and with the expected winter rain, it was postponed to 2019 until it was ultimately cancelled entirely. Cape Town had been in this prolonged drought for the last three years with climate change prominently featuring as one of the major causes. Furthermore, population growth and concomitant rural-urban migration as well as agriculture (as an essential sector in the Western Cape) are affecting the consumption of water among the fast-growing population in Cape Town (Parks et al. 2019, p. 3).

During the rainy winter months, the rainwater is collected into six reservoirs around Cape Town serving as the main source of water. In the midst of the drought, alternative sources such as desalination plants, extractions of ground water reservoirs, and the recycling of water were considered and discussed in terms of their advantages and risks (Sorensen 2017). Looking for alternative water sources was only one of the strategies the CoCT introduced to overcome the drought. More immediately the CoCT had to manage the remaining water in the dams and likewise meet the demand of its citizens (Department of Water and Sanitation City of Cape Town 2018a, p. 1). To avoid reaching the limit of 13.5% before the winter rain arrived, the CoCT calculated an amount of 50 litres per person per day to be used. In order for citizens not to exceed this limit, the CoCT imposed a restriction level of 6B which charged a higher tariff for water consumption above the 50 litres.

During the implementation of restriction level 6B, the use of up to 200 litres was free of charge instead of the usual 350 litres for households¹ that had applied for an indigent grant. The grant is part of the city’s credit control and debt collection policy and was designed to “assist struggling individuals, pensioners and people with disabilities to continue to receive their basic City services such as water and refuse collection” (City of Cape Town 2019). The indigent

¹ Based on household with 4 people

status is dependent on factors such as monthly salary (less than R6000), employment status, one's occupancy status and lastly, factors such as disability, senior citizen, or orphanage status (City of Cape Town 2019).

To promote the message of staying within the set limitations of the CoCT and the overall seriousness of the situation, communication strategies such as the *Let's beat Day Zero*-campaign were implemented. Furthermore, the CoCT used information, such as the *City Water Map* to incentivise households to stay within the usage limit. The *City Water Map* was available online and showed every household's water consumption. In many areas, water pressure was reduced as well. Even before the crisis, the CoCT replaced standard water meters with so-called water management devices (WMDs), which restricts their users to a certain amount per day. The CoCT emphasised that the installation of such devices "offers households an opportunity to improve their situation by managing their water consumption within acceptable levels" (Department of Water and Sanitation City of Cape Town 2017b). During the drought, the city government increased the number of the installations of WMDs to restrict high water users and stretch out the water supply.

The fight against water shortages is hardly a new phenomenon for Cape Town. The Mediterranean climate with hot and dry summers and the main rainfall period between June and September leads the city government to impose yearly restrictions on water usage for the residents of Cape Town to get through the rainless and dry summer month (Sorensen 2017, pp. 515–516).

1.1. Statement of Problem(s) and Research Objectives

Since the end of Apartheid, cities in South Africa have persisted in fighting against the legacy of racial segregation, a phenomenon which remains visible, especially within various infrastructure systems, both socially and spatially. Although the concept of the dual city has often been criticised for its simplicity, Lemanski states that South African cities often show the contours of both first and third world conditions (Lemanski 2007, p. 451). This disparity was particularly seen in the provision of services, such as access to and allocation of water. The first census including all South African citizens in 1996 showed that 89% of the Capetonians had access to sanitation facilities, whereas 79% had piped water connected to their residences. The census nevertheless showed huge differences between the wards. In some areas on the Cape

Flats² such as Gugulethu, Nyanga or Khayalitsha (formerly black townships), only every tenth household had piped water. In 2011, 50% of the black population in Cape Town still had no piped water in their homes (City of Cape Town 2012, p. 4).

Experiencing struggles in terms of service delivery, Cape Town and the Western Cape region faced “climate-change-related threats which require a co-ordinated government response” (Swilling 2014, p. 3185). Cape Town’s post-Apartheid elected governments seemed to ignore the legacy of Apartheid spatial planning and missed out on chances to adapt to the environmental changes which the region was beginning to grapple with. Struggling to overcome this legacy of Apartheid coupled with resource limits and scarcities, Cape Town experienced a prolonged drought that led up to the announcement of Day Zero. The citizens of Cape Town underwent a period of strict policies and interventions by the city government to overcome this drought. Looking at Cape Town’s water infrastructure and *hydropolitics* in the context of the water crisis and in this sense using Foucault’s concepts of governmentality and biopolitics, I address the phenomenon of (bio)political effects of water governance in Cape Town during the water crisis. Governmentality studies allow us to investigate the various forms of (water) governance. Governance in this sense is not only a top-down implementation of policies by the state (national, provincial and local), but furthermore includes techniques of self-discipline. The inclusion of concepts of biopolitics in these deliberations helps us to understand how power is exercised over entire populations. Water management in general and during the crisis, in particular, will be illuminated with attention to its ability to govern life by addressing different forms of populations in different ways and lastly, attention to its ability to constitute different forms of *hydraulic citizenship*. These processes of subjectification will be examined and analysed drawing on the two concepts of governmentality and biopolitics. The term *hydraulic citizenship* introduced by Anand (2011, p. 545) describes how urban residents are related and interlinked within the urban water system. These relationships are not only defined by the physical access to water and the mundane material objects that provides it, but furthermore, by the social networks through which everyday political claims are made (2011, p. 545).

² Area in Cape Town where many black and coloured communities were deported to due to forced removals during the Apartheid

1.2. Research Structure and Guiding Questions

Various political, technical and techno-political forms of water services affect their users and their lives. During the crisis, the system of water infrastructure was interfered with and damaged. As described above, the CoCT used strategies aimed at preventing citizens from exceeding the limitations announced. Hellberg (2018, 2014), who herself did research on the representation of water and its political and biopolitical functions, management and allocation, states that different techniques of targeting certain types of the population require different forms of agency in order to safeguard citizens' access to water (Hellberg 2014, p. 224). Through narrative interviews, Hellberg investigated "how water performs a function in constituting both life and lifestyle and that an implementation of the right to basic water can work so as to produce, or further entrench, distinctions between different forms of life" (Hellberg 2014, p. 26). Using a Foucauldian approach of governmentality and biopolitics, Hellberg studied how water and water governance forms what Hellberg calls a *hydromentality* – "[h]ydromentalities are assemblages of governing rationalities, techniques of ruling, and ways of thinking about and defining water, which govern both water use and water users" (Hellberg 2018, p. 2). Referring to Hellberg, I investigated Capetonian's engagement with water and water governance during the breakdown of its infrastructure. The strategies and interventions of the CoCT affected citizens' lifestyles and required adjustment to the new circumstances in terms of water management and allocation.

I consider the water crisis and Cape Town's strategies to overcome it as an interference in the system of water infrastructure. Infrastructure is usually invisible in its operating principals but becomes visible during a breakdown (Star 1999, p. 382). Cape Town's citizens were affected in a wide range of ways. Key parts of my investigation were to identify how Capetonians perceived the interference in terms of water governance and how it shaped their own lives. An anthropological understanding of infrastructure facilitates a notion of system-thinking and allows to trace diverse associations between different networks (Larkin 2013, p. 331). Infrastructure understood as a technical system eases the organisation of daily life. Shifting the focus away from the technology towards the system itself helps us to understand organising principals established by prevalent power relations (Larkin 2013, p. 330).

Cities are spaces where various forms of infrastructure are intertwined and, in its complexity, can be studied as an entire urban metabolism. Technical systems provide the foundation for the organisation of daily life. Interactions are channelled through the urban infrastructure and

facilitate communication. Through the interrelatedness of things, human beings and their ideas, urban realms are actively produced and in turn *make* the people that populate the city (Harvey 2003, p. 939). Cities therefore provide the space for contentions. The water crisis in Cape Town created several layers of disagreement. Capetonians disliked and rejected the water crisis management. These discrepancies lead to the creation of civic organisations of like-minded individuals. At the centre of these mobilisations was often the claim of more inclusion and public participation. The engagement and mobilisation of civil initiatives organised around resistance towards the water crisis management were evaluated in the context of the concept of the *Right to the City*. Originally developed by Henri Lefebvre as a reaction to Fordist developments with French cities that led to exclusion and separation within the civil society, the concept serves as an exercise in counter-hegemony in pursuit of reclaiming city spaces (social and physical) (Holm 2011, p. 90).

Following this line of argumentation, and talking about the water infrastructure of Cape Town I mean not only the network of pipes that connect people to the municipality and the mundane material objects that safeguard people's access to water, but also the underlying power relations, the ideas and norms that made the system work. Using the terms of Foucault, this material and ideational infrastructure can be studied as a *dispositif*. *Dispositifs* are discursively shaped infrastructure defined by "interconnections between personnel (agents), institutional-organizational processes, artefacts, and discursive or non-discursive practices that are identified through research and which process the discursively constituted problematizations through time, space, and social collectivities and arenas" (Keller 2011b, p. 60). Applying the concept to my explanations allows us to understand the involvement of power relations in the process of discourse (re)production subject constitution.

To that extent, I considered the different levels of access to and exclusion from water during and before the crisis. The objective of the thesis is to show how the strategies, interventions and policies, within context of the water crisis, affected the system of water infrastructure. Furthermore, I investigate what people perceived to be normal and, in this context, how that affected people's lives and lifestyles.

Looking at the Cape Town water crisis as an interference of a system of water infrastructure and using Foucault's concept of governmentality as well as biopolitics, my guiding research question is as follows:

In terms of water governance, how did the interference of the system of water infrastructure in the context of the water crisis contribute (strategies, interventions and policies for overcoming the crisis) to the constitution of different forms of citizenship?

- *What historical and political aspects and events shaped the development of Cape Town's system of service delivery? (Chapter 4 & 5)*
- *What strategies and initiatives exist within civil society for overcoming or dealing with the water crisis? (Chapter 6)*
- *How did the intervention of the system affect the system of infrastructure itself? (Chapter 6)*
- *What power relations can be identified during the interference of the system of water infrastructure? (Chapter 6)*
- *How did this affect Cape Town's citizens? (Chapter 6)*

By posing these questions, I'm interested in how different forms of conduct contribute to the constitution of citizenship in the context of water governance. Referring to Foucault's concepts of governmentality and the relationship between power, knowledge and the subject, I analysed how power was practised in the context of the drought in Cape Town and how that affected the distribution of public discourses. Foucault points out that comprehensive knowledge enables control and power. In this context, I understand power as a complex multidimensional and strategic situation (Strüver 2009, p.67). The relationship between power, knowledge and the subject and their intertwining relation with governmentality and biopolitics will be explained in more detail in the theoretical embedding of the thesis. This thesis therefore does not solely highlight the implementation of strategies and policies around water saving by the CoCT but furthermore elucidates the effects on people's lives and lifestyle, the self-perception of people and their lives in the context of the provision of utility services, in this case water, during a crisis. In this sense, my research explores how Cape Town's citizens transformed and disciplined themselves sometimes in accordance with the saving strategies and even more often with dissent.

Having introduced my research problems and objectives, I want to outline the structure of this thesis. Chapter 2 will map out my research process and methodological approach and therein make the data collection traceable and research findings plausible. In addition, in order to define my research approach and course of action, it is important to expound on my positionality as a researcher and to illustrate my post-colonial perspective.

Studying infrastructure with an ethnographical approach involves a disciplinary bent for anthropologists and therefore a relatively young research topic within the discipline (Larkin 2013, p. 328). In this sense it is essential to theoretically embed the debate (Chapter 3). On that note, Larkin (2013, p. 328) says, specially, that “[a]nthropology certainly needs to understand system thinking to build an ethnography of infrastructure [...]. But also needs to maintain its focus on contingency, the ways in which forms of infrastructure can offer insights into other domains such as practices of government, religion, or society”. Larkin’s explanatory approach helps to give a deeper understanding of infrastructure as an anthropological concept. Cities are systems holding together different forms of infrastructure and can therefore be studied as an entire urban metabolism (Chapter 3.1.1.). Cities and the understanding of the intertwining infrastructures involved provides the foundation for my research approach. To investigate different aspects of the system, we need to understand the power relations, or in other words, the different forms of governing that system. Hence, the first step entails a look at Foucault’s theory of governmentality and subjectification in more detail (Chapter 3.1.2.). Upon introduction of the different forms of conduct, it is important to shed light on different forms of resistance in the urban realm. The *Right to the City* in the context of critical urbanism helps to heighten understanding of protest movements in context of the water crisis. To that extent, the theoretical conception will be explicated in Chapter 3.1.3. Thereafter, an overview of the contemporary debate will be given to elaborate on the current state of research (Chapter 3.2.).

In order to conduct a coherent investigation of the system of water infrastructure in Cape Town, it is important to elucidate the context and chronology of the debate around the water crisis and its effects. In that vein, Chapter 4 will give an overview of historical developments of Cape Town with a particular focus on water and service delivery. Moreover, the neoliberal turn and its implications after the first free elections will be highlighted. Chapter 4 closes with an impression of current developments in Cape Town.

To explain water demand management and the implementation of communication campaigns during the water crisis, it is important to understand overall water policies and frameworks implemented since the ending of Apartheid. During the period of transformation Cape Town experienced a paradigm-shift towards neoliberal principle as explained in Chapter 4. This paradigm-shift largely affected service delivery and will be explained in more detail in Chapter 5. Furthermore, events that led up to the announcement of Day Zero and its cancellation will be explained in their chronological order. The strategies and intervention used by the CoCT including the reactions of my interviewees are outlined thereafter. Following these

developments, a critical discussion on Cape Town and its crisis management with a particular focus on resilience will conclude the chapter.

The ensuing theories and concepts explained in Chapter 3 aim to clarify the (dis)functioning of dynamics and power relations within the system of (water) infrastructure in Cape Town. Chapter 6 will directly elaborate on the findings of my field research and on the dynamics of people's engagement with governing logics in the context of the water crisis. During the water crisis, people became experts on water-related topics and many residents engaged extensively with particular water realities that affected their own life and often the lives of others around them. Social media provided the platform for interacting in many cases. Water realities arose from daily challenges that Capetonians experienced. They felt the need to address these challenges with vigour which led to social mobilisation and public participation processes. Three case studies illuminate the development of civic activism during the water crisis (Chapter 6.2.).

Chapter 7 will conclude with a critical discussion of the research findings and an answer to the research question(s). Lastly, an examination of future perspectives of the research field was formulated and results in an outlook on possible research areas.

2. Research Design, Methods and Methodology – A Discourse Analysis

The following chapter will introduce my course of action in reference to the *Sociology of Knowledge Approach to Discourse* (SKAD) developed by Keller. Discourse analysis does not describe a particular research programme but is fragmented in several research trends. All of these trends share a common basic census. People's relationship to the world is shaped by a collectively constructed sense and knowledge systems (Keller 2011a, p. 7). Different paradigms vary from each other depending on the theoretical, methodological and empirical importance attributed to this constructivist statement. Moreover, the paradigms and research programmes offer various approaches on how to study discourses. Discourse as described by Keller (2011a, p. 9) constitutes more or less successful attempts to stabilise perceptions and attributed meanings and thus institutionalises collective authoritative knowledge systems. Discourse analysis, in turn investigates these processes.

Keller developed a research programme, the SKAD³ embedded in the traditions of the sociology of knowledge, and specifically to study “*discursive construction* of symbolic orders which occurs in the form of conflicting social knowledge relationships and competing politics of knowledge” (Keller 2011b, p. 48, [emphasis in original]). His perspective of discourse analysis draws on ideas of Foucault's discourse theory as well as on Berger's and Luckmann's social constructionist tradition and includes assumptions of symbolic interactionism:

The sociology of knowledge analysis of discourse is concerned with reconstructing the processes which occur in social constructions, objectivization, communication, and the legitimization of meaning structures or, in other words, of interpretation and acting structures on the institutional, organizational or social actors' level.

(Keller 2011b, p. 49)

Although Keller developed a research programme, he emphasises that every project needs its adjustment and development associated with the research question. Doing SKAD is interpretation and relies on qualitative research methodology. The reflection of the position of the researcher and the development of data interpretation strategies concentrating on the comprehensibility and social objectification of the steps of interpretation on the other hand are also included (Keller 2011b, p. 61). Field research was chosen for the utility inherent in grasping the materialities and *dispositifs* of discourse, as well as for the purpose of analysing

³ German: Wissenssoziologische Diskursanalyse

frames, classifications and for identifying phenomenon structures. In terms of the analysis of data collected – mainly of the interview material – I used approaches proposed by the Grounded Theory.

2.1. Research Process

Having engaged with the broader field of critical urbanism within the context of Cape Town – largely during a field research in 2014 – I could draw on existing contacts in the field. From 22nd July 2018 till 27th September 2018, I conducted my empirical social research in Cape Town. Due to a third-party access at the University of Cape Town, I was able to use the facilities and resources of the university, such as the library, internet and access to expert knowledge.

The research process was based on three approaches in the field: participant observation was conducted on a daily basis made possible by staying with a family in Southfield, a suburb located on the western borders of the Cape Flats on the east side of Table Mountain. A second method for approaching the field was the conduct of semi-structured narrative interviews with civil society actors. This investigation of everyday practices and the interviews conducted with civil society form a crucial part of identifying underlying hegemonic power relations between the agency of civil society and political frameworks. Expert interviews helped me to investigate the strategies, interventions and policies the CoCT implemented for overcoming the water crisis. The following chapter will an insight into the qualitative research approach underlying this thesis and furthermore reflects on the researcher's positionality.

2.2. Methodology – Qualitative Social Research Approach

Following a critical research approach and grasping cities and urban life in the context of citizens and their everyday experience, this research conceives of urban spaces as constructed through citizen's practices and their social relationships and interactions (Lindón 2013, p. 59; Harvey 2003, p. 939). Studying the urban realm means accepting that we cannot grasp reality as it is. Every approach to perceiving reality is not anticipated to include the unexpected and furthermore, the urban sphere is shaped by constant transformation, which makes it impossible to draw a complete picture (Lindón 2013, p. 59). The researcher is therefore expected to approach the field with openness and the ability to reflect on the research field and his/ her own analysis (Lamnek 2016, p. 33ff).

Reference to Lindón's understanding of South American cities helps us to understand Cape Town's social and spatial changes. Alterations take place on many levels: within the material space such as the building of new neighbourhoods, the maintenance and reconstruction of several types of infrastructure, and the change in social relations, such as appropriation and negotiation of access to public spaces. In this sense, the urban space is understood as socially constructed. To shed light on these intermediate spaces, I aligned my analysis with this assumption. Hypotheses were generated within the research process and not *ex ante*. New developments and dimensions could thus be included in the formulation of my hypotheses (Lamnek 2016, p. 34).

Lindón's proposal towards the investigation and understanding of urban spaces largely draws on the interpretative paradigm. Those involved relate to each other through the interpretation of the other's actions or potential actions (Lamnek 2016, p. 46). In reference to Lamnek, I understand qualitative social research as interaction and communication between myself – the researcher – and the research field and by no means as a disturbance to the research (Lamnek 2016, p. 34). Furthermore, understanding the research process as communication process refers to the processuality of social phenomena. Hence, the research as well as the research field are processual in the sense that the research requires the researcher to interact with the research field. The researcher is involved in the field and is therefore a constitutive part of the research process (Lamnek 2016, p. 35).

The following paragraph will give insight into my *modus operandi* following Lindón's theoretical-methodological deliberations and furthermore relate it to an ethnographic research approach. Participating in and engaging with people's lived experiences for a longer period of time for the purpose of collecting data depicts the foundation of ethnographic research. The conceptual descriptions represent a basis on which analysis can be undertaken. Urban realms are in a constant move which has to be taken into consideration when investigating citizens and their mundane urban lives. On that basis, Lindón (2013) developed a broader understanding of urban dwellers that is explained shortly and moreover connected to my research proceedings.

Urban spaces are characterized by static and fluid features. The fluidity is a direct or indirect result of human practise and infuses with the static (Santos in Lindón 2013, p. 60). Flow movements within urban space have been gaining more and more attention since the 1980s. These flow movements can be material or non-material in the form of people, information or services as well as goods and even the development of whole new neighbourhoods. They have

in common that they are always embedded in information networks (Lindón 2013, p. 61). This understanding helps us to grasp Cape Town's system of (water) infrastructure. Infrastructure can either be material or ideological or contain elements of both. It is about the relationship or, in other words, about the network that infrastructure creates and "through which goods, ideas, waste, power, people, and finance are trafficked" (Larkin 2013, p. 327). Infrastructure is more than just the material object that is visible to the observer. The analysis of infrastructure does not only begin where the actual physical object begins but furthermore also includes non-material aspects and relations which Anand describes as unsteady accretions of non-human and human relations (Anand 2015).

People's everyday life practices and experiences with(in) the system of water infrastructure are the focus of my investigation. Referring to the classical philosophy, movement is to be understood as an act of change (Lindón 2013, p. 62). Movement is a constant flow of social interaction. This enhanced interpretation of movement needs to be considered when analysing the urban realm. Delgado distinguishes between the 'practised city' and the 'occupied city', whereas the difference lies in the type of observation (Delgado in Lindón 2013, p. 62). The concept of the occupied city observes the city from a spatial perspective, such as the occupation of districts from e.g. a particular ethnic group or a community with a similar socio-economic background. The practised city however focuses on what is practised in the urban space on a daily basis (Lindón 2013, p. 63) and therefore serves as a suitable perspective from which to study Cape Town's water infrastructure.

The concept of the practiced city nevertheless goes beyond including subjects and their everyday practises but also requires consideration of the relations between the subjects and their own subjectivity. This leads to the conclusion that subjects are furthermore subjected by the social world (Lindón 2013, p.64). To include the lived environment, Lindón creates the concept of the *inhabitant-subject*⁴ to emphasize that the social space and the subjects are intertwined (Lindón 2013, p.64). This new understanding of urban dwellers allows an analytical approach for recognising the urban space through the subjects and their everyday life. The inhabitant-subject is a complex entity between subject and space (Lindón 2013, p. 64). This understanding of urban citizens allowed me to investigate Capetonians in relation to their surroundings. Especially in South Africa, where cities are shaped by the legacy of Apartheid, and still fight

⁴ Own translation from German: *Bewohner-Subjekt*

to overcome the physical and social segregation, subjectification is influenced by the remnants of Apartheid spatial planning.

2.2.1. Positionality and Post-colonial Perspective

Drawing on Lindón's argumentation when approaching the research field, my interests focus on the lived environment and experiences of people during the water crisis with strategies and interventions by the CoCT for managing the crisis. For two months, I was experiencing the living conditions and environment of the drought and exploring people's everyday practices around water use. Through participation, I encountered the research subject not as an object but on equal footing. In this sense, I explored the research object within its/ their natural structures and uniqueness (Flick 1991, p. 149). "Qualitative research allows researchers to get at the inner experience of participants, to determine how meanings are formed through and in culture, and to discover rather than test variables"(Corbin and Strauss 2009, p. 12)

Flick remarks that apart from this exercise of authentication, the researcher seeks to understand the occurrences within the field through a theoretical perspective and is therefore able to draw generalisable and/ or comparable conclusions (Flick 1991, p. 149). In order to do so, he/ she needs to be aware of his/ her own positionality. Personal experiences and sentiments of the researcher as well as of the researched are to be understood as multicultural subjects that influence both the investigation and its results (Flick 1991, p. 150; Lamnek 2016, p. 64). As Denzin and Lincoln (2005, p. 21) point out: "[a]ny gaze is always filtered through the lenses of language, gender, social class, race, and ethnicity". The researcher is therefore responsible for constantly reflecting on his/ her positionality within the field.

The position of the researcher in the field also affects the access to information. Flick (1991, p. 154) argues that even before entering the field, the researcher is supposed to decide on his/ her role within the field. Drawing on Flick (1991), I chose to occupy an *insider perspective*. I was living with a family and experiencing their everyday life and observing people's way of dealing with the water situation. Furthermore, I was myself part of the household and contributed and adapted to their water saving approaches. This perspective allowed me to obtain insight into the views of the (research) subjects and to recognise organising principals within the communities. Especially the process of holding an outsider perspective and over time, the process of gaining insider information served as a valuable source of cognisance (Flick 1991, p. 154). Flick (1991, p. 154) furthermore clarifies that the positioning within the field is a

process of negotiation between the researcher and the researched and not solely the result of the researcher's choice. Lamnek (2016, p. 44) points out that understanding the foreign relies on the existence of a common repertoire of symbols of a cultural sphere as well as on a "reciprocity of perspectives", meaning being able to put oneself into the position of the other.

At this very point, it is important to refer to the roots of (qualitative) social research: "[t]he term 'research' is inextricably linked to European imperialism and colonialism" (Smith 2008, p. 1). Denzin and Lincoln (2005, p. 2) point out that qualitative research was initiated by the desire to understand "the exotic Other, a primitive, nonwhite person from a foreign culture judged to be less civilized than ours" but furthermore, that understanding and knowledge was used to develop colonising strategies for control the foreign *other*.

The fact of I, myself, being a *white female western* researcher within the context of a previously colonised research field needed critical reflection throughout the research and its analysis. Holding this positionality exposed the research to limitations as well as opportunities that are exhibited within this thesis. Conclusions of the research are drawn from this positionality of myself during the research and are to be seen from this perspective. It is, after all, the case that "[...] all standpoints represent particular interests and positions in a hierarchical society, they are 'ideological' in the sense that they are partial" (Foley and Valenzuela 2005, p. 218).

2.2.2. Participant Observation

Following an ethnographic approach, participant observation represents an important part of my research. Staying in Southfield with a family that, like most other people in Cape Town, developed strategies for saving water gave me the opportunity to experience the impact of the water crisis in Cape Town on a daily basis. Lüders (2017, p. 384) explains that there are two approaches for gathering information on people's everyday practice: the collection of data about the phenomena of interest through interviews and documents that report about it or through long-term participant observation for familiarising oneself with everyday practices. Participant observation allows a deeper insight on the realities of the social group of interest that an interview or secondary literature review cannot provide. To obtain a deeper understanding of insider-perspectives, the researcher is forced to expose, adjust and sometimes even be subjected to the lived environment and practices (Lüders 2017, p. 391).

The field access and the opportunity to live with a family in Cape Town was established through contacts I developed through several long- and short-term stays in Cape Town over the course

of several personal journeys as well as through exchanges during my university career. Since the family allowed me to stay with them, they were well informed about my research interest and thus the observation was not covert. To engage in participatory observation in the context of the water crisis meant adjusting to the strategies that the family developed to save water. Everyday strategies included following the rule: *If it's yellow, let it mellow. If it's brown flush it down*, meaning to only flush the toilet after defecation. Especially this practice required active reflection in order to refrain from automatically pushing the flush button out of habit. Although it was commonly agreed that this is something one does not do, it created a feeling of shame for me the first couple of times. Reflecting on these experiences is part of the methodological approach and distinguishes research from daily tasks. The ability to reflect on one's own course of action, experiences and perceptions within the field and furthermore recognition of one's own individual, cultural, social and existential requirements, all comprise crucial competencies of an ethnographer (Lüders 2017, p. 395)

Moreover, we collected all the wastewater during daily activities such as doing the dishes, showering and even washing our clothes. This water could then be used again for flushing the toilet or watering the garden. Often after those activities I took the opportunity to discuss the strategies with the family members. To capture this information, I made field notes and observation minutes. These minutes are to be understood as the result of a complex process of sense-making and therefore no representation of observed reality (Lüders 2017, p. 397).

Participant observation had also been carried out during the attendance of several events that were held in the context of the water crisis. Some of the events were specifically organised for publicising water saving strategies on a daily basis and spreading awareness of the water crisis. Other events were held in the context of civic engagement and activism and encouraged their attendees to get involved and influence governmental decision-making.

This paragraph demonstrated the methodological approach of participant observation and only briefly elaborates on the strategies developed for dealing with governing logics. Chapter 5 and 6 will discuss the strategies developed in the context of self-governance in more detail.

2.2.3. Semi-structured Narrative Interviews

Part of my field research was the conducting of interviews that served as a basis for the subsequent analysis and furthermore led to the conclusions outlined in Chapter 5 and 6. Prior to the actual field research, several preliminary considerations were made concerning the

selection of interview partners. Three approaches resulted from the assessment of the material available. The decision of staying with a family in Southfield was made on the basis of intensive exchange about the water situation and the family's strategies for saving it during this period. The family furthermore served as a key informant in the sense that they provided me with contacts in the neighbouring areas. Moreover, I joined several groups on social media that were deployed "to provide an online space for members to share & discuss water-related information & tips that are relevant to the drought in the Western Cape" (Facebook Group: WATER SHEDDING WESTERN CAPE 2016). Some of these groups were more critical than others towards the CoCT strategies and policies for overcoming the crisis. The Facebook group *City of Cape Town TROUBLED WATERS* highlighted in their announcement board that they were designed to be an open forum for airing one's views on the current drought situation as well as government corruption and unfair practices (Facebook Group: City of Cape Town TROUBLED WATERS 2017). Through online engagement with the members of these groups, I was able to get in touch with several activists and politicians within the field. The third and last approach was the engagement with a local NPO called Water4CapeTown that connected me to an urban gardening project in Langa, a township of the Cape Flats in Cape Town. This connection gave me the opportunity to then get in touch with the local community that mostly does not have their own access to water but uses standpipes for their water needs. To that extent, different governing logics needed to be implemented to address the community and, furthermore, water-saving strategies developed by the citizens also varied widely, accordingly.

The sample was furthermore influenced by the accessibility to the different actor groups. Gatekeepers in the approaches previously described enabled access to the field through the contacts provided. Afterwards, the selection was based on a snowball sampling and the coming forward of volunteers (Lamnek 2016, p. 351). Following the practice of "theoretical sampling", this network could be extended on the basis of minimal and maximal contrasting that allowed inclusion of participants from similar and dissimilar cases. Throughout the entire research process, I alternated between phases of analysing the data collected and determining the criteria for continuing the data collection (Keller 2011b, p. 63).

Structuring the data collected allowed me to group the interviewed actors. They were: 1) civic activists, who felt the need to act against the raise of tariffs and aspirations of privatisation on

different levels, 2) politicians (councillors)⁵ who closely engaged with the community to serve their needs, 3) NPOs that were engaged with the topic and often worked together with the municipality and 4) lastly residents themselves who were deeply affected by the water crisis and the (governmental) strategies and policies for overcoming it. An overview of all interview partners assigned to the groups as well an illustration of the network of relations are to be found in the appendix.

To investigate the different forms of *hydraulic citizenship* developing within the extraordinary water situation in Cape Town, I established an interview guideline that varied slightly among the different groups of actors. This practise allowed me to gather diverse viewpoints and information. Although I decided to deploy a semi-structured interview method, I intended to use a lot of narrative-generating questions to explore the lived experiences of my interview partners. Narration facilitates the devotion to the speech flow for the interviewee and minimizes rational justifications of one's own experiences (Dannecker and Vossemer 2014, p. 158).

Narrative inquiry revolves around an interest in life experiences as narrated by those who live them. Narrative theorists define narrative as a distinct form of discourse: as meaning making through the shaping or ordering of experience, a way of understanding one's own or other's actions, of organizing events and objects into a meaningful whole, of connecting and seeing the consequences of actions and events over time.

(Chase 2011, p. 421)

Although narration is not a mirror of reality, the narratives offered insight on how people make sense of their water use and themselves.

The idea of using a guideline emerged in the context of the awareness of my time limitations in the field. Guideline-based interviews are often used within a tight time frame and allow the researcher to pre-structure the interview (Dannecker and Vossemer 2014, p. 158). The interview guideline is a result of operationalisation. The research question is to be translated into guiding questions, which again are to be transformed into interview questions (Dannecker and Vossemer 2014, p. 159). Having included interview partners from various different backgrounds and with individual expertise, the guideline was consistently adjusted throughout the research process. Adjusted interview guidelines ease the comprehensibility and

⁵ At this point I would like to mention that from the beginning of my research I tried very hard to set up interviews with employees from CoCT itself, but due to the very prolonged review of my ethical statement by the CoCT I was not able to conduct interviews with city officials themselves within my time frame.

compatibility of the questions and allow for a fluent conversation (Dannecker and Vossemer 2014, p. 160).

In total I conducted 19 interview and one group discussion. All interviews were recorded with the interviewee's consent. Depending on the course and intensity of the conversation, the interviews lasted between 10 and 140 minutes. At the end of the field phase, all quoted interviews were transcribed. For the transcription, a denaturalised approach was applied out of the interest in the informational content of the speech (Oliver et al. 2005, p. 1277). A verbatim depiction of speech was attempted, but accents and involuntary vocalisation had been neutralised. Denaturalised approaches were often used in the context of discourse analysis. Other than the conversation analyst, the discourse analyst is not solely interested in the speech itself but rather in the ideological aspects of what is said and furthermore what is not said – “[i]nterviews, and then the transcripts, are methodological tools used to capture these discourses” (Oliver et al. 2005, p. 1277).

2.2.4. Interview Analysis: Using the Grounded Theory

Following the transcription of the interview material, an analysis in accordance with the Grounded Theory approach (based on Corbin and Strauss 2009) was undertaken. Other than the Grounded Theory, discourse analysis attempts to explore discourse and does not aim for the exploration of particular situations and interactions (Sommer 2018, p. 110). Sommer (2018, p. 110) describes the differences between Grounded Theory and discourse analysis in their understanding of the formation of reality: „[f]or Foucault both individuals and collectives are constituted through discourse and disciplining. For Strauss they both are produced through their participation in social worlds and arenas, including their discourses”.

To analyse discourses within the interview material, frames, classifications and phenomenon structures were identified in the context of the research question using the approach of interpretation and theoretical coding based on the Grounded Theory. The process of coding is supposed to exceed a sheer descriptive analysis in order to identify a phenomenal structure. Subject positions constituted by discourses can be distinguished in numerous ways. Hence, discourses create social actors' positionings such as responsibly acting individuals, activists, resistance members, heroes, or problem cases (Keller 2011b, p. 58).

In the context of the water crisis, several actor positionings could be identified within my interviewees. People dealt with the water situation in various different ways to make sense of

the governing logics. To merely categorise certain forms of acting and narrating as resisting and others as complying seemed to be a little too simplistic. Hanson and Hellberg (2015, p. 21) point out that such a division has normative implications and would lead to misinterpretations and simplifications. People's sense-making and agency skills are more complex than a dualistic distinction and have to be studied carefully.

Actor positions are either actively produced through agents of the narrative or with regard to the addresses of discourses passively attributed (Sommer 2018, p. 112). To identify discourses and relevant subject and speakers positions as well as their discursive practice, a micro-analysis of the interview material had to be undertaken. With the help of the software MAXQDA, I developed *codes* and *concepts* that moreover helped me to identify a storyline. The most important intellectual task of the evaluation process is comparing. Comparing allows one to identify differences and similarities within the interview material. Coding is used to translate or encrypt data into concepts. Code notes and memos facilitated the definition and discussion of these concepts during the entire analysis. Within the Grounded Theory, three types of coding can be distinguished and were used during different phases of the analysis.

I developed in-vivo codes straight from the interview material and avoided using theoretical codes based on scientific theories (Böhm 2017, p. 478). Axial coding helped me to sharpen and distinguish among existing concepts and relate them to each other. Part of the axial coding is to identify frames⁶ and develop an axial coding paradigm (based on Strauss).

The paradigm developed by Strauss aims to recognise particular (inter)actions of social situations. The phenomenon identified in the centre of the model is the event which all actions relate to. To identify discourses, discursive practices and underlying power relations, I had to adjust the approach to fit my purposes. The phenomenon in the analysis undertaken is the core of the discursive structure of meaning. In the Grounded Theory the *cause* identified triggers the occurrence of the phenomenon. Within this analysis, I reconstructed the causes identified by the interviewees who are responsible for the phenomenon. The same accounts for the *context* and *consequences*. The social actor recognises and shapes the context and the consequences around the phenomena and develops strategies to alter the phenomena accordingly (Sommer 2018, p. 120). Lastly, selective coding was used to identify a core concept that is related to all other concepts and holds a central position within the network of relations (Böhm 2017, p. 480). This core concept is a discursively constituted phenomenon and shaped by a trial of strength

⁶ Keller (2011a) German: Deutungsmuster

between discourses. After the step of selective coding, a story line could be evolved that helped me to develop answers to the research question.

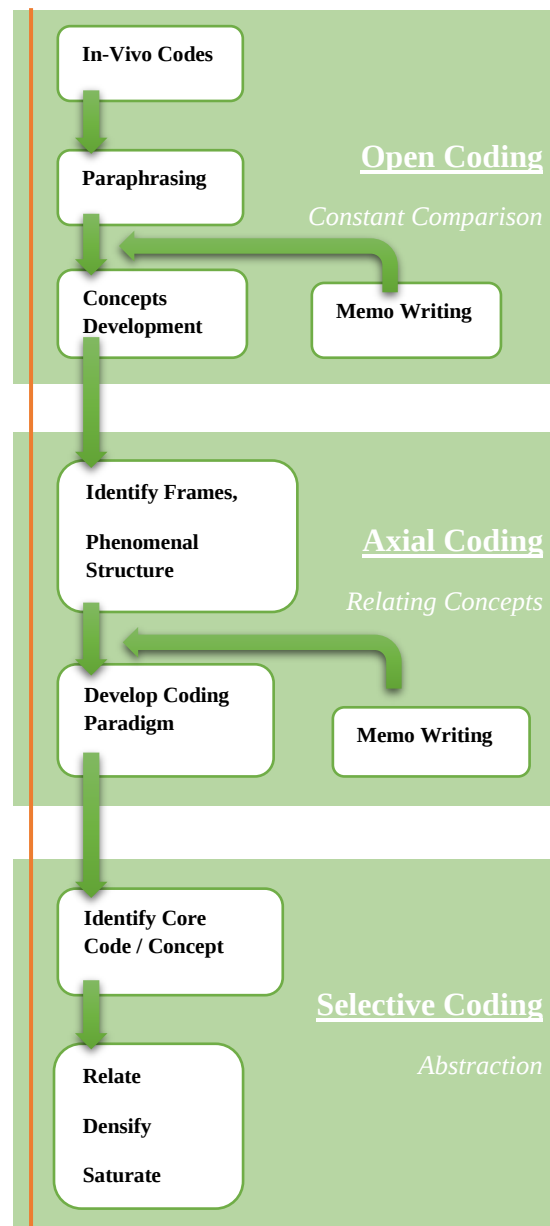


Figure 1: Process-Model of Coding

Source: Own Figure based on Böhm (2017)

Regardless of people's saving strategies and acting upon implemented governing logics, I identified mistrust and disbelief towards the CoCT as a core phenomenon. Disbelief did not necessarily mean people did not believe in a prevalent drought. Rather, many Capetonians complained about the lack of communication and implementation in the context of the drought and water crisis. Corruption, favouritism and a political infighting were identified as factors influencing water governance. Strategies and interventions by the CoCT such as the installation

of WMDs, the punitive tariffs and the water map were identified as scare tactics. As a consequence, people developed strategies for dealing with these forms of water governance. These strategies range from developing one's own strategies on how to deal with water, to social mobilisation and activism. Generally speaking, a greater awareness of water and its infrastructure was created through the water crisis in Cape Town.

Following a constructivist approach, social science knowledge is developed on the basis of present common and tacit knowledge and is therefore also socially constructed. Results can thus not be understood as ultimate truth but as a (re)construction of social reality (Flick et al. 2017, p. 21).

2.2.5. Methodological Triangulation

The methods described above follow the idea of a multiple-method approach for adding complexity and richness to the inquiry. Using various methods for approaching the research field allow us to look at the phenomenon from different perspectives: “[...] the use of multiple methods, or triangulation, reflects an attempt to secure an in-depth understanding of the phenomenon in question” (Denzin and Lincoln 2005, p. 5). We speak of an explicit triangulation when the researcher actively decides to intertwine several methods with each other. Participant observation allowed me to analyse everyday practices and communication whereas the semi-structured interviews gave insight on the underlying power relations and people's self-perception as citizens and what it means to be a citizen in this particular context. Flick (2017, p. 314) argues that if explicit triangulation is taken seriously, every method is to be understood equally and correspondingly contributes to the results.

Other than participant observation and narrative interviews, my results also draw on the analysis of secondary literature, as well as on the review of official documents and (social) media articles. The former helped to gain a deeper understanding of the historical events and developments of Cape Town with a focus on water and the water supply. The traditional name for the area where Cape Town is located is *Camissa* – a Khoi word meaning ‘the place of sweet waters’ (Kotze 2010, p. 27). Jan van Riebeeck built a refreshment station for the Dutch East India Company on their way to India on that water-rich and fertile land. The colonial past as well as the era of Apartheid severely shaped and still shapes the social and political life in Cape Town. The historical circumstances are therefore mainly investigated through the review and

analysis of secondary literature. In some instances, statements by interviewees were included in the historical examination.

Based on the literature review, I identified central developments in the context of water management in South Africa and critically discussed essential official implementation and governing frameworks since the end of Apartheid. The paradigm shift towards neoliberal governing logics had extensive ramifications on water governance. This approach was discussed in the context of the understanding of water as a social or economic good. Lastly, a discussion of Cape Town as a resilient city concludes the investigation based on secondary data.

3. Governmentality, Biopolitics and the Resilient City

3.1. Theoretical Contextualisation

To address how the system of water infrastructure was affected by the crisis, a broader conceptualisation of infrastructure and an understanding of the city as an urban metabolism are necessary and will be introduced (Chapter 3.1.1.). To approach the dynamics of governance in the context of water distribution and management means to look at power relations and to scrutinise different forms of access to water as well as exclusion from it. Chapter 3.1.2. will shed light on how power relations are (re)produced in an urban context of scarce resource allocation. My main argument is that cities as intertwined systems of human and non-human actors are constantly contested. During the water crisis in Cape Town, water shifted in the political and social spotlight and “produced regimes of management and marginalisation” (Anand 2011, p. 544). Citizens observe and react to these governing techniques that finally affect and distinguish their ways of living in the city.

3.1.1. Infrastructure and the Urban Metabolism

Cities are spatial radiations that gather worlds of atoms, atmospheres, symbols, bodies, buildings, plants, animals, technologies, infrastructures, and institutions, each with its own mixes, moorings and motilities, each with its own means of trading living, and dying.

(Amin and Thrift 2017, p. 1)

Amin and Thrift (2017, p. 9) describe how cities are an interconnectedness of things, human-beings and ideas. The city as a system holds together different forms of infrastructure and can in this sense be seen as urban metabolism. These different infrastructures and therefore the city itself are highly politicised: “cities are systems for directing and for provisioning life in ways that produce immense combinatorial power and immense constraint” (Amin and Thrift 2017, p. 4). From this point of view, the infrastructure of the city is understudied and can become the main focus for political action (Amin and Thrift 2017, p. 4). In order to study a city and disregard its infrastructure networks such as pipes and sewers or cables and plugs, one would be ignoring a crucial mechanism affecting social justice and power positions (Star 1999, p. 379).

Cities are generally considered to be spaces of high density of buildings for living as well as for business, connected through infrastructure systems that guarantee the movement of people, knowledge and technologies. Yet most important, cities are conglomerates of people and their interactions relying on this infrastructure that facilitates communication and movement. This complexity of movements, socio-technical and socio-ecological can be studied as an urban metabolism (Currie et al. 2017, p. 91; Amin and Thrift 2017, p. 3). The metabolic system serves as the base for every city and the life in it – water and sanitation, energy and electricity, news and knowledge are moved and steered through a system of provisioning. Yet not only is the city space shaped by human interaction but also vice versa, human identities and different forms of citizenship are co-produced and shaped by the urban landscape. In this sense, cities are socio-technical networks that are constantly being reworked (Amin and Thrift 2017, p. 4). This understanding of cities goes along with Anand's understanding of infrastructure as an accretion of ideological and material relations (Anand 2015).

Urban development in the context of service delivery, and in this particular case, water infrastructure can be studied from this perspective. A political framework serves as the base for a technical system and decides on access, availability, allocation and management. Likewise, infrastructure is never built from scratch, but relies on previous techno-political and historical arrangements (Anand 2015; Star 1999, p. 382). Thinking of cities, this characteristic becomes very visible. Ancient buildings remind us of a life before our time, streets connect or separate to serve a political agenda, names and designations engender memories of former power relations whilst living spaces provide a poor fit for the needs at hand. Apartheid in South Africa left urban spaces with a legacy that is difficult to overcome. Infrastructure that eased surveillance and control during the years of the Apartheid regime still separates present communities and provides citizens with inadequate living spaces often without water and electricity.

Anand's second characteristic of infrastructure interlinks with the first one; infrastructure is constructed through various political rationalities of the past and present, which make them lastly unsteady and in need of constant maintenance and management (Anand 2015). Remnants of the past often provoke a certain discontent for social groups that is connected to memories of domination. In cities of the South, these memories are often connected to colonisation and oppression.

Lastly, Anand (2015) concludes that infrastructure is of an unsteady nature and in need of constant maintenance. Infrastructure are “flaky accretions of discourses, materials, practices, and technologies that actively need to be bound together through technopolitical projects” (Anand 2015). If we understand and study infrastructure as technopolitical, we can identify underlying power relations and make a link to subject constitutions. Specifically as Apple et al. put it: “[a]ttention to infrastructure allows us to show the making and management of difference— class, race, gender, religion, and beyond—in the technics and politics of everyday life” (Appel et al. 2018, p. 28).

A broader understanding of infrastructure helps us to understand the dynamics of a system. Infrastructure often bears the risk of preventing people from using it due to socio-spatial inequalities. Cities often struggle to deal with these disparities in their political agendas. This is especially the case since the strive for global competitiveness as goal-setting is pushed by the international community under the banner of promoting the neoliberal agenda. Global competitiveness is one of the phenomena to be discussed under the approach of the global city. Lemanski (2007, p. 448) describes global cities as being dominant within the world affairs. Population size as well as political, economic, social and cultural infrastructure are furthermore factors linked to its characteristic. Moreover, she points to the fact that cities of the global South often struggle to address social inequality (often a remnant of the colonial past) whilst pursuing global competitiveness at the same time (Lemanski 2007, p. 448). Due to widespread poverty, social polarisation and difficulties allocating scarce resources equally, the drive for global city status is problematic. How Cape Town deals with this double-edged agenda will be discussed in context of resilience in Chapter 5.5.

3.1.2. Power, Subjectification and Neoliberal Implications

To understand the various power relations that govern the metabolic system of the city, I appeal to Foucault. Much of Foucault’s work deals with different forms of power and what it means to govern and to be governed. Foucault defines government as the sum of institutions and practices for leading and ruling people including everything from administration to education (Foucault in Füller and Marquardt 2009, p. 83). Under the concept of governmentality, Foucault explains the relationship between power and knowledge. To govern not only includes the exercise of power by the state through laws, norms and institutions, but moreover, includes architecture, milieus or spatial arrangements (Füller and Marquardt 2009, p. 91). Thus, this

understanding of governance offers a great opportunity to include infrastructure into the analysis. The formation of infrastructure can lead to inclusion or exclusion of certain groups within the society. Hence, the search for patterns of governing and the different expressions of power are at the centre of a governmentality analysis (Füller and Marquardt 2009, p. 86). Foucault himself remarks that our present mode of governance developed in the 18th century and does not address individuals but instead the entire society. At the centre of governance is the stabilisation of security (Füller and Marquardt 2009, p. 87).

Looking at water demand management, Bakker states that water is both political and biopolitical: “[a]s it flows, water transgresses geopolitical boundaries, defies jurisdictions, pits upstream against downstream users, and creates competition between economic sectors [...]” (Bakker 2012, p. 616). Being implicated in contested relationships of power and authority, water is involved in the discursive constitution of the subject. In order to reflect on aspects of *hydraulic citizenship* during the water crisis, concepts of governmentality and biopolitics largely influenced by the work of Foucault constitute the theoretical basis for the discussion and will be illuminated hereafter.

Power – Knowledge – Subjectification

Often when studying people’s engagement with the concept of being governed, two camps are identified: one of compliance and one of resistance. However, power and power relations cannot be studied as binary relations. They are complex and multidimensional and cannot be reduced to a ruler-ruled relationship. Power is not only repressive and destructive, but also productive and in this sense, likewise, the dynamics of resistance or social integration (Strüver 2009, p. 66; Hansson and Hellberg 2015, p. 22). Foucault himself states: “[...] relations of power are not in superstructural positions, with merely a role of prohibition or accompaniment; they have a directly productive role, wherever they come into play” (Foucault 1985, p. 94).

Subjects and the process of subjectivation are shaped by these power relations. Subjects can in this sense be defined as being subject to something or someone, being controlled and governed by someone else and tied to his/ her own identity by a conscience or self-knowledge (Hansson and Hellberg 2015, p. 22). Both meanings imply the involvement in a network of power relations and is exemplified in this thesis by the system of water governance in Cape Town. On the one hand, subjects are targeted to reduce their daily water use and on the other hand, subjects are agents of their own will and have the power to decide and act upon these policies accordingly. Foucault clarifies that subjects “are faced with a field of possibilities in which

several kinds of conduct, several ways of reacting and modes of behaviour are available” (Foucault in Hansson and Hellberg 2015, p. 22). These different ways for individuals to act within that net of power relation is what Foucault calls *technologies of the self*. This created a range of possibilities that are established by an interplay between forms of knowledge, power strategies and subjectification (Füller and Marquardt 2009, p. 88). Knowledge plays an essential role in Foucault’s engagements with power. Knowledge serves to enforce, retain and abolish power relations (Strüver 2009, p. 62). To that extent, Foucault identifies two meanings of knowledge: cultural codes influencing quotidian language and practices and scientific knowledge. Ordering principals mediate between the two meanings and are influenced by the discourse (Strüver 2009, p. 64). Discourse, moreover, is developed in different historical and cultural contexts and is manifested, retained and transformed by discursive practices. The discursive practice constitutes subjects and constructs understandings of what it means to be *normal*, *true* and *morally right* (Strüver 2009, p. 65).

Power is, moreover, hardly a top-down implemented practice by the state, not to be seen as the sum of institutions and appliances and instruments for guaranteeing civil order, nor is it a system of government organised of one group against another to stabilise society. Power is a verity of power relations that inhabits and organises a certain territory (Foucault 1985, p. 94). Against this backdrop, power relations are intrinsic in all forms of relationships and are part of the entire society and need to be negotiated on a permanent basis. Foucault divides different techniques through which power is exercised especially in different historical contexts: sovereign power, disciplinary power and biopower. Sovereign power is usually exercised from a central point such as a sovereign state and demands obedience to its laws and authorities. Disciplinary power “aim[s] to correct deviant behaviour through the spatial distribution of bodies and through observation, examination, and surveillance” (Hellberg 2018, p. 27). Lastly, biopower shifts its focus away from the subject and turns to the entire population (Hellberg 2018, p. 27).

During the water crisis, the premise upon which power is exercised is water. Bakker (2012) argues that water connects the individual body to society at large:

Water is thus biopolitical in the Foucauldian sense: modern governments seek to optimize both water resources and our individual water-use practices in order to secure the health and productivity of the population. This control is enacted through formal regulation, but also is self-policed through the cultural aesthetics of health and hygiene, ranging from entire bodies of water to individual human bodies.

(Bakker 2012, p. 619)

For a better understanding of power and its representation, Lemke additionally points out that only in his later works Foucault differentiates between power and domination. As mentioned before, there is no social sphere that is not affected by power relations. Lemke (2001, p. 118) therefore describes power as an ubiquitous feature of human interaction. “In any case, to live in society is to live in such a way that action upon other actions is possible – and in fact ongoing. A society without power relations can only be an abstraction.” (Foucault in Dreyfus and Rabinow 2006, p. 222). This matters with regard to Cape Town in so far as Cape Town had for many years been dominated by system of racial segregation. To analyse contemporary forms of power does not solely mean to look at forms of domination but furthermore, to investigate governance as an intrinsic form of conducting all relations.

From this modifiable form of power, which Foucault calls *power strategy*, Foucault identifies power relations that are rigid, fixed and blocked. Power, in this case, is often institutionalised and asymmetrical and can be described as domination. Domination, moreover, is a specific form of power that allow little scope of action introduced by an individual or a social group (Lemke 2001, p. 119; Dreyfus and Rabinow 2006, p. 226).

Lastly, Foucault introduces the governing technologies as an additional dimension for analysing power. Governing technologies are systematic, regulated and reflective forms of power. Hence, they can be seen at the interface between strategic and dominating power relations since they are not as fixed and then permanent forms of domination, but also not as spontaneous and unregulated as strategic forms of power relations (Lemke 2001, p. 120). Governing technologies are moreover intertwined with technologies of the self and need to be analysed accordingly.

Having mentioned various different forms of power relations that Foucault introduced over the time of his intensive examination, I like to highlight here that it is again important to understand that power is taut all over society and therefore multidimensional and intertwined. The different ways power is involved within human interaction cannot be reduced to just one form of power. Nonetheless, the definitions and explanations are theoretic models to help us understand how power is practiced on a daily basis.

Governance and Governmentality

Although Foucault has addressed the phenomenon of power relations and different forms of governing for relatively long time, the term governmentality emerged relatively late in his examinations and is used in two ways by Foucault (Füller and Marquardt 2009, p. 84) which

results out of Foucault's own developments of the term (Senellart in Foucault 2015, p. 565). When Foucault first introduced governmentality, he used it to name the system of power installed in the 18th century and the development of this form of power to hegemony in general:

First, by "governmentality" I understand the ensemble formed by institutions, procedures, analyses and reflections, calculations, and tactics that allow the exercise of this very specific, albeit very complex, power that has the population as its target, political economy as its major form of knowledge, and apparatuses of security as its essential technical instrument. Second, by "governmentality" I understand the tendency, the line of force, that for a long time, and throughout the West, has constantly led towards the pre-eminence over all other types of power – sovereignty, discipline, and so on – of the type of power that we can call "government" and which has led to the development of a series of specific governmental apparatuses (appareils) on the one hand, [and, on the other] to the development of a series of knowledges (savoirs). Finally, by "governmentality" I think we should understand the process, or rather, the result of the process by which the state of justice of the Middle Ages became the administrative state in the fifteenth and sixteenth centuries and was gradually "governmentalized."

(Foucault 2009, p. 144)

The above quote is the most cited when it comes to a definition of governmentality, but Foucault advanced the term from this regional viewpoint to a more abstract concept (Senellart in Foucault 2015, p. 565). In his later works, his focus shifted from the constitutive governmental practices for a particular power system to "the way in which one conducts the conduct of men [...]", and serves as an "analytical grid for these relations of power" (Foucault 2010, p. 186). Furthermore, Foucault's focus shifts away from the analysis of the state and includes governing technologies in general (Senellart in Foucault 2015, p. 565). This shift is to be conceptualised as a *new* understanding of the modern state "as a combination of technologies of the self and techniques of government" (Lemke 2001, p. 109; translation: JHH). This perspective allows us to observe and analyse subjectification and the formation of the modern state in relation to one another.

Until the end of the Middle Ages, governance had a much wider definition than the execution of state power as it is widely understood today, and actually included several forms of individual and collective conduct. Governmentality thus encompasses the governance of diverse areas of actions and practice and includes various forms of conduct and control of individuals and collectives through technologies of the self and others (Lemke 2001, p. 110).

Furthermore, Foucault engages with the differentiation of the terms *governmentality* and *government*: the first one determines the strategic field of mobile, modifiable and reversible power relations, whereas the second describes types of *conduct of conduct* constituted within

this strategic field of power relations (Senellart in Foucault 2015, p. 566). Accordingly, the two concepts mutually depend on each other. Governmentality studies do not assume a uniform logic of development but analyse heterogenic and discontinuing governmentalities (Lemke 2001, p. 110; Senellart in Foucault 2015, p. 566).

Foucault describes the development of governance in a historical context. Governance shifts away from the problem of sovereignty and the monarch as the central figure and entangles all possible activities and areas of practice. Nevertheless, Foucault is not interested in this expansion of governance itself but rather in the identification of rationalities of governance (Lemke 2001, p. 111). In this sense, governance can be studied in pursuit of serving the prevalent economical system.

Neoliberalism and its implications for urban resilient governance

Foucault states that governance aims at having things available for use in an advantageous way, and thus governance is “the art of using power according to the model of economics” (Foucault in Lemke 2001, p. 111; translation: JHH). From this standpoint, (neo)liberalism can be studied from a Foucauldian perspective and liberalism can be approached as an *art of government* (Foucault 2010, p. 64): “[l]iberalism must produce freedom, but this very act entails the establishment of limitations, controls, forms of coercion, and obligations relying on threats, etcetera” (Foucault 2010, p. 64). With these words, Foucault emphasizes the difficult relationship between freedom and its permanent threat.

Foucault (2010, p. 145) furthermore elaborates on the differences between liberalism and neoliberalism. While within liberal approaches, the state monitors the freedom, the market itself becomes the organising principal within neoliberal approaches⁷.

Other than within liberalism, the state plays a vital intervening role in regulating society in accordance with the market (with differences in American neoliberal concepts): “[b]asically, it [the state] has to intervene on society so that competitive mechanisms can play a regulatory role at every moment and every point in society and by intervening in this way its objective will become possible, that is to say, a general regulation of society by the market” (Foucault 2010, 145).

⁷ Foucault mainly discussed the in Germany and America developed Neoliberalism and its similarities and differences (Foucault 2010, lect. 4 & 5).

The tasks that the state undertakes within neoliberalism are not characterised by direct interventions by an authorised and specialised state but rather by the development of indirect techniques that govern individuals without taking over responsibility (Lemke 2000, p. 38). As Foucault (2010, 145) states: “This is the tendency: privatized social policy”. Lemke (2000, p. 38) explains that this form of government leads to the constitution of morally-responsible and rationally-calculating subjects. Responsible subjects weigh the costs and benefits of different courses of action against each other and arrive at a decision based on rational and calculated considerations. The choice of different options is to be seen as an expression of a free will. Results and consequences of this course of action are the subject’s responsibility. This strategy of neoliberalism can be used in various social spheres and transforms public concerns into private responsibilities.

Cities, for instance, are important hubs where people agglomerate, interactions are numerous, and infrastructures and services are provided easily. Nevertheless, or especially for that reason cities as well as their inhabitants are challenged by various natural or man-made factors such as increasing populations, climate change, unsteady political systems and other socio-economic concerns. To address these changes in an urban context, the concept of resilience was introduced by the UN-Habitat.

Resilience refers to the ability of any urban system to maintain continuity through all shocks and stresses while positively adapting and transforming towards sustainability. Therefore, a resilient city is one that assesses, plans and acts to prepare for and respond to all hazards, either sudden or slow-onset, expected or unexpected. By doing so, cities are better able to protect and enhance people’s lives, secure development gains, foster and investible environment and drive positive change.

(UN-Habitat)

Resilience – identified to be the key concept of sustainable development approaches – is accused of pushing even more for a neoliberal agenda. Resilience became so prominent on account of the world being in constant change and threatened by episodic crisis, with the inhabitants expected to adapt to these circumstances. This discourse of resilience adds to the understanding of security a notion of uncertainty. In order to deal with uncertainties, resilience approaches shift away from state-based solution approaches and identified civic organisations as the new entity in charge of security (Larner and Moreton 2016, p. 39).

The narratives around sustainable development generally, and using resilience as a strategy, in particular, are critiqued for promoting the neoliberal model of society (Reid 2012, p. 67). The

argument is that the limited role of the state within social security results in the need for people and communities to act of their own accord and to develop a personal responsibility or, in Reid's word a "resilient self-reliance" (Reid 2012, p. 69). This understanding goes along with Foucault's examinations of subjectivation within a neoliberal government and the notion of the privatisation of social policies (Foucault 2010, 145).

The poor are identified to be the part of the population emphatically targeted and in need of discipline for developing a resilient and sustainable self, because of their dependence on ecosystem services (Reid 2012, p. 67). When addressing the poor, in particular, Reid (2012, p. 72) identifies them as most prone to using eco-system services in non-sustainable ways and as therefore being ecologically ignorant. To relieve them from that trait, neoliberal policies and frameworks need to be implemented. The UNEP (2004, p. 13) furthermore emphasizes that the implementation of market principals within such ecosystems contributes to the appreciation of the ecological services. In terms of water management, the Dublin Statement on Water and Sustainable Development declared in 1992 that "[w]ater has an economic value in all its competing uses and should be recognised as an economic good" (International Conference on Water and the Environment 1992, p. 4).

In addition to Reid's take, Larner and Moreton (2016) provide a rather positive interpretation of resilient and resilient-thinking. Resilience and resilience-thinking cannot be seen as a promoting neoliberalism but rather as already having overcome it. Resilient-thinking enables creativity, empowers relations and promotes ingenuity and encourages individuals to engage within broader communities to participate in (political) debates (Larner and Moreton 2016, p. 51). Cape Town not only established a large variety of civil organisations during the water crisis in various fields of action, but looks back on a history of strong civil engagement. Nevertheless, the extraordinary situation induced Capetonians to move closer together. On the one hand, the establishment of civil organisation during the water crisis was the result of citizens supporting each other and awareness creation, whilst, on the other hand, the formation of associations was supported by grievances over the crisis management by the CoCT.

How neoliberal principles are implemented in South Africa in general and in Cape Town, in particular, and how they were deployed in the context of service delivery and during the water crisis management are all subjects of detailed discussions in Chapter 5. Moreover, the concept of resilience and its abilities and limitations will be discussed in the context of the water crisis.

Connecting the dots

In context of cities and probably even more visible within cities of the South, water management addresses different segments of the population in different ways. In Cape Town, this differentiation happens along socio-economic lines, which in a post-Apartheid city, most likely translates into racial lines. Devices such as WMDs, standpipes and conventional water meters are installed and the expectation is for their users to act as responsible and rational subjects calculating their daily water use in accordance with their financial situation, the current restriction level as well as ecological considerations. These deliberations are influenced and shaped by the public discourses and *dispositifs*. In this way, water contributes to the constitution of individual identities which in reference to Anand (2011, p. 545) I will call *hydraulic citizenship*. He describes the term as “a form of belonging to the city enabled by social and material claims made to the city’s water infrastructure” (Anand 2011, p. 545).

This understanding of water and its material artefacts, polit-economic and social components, can furthermore be linked to concepts of infrastructure. Infrastructure is not solely described by its material aspects – that is, transporting and steering water through pipes to its users – but furthermore transports ideas and policies along with it. Not only is it unidirectional but also carries imaginations, sentiments and mentalities of the water user whilst likewise contributing to knowledge (trans)formation. Larkin (2013, p. 328) links Bakker’s biopolitical line of thought to infrastructural concepts: “Infrastructures [...] reveal forms of political rationality that underlie technological projects and which give rise to an ‘apparatus of governmentality’”. Larkin describes liberalism as “form of government that disavows itself, seeking to organize populations and territories through technological domains that seem far removed from formal political institutions” (Larkin 2013, p. 328). He therein points to the fact that even within the scope of liberalism that rejects statist interventions, infrastructure organises market and society.

3.1.3. Critical Urbanism and The Right to the City

Many theories and scholars claim to approach their field with a critical viewpoint. But what is *critical* about this viewpoint? Within academia, the term *critical* is often used to describe the counterpart or even antagonist to *mainstream* theories. Brenner (2009, p. 198) states: “[...] critical urban theory emphasizes the politically and ideologically mediated, socially contested and therefore malleable character of urban space—that is, its continual (re)construction as a site, medium and outcome of historically specific relations of social power”. Other than only

criticising these mainstream theories, it also argues that a more democratic and more equal and sustainable form of urbanisation is possible. Cities are dominated by ideologies that often lead to exploitation, injustice and inequality.

The approach of *the Right to the City* developed in context of critical urban theory. The concept criticised the exclusion of large parts of society from city spaces and infrastructure, physical and political. The approach therefore claimed a right to non-exclusion and promotes participation of the entire urban society (Holm 2011, p. 89). Henri Lefebvre, a French scholar developed the concept at first during the 1960s in the context of capitalism and its encroachments. In many French cities and in particular in Paris Fordist developments led to socio-economic segregation. Lefebvre at first formulated the right to centrality and the right to differences which later developed to the *Right to the City*. With the right to centrality, Lefebvre called the attention to the physical accessibility of city spaces that were reserved for elites of the city. With the inclusion of all social groups within such city spaces he referred to the city as being a space of diversity (Holm 2011, p. 90).

Recently, the context of the debate has shifted from a criticism against the Fordist city in the 1960s to a dissatisfaction of neoliberal changes such as large projects of privatisation and commodification. Today the concept has gradually gone on to be used to claim the cities' spaces and infrastructures in the context of various social movements. The concept serves as a counter-hegemony for presenting neoliberal developments within the cities.

It also elucidates the importance of cities as venues for negotiations processes. Cities provide the space for exchanging ideas and goods and furthermore for testing out regulations and frameworks. This ability is described by Holm (2011, p. 94) as one of the most significant functions of cities – being consumptive and productive at the same time. This force has repeatedly been used to fight privatisation and gentrification and plays an important role when debating service provision. Cities are spaces of biopolitical production due to people using a common territory for living, sharing resources and interactions (Holm 2011, p. 91). Thus, urban spaces are not only the condition for productivity but also its source. The consumptive and the productive value of the city are intertwined and cannot be reduced to one or the other.

Debates about the privatisation of service delivery such as water allocation or electricity supply are discussed from the perspective of a collective consumption (Holm 2011, p. 92). Often social movements engage within the context of urban service delivery. The success of these movements, Holm (2011, p. 92) argues, are not only reliant on their own resources, but

moreover on their potential to integrate within certain urban developments and political circumstances. As we will see later, social mobilisation also took place against the backdrop of the water crisis due to grievances about the crisis management and a lack of information and transparency. Especially the increase in tariffs exasperated many Capetonians, who felt they were being punished for their commitment to saving water.

Similar to the trend of the global city is the trend towards the entrepreneurial city analysed among other by Harvey (2003). The push for global competitiveness and the trend of governing a city from an entrepreneurial standpoint can be linked to the global city approach. The guiding principal behind both approaches is neoliberal ideology (Holm 2011, p. 92).

Harvey enriches the debate about the *Right to the City* with the question on ‘whose right’ and ‘whose city’ is it anyway? He points out that these disputes are mostly fought based on political-economic and social assumptions. Referring to Marx, Harvey (2003, p. 939) emphasizes that dialectical relations are at the heart of human labour.

What separates the worst of architects from the best of bees [...] is that the architect erects a structure in the imagination before materializing it upon the ground. We are, all of us, architects, of a sort. We individually and collectively make the city through our daily actions and our political, intellectual and economic engagements. But, in return, the city makes us.

(Harvey 2003, p. 939)

Critical theory intends to provide alternative possibilities to the prevalent persuasion. Harvey thus emphasizes the importance of dreaming and wondering about alternative urban worlds but notes, on the other hand the negative connotations which these utopias carry. By questioning if we cannot construct a socially just city, he refers to explanatory approaches of social justice but explains that it is the dream itself that drives and motivates people to action. Nevertheless, these dreams need to be reflected upon since they hold assumptions about the social order and integrate conceptions of rights (Harvey 2003, p. 940).

Within a neoliberal system the social order is shaped by market principals. This system guarantees a certain number of rights “individual responsibility, independence from state interference, equality of opportunity in the market and before the law, rewards for initiative, and an open market place that allows for freedoms of choice [...] freedoms of thought, of expression and of speech” (Harvey 2003, p. 940).

Nonetheless, these rights have a downside to them: “[f]ree markets are not necessarily fair” (Harvey 2003, p. 940). Through egalitarian exchange, the rich grow richer and the poor get

poorer. For cities, this bears dramatic implications such as social segregation in the form of slum-building on the one side, and gated communities on the other. Often racial, religious and ethnic divisions accompany this phenomenon within urban spaces.

In order to work properly, the market requires scarcity. Often if no scarcity exists, it is created socially and leads to the absurd situation of a lack of necessities in the middle of an abundance of resources (Harvey 2003, p. 940).

3.2. Contemporary Debate

As shown in my theoretical discussion two lines of argumentation were considered in my debate. On the one hand, I included theories of governance and governmentality in my discussion, and on the other hand, I largely draw on anthropological theories of infrastructure with a focus on the urban realm. Scholars that inspired my thesis and are of great importance for the contemporary debate will be mentioned hereafter.

3.2.1. The Infrastructure of Anthropology

Studying Infrastructure from an anthropological perspective is something I *learned* during an exchange semester at the University of Stellenbosch two years ago. The course *Infrastructure of Anthropology* that I attended introduced me to many studies that I quoted within this thesis and were very inspiring to my research. Studying infrastructure provides an understanding of system-thinking including material and ideological perspectives and offers a valuable perspective on urban developments (Larkin 2013, p. 330).

Inspiring to my approach have been studies on infrastructure and people's self-organisation with mundane material objects. Discussions on how these objects of daily use become technopolitical were often at the centre of these studies. Three scholars, Nikhil Anand, Antina von Schnitzler and Brenda Chalfin, put infrastructure in the centre of their works – a subject to which I turn next.

Anand, who I quoted various times in the context of his theoretical understanding of infrastructure did research on water supply in Mumbai. During 22-month long ethnographic fieldwork in a settlement⁸ in northern Mumbai as well as in various field offices of the city

⁸ Anand avoids the term *slum* and therefore uses *settlement* instead

water department, Anand investigated *pressure*. Pressure functions “as useful analytic to understand how settlers claim water” (Anand 2011, p. 543) and is to be understood in a social, physical and political sense. Settlers’ attempt to access water depends on a system of power relations intertwined with the physical infrastructure (Anand 2011, p. 560). Citizens with different socio-economical and socio-spatial backgrounds receive water through different access points. How and whether they receive water depends on the pressure they are able to put on the local councillor. Furthermore, Anand (2011, p. 559) draws attention to the “heterogeneity of the public”. Muslim settlers who were seen as *dirty* and not *good character*, have been struggling to pressure municipal system but in response accessed water through illegal connections (Anand 2011, p. 559). The development of the term *hydraulic citizenship* arises from this investigation.

Von Schnitzler (2008) chose a similar route when analysing the constitution of citizenship in Soweto within the context of the installation of prepaid water meters. The modalities of prepayment are to be linked to post-apartheid neoliberal reforms. Von Schnitzler discusses the constitution of citizenship in terms of these post-apartheid neoliberal reforms (Von Schnitzler 2008, p. 899). With the use of the prepaid water meters Soweto’s citizens are asked to build a calculative agency “to optimise the household’s consumption behaviour and to become economising actors” (Von Schnitzler 2008, p. 916). Von Schnitzler (2008, p. 916) argues that the installation of such devices contributes to the constitution of particular subjectivities.

While Anand (2011) and von Schnitzler (2008) both directly engage with water governance, Chalfin (2016, 2014) focuses on the quotidian self-organisation of people with a toilet complex. She shows how a mundane infrastructure such as a toilet complex in the wastelands in Ghana can become a political function and is used in more than just the standard way and therefore becomes technopolitical. The focus of her work is on the system of infrastructure that is built around the toilet complex and used by the community of Ghana’s city Tema (Chalfin 2016, 2014). Chalfin conducted several field research-studies at the toilet complex in Tema during 2009 and 2011. She elucidates that the toilet complex bears an “opportunity to wrest a space for urban existence outside the grasp of political institutions and elites. The result is a vital public realm enabling collective claims and entitlements alongside individual bodily renewal and survival” (Chalfin 2014, p. 93). The toilet complex facilitates self-organisation and political activism in times of state failure or absence (Chalfin 2016, p. 6). In this sense, the toilet complex can also be studied through a governmentality lens. Chalfin uses Hobbes’s prominent Leviathan theory to describe the power relations that are constituted through infrastructure as a “putative

‘state of nature’ transformed into an infrastructure-based commonwealth of waste” (Chalfin 2016, p. 1).

Referring to Chalfin (2014, 2016) helps us to understand how an infrastructure system of daily use has a great impact on community life and helps to organise a social order and therefore functions in a political way. Looking at the water infrastructure in Cape Town means examining an even bigger system, including more than one material object. Citizens in Cape Town use a variety of different access points to guarantee their flow of water for daily activities. The middle-class is mostly connected with the municipal pipe system and has running water from the tap at home, wherein the water is measured with a water meter. In some cases, households are provided with a WMD which limits the daily water use to an allocated amount. Other alternative water access points are boreholes and rainwater tanks that are mainly used for non-consumption purposes. The informal settlements in Cape Town are provided with standpipes for collecting their water from (I will elaborate on that later in more detail).

3.2.2. Water Governance and Public Participation

Von Schnitzler is not the only researcher focusing on devices that govern people’s consumption of services such as prepaid water meters. Mahlanza et al. (2016) investigated the installation of WMDs in Cape Town. However, the focus of this paper is not on the techno-politics of the device but on the converging of the topic from a social justice perspective. WMDs are often implemented with little public participation and ignorance towards diverse needs and result in installations without sufficient knowledge about the devices (Mahlanza et al. 2016). Using qualitative research methods, Mahlanza et al. used Dunnon, Cape Town as their case study. The study could show that the installation of WMDs in that particular area was done with “limited participation by households and a lack of procedural justice, distributional impacts and rights infringement, and the failure of the policy to fully recognise the diverse needs and vulnerabilities experienced by households” (Mahlanza et al. 2016, p. 364).

Worth mentioning in the context of water governance using a Foucauldian perspective is research that was conducted in eThekweni, South Africa. Hellberg (2018, 2014) investigated how the role of water service delivery matters in terms of people lives. Through the method of narrative interviews, she shows “how the municipality’s techniques of targeting certain types of populations as appropriate for particular technological solutions require that the water users

exercise different forms of agency in order to safeguard access to water” (Hellberg 2014, p. 226).

Turton and Henwood (2002, p. 13) describe the studying of *hydropolitics* as a relatively new academic pursuit that has a clear multidisciplinary character. Water is acknowledged as an extremely valuable resource due to the fact that water is essential for life, health and welfare (Turton and Henwood 2002, p. 13). They furthermore argue that the value of water and its contribution to the national economy and well-being often goes highly unnoticed. Taken for granted, this fact stays overlooked till the limits are reached (Turton and Henwood 2002, p. 13). With the water crisis in Cape Town, this point was attained. Looking at this phenomenon from an anthropological perspective, my thesis aims to gain understanding on how human beings organise themselves on a daily basis within their natural and furthermore constructed environment.

3.2.3. Drought Management and Day Zero

The drought and Day Zero have been studied from various perspectives ranging from environmental implications to socio-economic consequences of the drought as well as of the crisis management by the CoCT (Booyesen et al. 2019; Nhamo and Agyepong 2019; Visser 2018) and the identification of alternative water resources (Sorensen 2017). Sorensen (2017) gives an overview of the chronology of the drought and distinguishes between short-, medium- and long-term strategies for dealing with the water shortage (Sorensen 2017). Although Nhamo and Agyepong (2019) do not directly engage with the environmental implications of the drought and climate change they still identify the drought as a result of changing weather patterns and discuss “institutional complexities surrounding Day Zero” (Nhamo and Agyepong 2019, p. 1). Using the Actor-Actant-Network-Theory, they could show the involvement of human *actors* and non-human *actants* within the system of water infrastructure. Nhamo and Agyepong conclude that the drought management led to a greater awareness of climate adaptation and water security by the CoCT and its residents as well as across the rest of South Africa and even the world (Nhamo and Agyepong 2019, p. 8).

Visser (2018, p. 1) however identifies the drought and the resulting water crisis as a management crisis due to political infighting. He explains that the water crisis emerged out of a combination of political and economic factors and discusses the events chronologically.

Booyesen et al. (2019) elaborate on the events leading up to the announcement of Day Zero and discuss the effects in terms of behavioural change of the different demand management strategies by the CoCT. They conclude that water use decreased intensively in response to the three-phased disaster plan. The increase in water tariffs and restrictions did not affect Capetonian's water consumption as heavily. They conclude that even though scare-tactics bear risks, they have been the most successful strategy in effecting behavioural change (Booyesen et al. 2019, p. 419).

Meanwhile, Robins, who teaches at Stellenbosch University and who was my professor during my exchange semester, also addressed the water crisis in an article published at the beginning of 2019. His article approaches the drought and water crisis from an anthropological perspective using concepts of infrastructure to better understand "how the threat of the total collapse of the water and sanitation system during the drought contributed to rendering water and its infrastructures politically legible" (Robins 2019, p. 5). Referring to Anand's definition of *hydraulic citizenship*, Robins elaborates on how the water crisis management affected people's life and lifestyle. He explains that the production and circulation of what he calls 'water facts' largely influenced social mobilisation in context of the water crisis (Robins 2019, p. 7).

Inspired by the studies above, I addressed the system of water infrastructure in the municipality of Cape Town during a period of interventions and innovations. I drew on anthropological concepts of infrastructure to elucidate on the development of *hydraulic citizenship* (Anand 2011, p. 545) in the context of the water crisis management. Like Hellberg I used a Foucauldian understanding of (water) governance to explain the intertwining nexus of power relations involved in processes of subjectification. To understand civic activism in the context of the water crisis, developments of public participation policies in a South African context in the field of service delivery were taken into consideration and critically discussed.

4. Historical Implication and the Making of Cape Town

Although the roots of segregation go back almost to the time of the first arrival of European settlers in southern Africa over three and a quarter centuries ago, Cape Town's case is of particular interest because, before apartheid's institution in 1948, it was by far the least racially segregated city in southern Africa, and perhaps even in all of sub-Saharan Africa.

(Western and Coles 1997, p. 3)

Western and Coles (1997) among others emphasize the exceptional position Cape Town occupied before Apartheid in terms of non-racialised franchise and formal equality of all citizens before the law (Bickford-Smith 1995, p. 67; Western and Coles 1997, p. 3). In Cape Town, this so-called Cape-Liberalism developed especially during the time after the emancipation of the slaves. The logic of the Cape-Liberalism was that with civilisation and education, black people could learn to be like whites and therefore deserve equal treatment (Bickford-Smith 1995, p. 68). The conversion to Christianity also played a key-role within that transformation. Nevertheless, the great tradition of Cape-Liberalism was threatened by an ideological transformation. Assimilation was no longer believed to be good practice. Instead, segregation was promoted with the belief that “there could be the wrong kind of contact between barbarians and the civilised” (Bickford-Smith 1995, p. 68). The socio-spatial formation and its development before, during, and after Apartheid will be reflected in the following chapter and related to water use when applicable.

4.1. Camissa – The Origins of Cape Town

Camissa is a Khoi word meaning the place of sweet waters and was used for the area where Cape Town is located today. The water resources in the area attracted visitors and settlers in the first place. Nevertheless, the Cape had always been defined by changing phases of biennial rivers and streams over the centuries (Kotze 2010, p. 27). Early settlers documented the presence of the Khoi in the Cape from the 15th century on. The Khoi lived as nomadic herders and it is believed that they used the area on the foot of Table Mountain during spring and summer since the vegetation was ideal for their herds (Kotze 2010, p. 27). As early as 160 years before the first settlers arrived at the Cape, European sailors included the Cape of Good Hope into their trade network (Western and Coles 1997, p. 31). In 1647, the first settlers arrived at the Cape. A crew of the Dutch East India Company (VOC) was stranded and subsequently settled on one of the rivers. They managed to provide for themselves through the cultivation of

the soil and trade with the Khoi. The crew was found by the *Coningh van Polen* in 1648 and taken back to Europe. Four years later, Jan van Riebeeck was sent to establish a refreshment station at the Cape upon the facts of the report of the experience of the stranded crew. In the first place, the refreshment station was not meant to be a permanent home. However, in 1658 the VOC granted land to so called *free burghers* (released Company employees) who intended to settle permanently (Wilkinson 2000, p. 195).

Cape Town – Place of Sweet Waters

Like in many other Dutch colonies, the VOC built *grachten* to channel the water from the streams of Table Mountain. This water system was built to supply the ships with fresh water (Marx 2012, p. 30). The water system was constantly improved upon and extended. The city was provided water solely from Table Mountain and its springs. Streets were built parallel to the *grachten* and the water was regulated by sluices. As the colony was growing bigger and the VOC went bankrupt, they began running out of money for improvement and maintenance. Waste was being dumped in the *grachten* and water was no longer drinkable (Kotze 2010, p. 29). Until the beginning of the 20th century, all *grachten* within the city had been covered. To supply the city with water from then on, reservoirs were built to store water. Moreover, the colony invested in filtration systems. Since the area was defined by ever-changing weather conditions, the reservoirs were susceptible to droughts and floods as a result. These shifts caused leaks to the reservoirs that caused flooding which then once again led to the inability to collect water for the next drought (Kotze 2011, p. 26). To store water for the growing population, the city started building dams further away from the city. The oldest dam that is still in use is the small Molteno dam. It was established in 1877 and opened for use in 1881 (Water Research Commission 2015, p. 18). To this day, Cape Town's main water supply relies on the catchment of rainwater in dams.

As the colony was growing and a labour force was needed, the VOC imported slaves from West and East Africa as well as from Madagascar and Dutch East Indies, today's Indonesia. The local population of the Khoi and San people was repressed, sequestered and forced to work as peons on the farms of the Dutch settlers, even though they were not formally enslaved (Wilkinson 2000, p. 195). While the local population was pushed back into the hinterland, the white settlers also expanded their own frontier. Cape Town grew only gradually into an administrative and marketing centre for the growing agricultural hinterland. In 1795 when the British arrived at

the Cape and the VOC lost its control, the town only counted 1200 houses (Western and Coles 1997, p. 32). In 1806 when the colony was taken over by the British Crown for good the colony consisted of more slaves than white settlers (Western and Coles 1997, p. 32). At that point the colony had grown to about 26,000 inhabitants, whereas 15,000 lived in Cape Town (Marx 2012, p. 54).

Under British rule, slave trade was abolished in 1807, but not the institution of slavery itself. Only in 1834 was the institution of slavery eradicated entirely. In need of work, many slaves stayed close to the farms where they continued to labour. The way of living together was described as relatively peaceful and non-segregated since white supremacy was not feared among the non-white population and certain kinds of liberties were granted (Western and Coles 1997, p. 33).

In 1840, the municipality of the City of Cape Town was established by the colonial government. British rule largely improved the overall economic situation of the colony through abolishment of the monopolies of the former VOC rule. Furthermore, the British went about eradicating torture as well as brutal forms of the death penalty (Marx 2012, p. 55). During the period of British rule, so-called Cape-Liberalism developed. Freedom of religion was implemented at the Cape under British rule which facilitated the dissemination of Muslim communities in the area. To this day, Cape Town is home to a number of Muslim communities. The British government also catered to the legal equality of the white and non-white populations. In practice, this equality was overturned by other regulations since the colony was dependent on agriculture and a cheap work force (Marx 2012, p. 102).

The privately funded development of a railway network connected the Table Bay with the southern suburbs and was later extended to reach the areas of Kimberley and Witwatersrand where diamonds (1867) and gold (1886) were found (Wilkinson 2000, p. 196; Western and Coles 1997, p. 33). This development impacted the economic growth of the area and introduced the capitalist industrialisation. The population more than doubled from 33,239 in 1875 to 77,668 in 1904 and doubled again in only seven years to 168,257 in 1911 (Western and Coles 1997, p. 33).

By the beginning of the 20th century, racial segregation was progressing. Under the pretence of promoting good hygiene and health, the native population was segregated for the first time (Wilkinson 2000, p. 196; Marx 2012, p. 219). Yet, compared to several other South African cities, many of Cape Town's residential areas nevertheless remained mixed in 1936 (37%)

(Western and Coles 1997, p. 35). The first model township in Cape Town, Langa, was developed in 1927 on the basis of the Natives Urban Areas Act of 1923 (Wilkinson 2000, p. 196; Marx 2012, p. 122). The Act proclaimed the city to be a place for whites only. Black people were only granted permanent permission to work within the city. The *Natives Urban Areas Act* also served as the basis for many upcoming Apartheid laws (Marx 2012, p. 122). Another great step towards Apartheid was the formal disenfranchisement of black people in 1936.

Moreover, the increasing arrival of black immigrants at the Cape, especially during the period of the Depression of the 1930s, was perceived as dangerous and referred to as *swart gevaar* or ‘black danger’ (Western and Coles 1997, p. 44). This fear was increasingly a political debate and led to the election of the National Party (NP), which, for its part, – attended to the “native question” and introduced *total Apartheid* (Wilkinson 2000, p. 197).

4.2. The Making of Apartheid Infrastructure

Apartheid gave South Africa exactly what the Apartheid government wanted it to give. So, it might be designed with malice, it might be badly designed, it might be all sorts of things, but it was an excellent piece of social engineering, Apartheid. You’ve got to give them respect for that; they were good at it. It might have been evil, but it was, from a purely design perspective, it was well-made. So, to undo that – that’s what we’re doing – so we’ve got to, that thinking that led to that and the needs that it met and the outputs that it was intended to put out, that’s this.

(Heather Parker, Int. from my Bachelor Thesis)

This quote from a research project for my Bachelor’s thesis in 2014 by Heather Parker, former principal professional officer of World Design Capital 2014 at the CoCT, shows that Apartheid managed to achieve segregation of lived experiences of different populations. Parker describes the infrastructure of Apartheid as a piece of social engineering and public manipulation enacted by a series of laws.

The period of the Apartheid in South Africa started with the electoral victory of the NP in 1948. In 1950 the government introduced two major legal changes: the *Population Registration Act*, which systematically classified the South African population by newly constructed races which were based on skin colour, and the *Group Areas Act* which segregated the population spatially into different group areas based on these racial definitions. The categories that the system built

were *whites* or often referred to as *Europeans*, *Natives* and later *Bantus* and lastly *Coloureds*⁹. In Cape Town, the Group Areas Act led to the deportation and forced removal of non-white communities at the end of the 1960s. For the estimated 150,000 people new townships were built on the Cape Flats, a sandy and arid area outside the city centre (Wilkinson 2000, p. 197). The forced removals of people out of the District Six in Cape Town is only the most prominent example of its kind. The deportations and associated expropriations shaped the cityscape as well as Cape Town's citizens in an enduring way and brought the Apartheid government one step closer to the ideal picture of the Apartheid city.

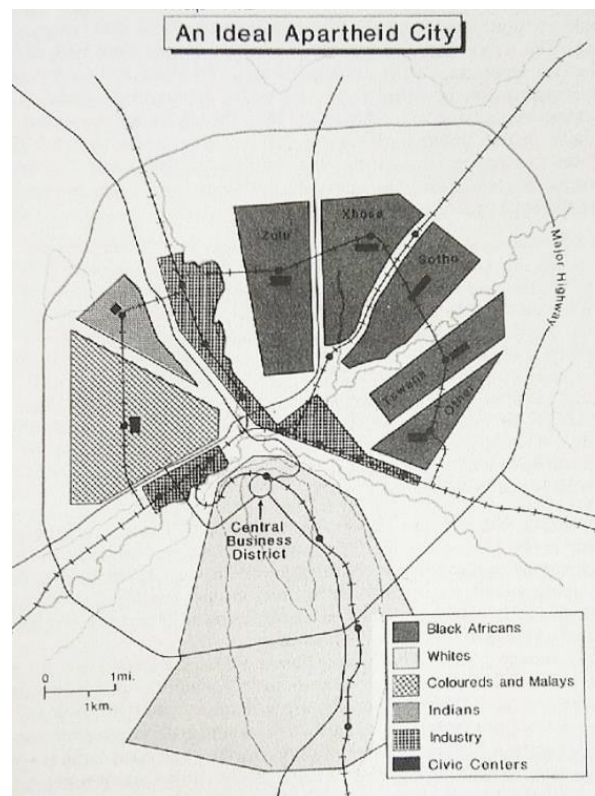


Figure 2: An Ideal Apartheid City

Source: (Western and Coles 1997, p. 91)

As a result of the growing population especially due to immigration, the Apartheid government in Cape Town constructed two townships for *Natives*, Gugulethu and Nyanga. But soon the city government could not keep up with the township planning and many immigrants built squatter camps around the city's periphery. The population had increased tremendously, and Cape Town

⁹ "Under this system, the category 'Coloureds' referred to an ethnically and culturally heterogeneous group of people descended from the indigenous Khoi and San people, the slave population, and the progeny of sexual contacts between these groups – and Bantu-speaking people – with European settlers; 'Bantu' (or 'Africans') referred to descendants of the groups of Bantu-speaking, iron-working cultivators who had begun to settle the northern and eastern parts of Southern Africa between 300 and 400 AD; 'Whites' referred to descendants of European settlers or more recent immigrants of European stock. The categories, however, were often arbitrarily applied, sometimes with tragic consequences for individual families or households." (Wilkinson 2000, p. 197)

had an entire population of 1.9 million people by 1980. The majority of the Capetonians were coloured (995,600), only a little more than quarter of the population was white (573,000) and 315,000 were Africans (Wilkinson 2000, p. 197). The living conditions in the townships and squatter camps were unbearable due to overpopulation and inadequate provision of services. Initiated in Johannesburg, Soweto, the township revolt and associated social movements spread over the entire country. What's more the then-prohibited African National Congress (ANC) regained strength during this period and supported these mobilisations (Marx 2012, p. 264).

In the 1980s, many more organised movements established especially in the context of grievances in terms of service delivery and the Apartheid infrastructure. Civil engineering and spatial planning were mirrored in that infrastructure and its technologies and policies insured social and physical separation. Usually infrastructure is designated to facilitate social and physical mobility and upwards movement. The Apartheid system instead threatened and policed movement. Administrative power was exerted most despicably at the local level. The government provided "cheap mass-produced housing, public utilities, and mass transport to the African working class" (Von Schnitzler 2018, p. 139) to ensure that the opposition could not encourage the majority of society to mobilise against the Apartheid system. On a day-to-day basis, Apartheid infrastructure (re)produced lived experiences and memories of state power (Von Schnitzler 2018, p. 139).

The first rent boycotts developed as a reaction to the prohibition against mobilisation in 1984 and local communities gathered under the slogan 'asnamali' ('we don't have money'). The boycotts became more formally organised and the slogan developed into 'asnamali asibadalf' ('... we don't pay rent'). The goal of the movement which had spread over many South African cities was to make the townships ungovernable. The boycotts allowed the people of the townships to pronounce their dissatisfaction about their living conditions and furthermore functioned as "tactical and strategic weapons [...] in the face of repression of alternative forms of organised political protest" (Chaskalson et al. 1987, p. 52).

Furthermore, states von Schnitzler (2018, p. 140): "[g]iven these multiple ways in which infrastructure symbolized, produced, and secured apartheid, and given the absence of a legitimate formal political sphere, it is unsurprising that the antiapartheid struggle often unfolded on similarly infrastructural terrain". Social movements, rent boycotts and small acts of resistance influenced the political process in the 1980s. Moreover, the Apartheid government

also lost the support of larger parts of the white population and was face increasing pressure by the international community.

At the end of the 1980s, the Apartheid government approached the imprisoned Nelson Mandela, who possessed an important role within the ANC. In 1990, the party was unbanned, and Mandela was released from prison. These events signalled the beginning of a new era – the transition to a democratic and free society. The first democratic elections were held in April 1994 and the ANC was elected with an outright majority. Mandela was officially voted to be the first black president as well as the first democratically-elected, legitimate president of the country (Marx 2012, p. 290). Nevertheless, in the Western Cape, the NP achieved 55% of the seats and thus won the elections in the province.

4.3. The Period of Transformation and the Neoliberal Turn

In 1996, South Africa's first constitution was adopted, which is often described as one of the most progressive constitutions in the world (Hicks 2008, p. 1). It guarantees substantial equal citizenship rights. On a local basis, it was meant to jettison the old racially-based authority system and form one unicity (Lemanski 2017, p. 20). The involvement of communities and community organisation was largely promoted as an objective of the local government (Republic of South Africa 1996, ss 152 (e)). Criticism nevertheless held: “[h]owever, in practice, a neoliberal market-led approach to public authority has dominated, and the participatory IDP is frequently criticised for adopting a managerial and technocratic governance style that is state- rather than citizen-driven” (Lemanski 2017, p. 20).

On the one hand, South Africa's policies and frameworks in the context of service delivery in general and water supply in particular, support a human rights approach towards water. On the other hand, they nevertheless largely support neo-liberal principals of cost-recovery. Large international organisations such as the World Bank and the International Monetary Fund actively promoted these approaches in the 1990s and imposed them as conditions for (financial) support (Marx 2012, p. 297). The transition from Apartheid to a democratic state was also an essential period for economic agenda setting. The development of an economic framework was shaped by different factors such as the influence of international financial institutions, a national polit-economic trial of strength and the global discourse of the neoliberal paradigm in general. Neoliberalism was believed to prevent inflation and indebtedness derived from excessive government spending. Socialist ideas would only lead to economic ruin that would have to be

smoothed over by liberal neoclassical principals. Rugged individualism would generally benefit all economies and societies (Narsiah and Ahmed 2012, p. 680).

The shift to a free South Africa has often been evaluated and discussed as remarkable. However, the shift was hardly solely a transition to a fairly elected democracy, but much more, a trail of strength in the context of a *raison d'être* of an economic framework (Marx 2012, p. 293). During the Apartheid struggle, the ANC was known for its social-democratic and socialist standpoints which it discarded during the transition (Williams and Taylor 2000, p. 21).

When Nelson Mandela was freed from Robben Island and negotiations were initiated, a political-economic trail of strength began (Marx 2012, p. 286). In this process, not only the transition of the South African state but also the change of the ANC's political and economic standpoints itself were discussed. The international discourse of neoliberalism played a major role during the period of transformation. Under the influence of the aforementioned factors, the ANC developed a more conservative and neoliberal position which was then often criticised (Marx 2012, 297, 300).

Neoliberalism was actively promoted during several historical settings which led to the representation of neoliberalism as the norm to which other political-economic ideologies were to be judged and evaluated. At the centre of the neoliberal paradigm is the principle of the free market. If the state does not interfere, the market would ultimately reach a status quo of balance. However, various scholars such as Williams and Taylor (2000, p. 22) argue that neoliberalism leads to a “‘culture of contentment’ in which those at the top of the social ladder ignore those at the bottom and spend their leisure-time justifying the growing inequalities and demonising the poor as ignorant, lazy and criminally motivated”. Market logic under neoliberalism does not translate into overall social well-being but supports an environment where mobile capital can be accumulated. Neoliberalism is based on a number of assumptions which have their roots in the liberal political economy developed by Adam Smith. The principals of the free market and trade are corner stones of the ideology. Furthermore, it is believed that if everyone is pursuing one's own advantages everyone would benefit absolutely. To guarantee these principles, the state has only limited functions such as providing security and ensuring law and order (Williams and Taylor 2000, p. 23).

During the transition period in South Africa, neoliberalism became increasingly influential until it was implemented fully by policies of the ANC in 1996. Certain events and occurrences were significant in the context of that transition and will be explained hereafter.

After the unbanning of the ANC in 1990, the party had no clear political or economic policies since the Apartheid-struggle obviously demanded all their attention. The Freedom Charter of 1955 served as common ground for the diverse members of the party that they felt emotionally attached to. One of the guiding principles of the Freedom Charter was redistribution, amongst some other vague ideas of state dirigisme and socialist reforms of the economy via nationalisation of the mines, banks and monopoly industries (Williams and Taylor 2000, p. 24). Identifying a clear way forward, especially on economic concerns had a high priority during the transition.

These vague ideas of the Freedom Charter were translated into frameworks such as the *1990 Discussion Document on Economic Policy* and the resulting *1992 draft policy guidelines*. Both remained vague in tone but committed to a restructuring of society and granted the state a vital role within the economy accordingly. *Growth through redistribution* was the central message of the documents and supposed to boost the economy. This new goal setting of the ANC was immediately criticised and even scoffed at by pro-business stakeholder groups who warned of the foolishness of the distribution of wealth. In various pro-business media formats the ANC was alleged to be inexperienced, confused and in need of guidance and education (Williams and Taylor 2000, p. 25).

Facing the difficult task of establishing a government that is concerned with the well-being of all South Africans, Mandela was willing to do an impressive split, developing a *good* relationship to the former delegates of the Apartheid government on the one hand, and achieving a system change in South Africa on the other (Marx 2012, p. 292). During the first years of his government, Mandela focused primarily on reconciliation and left the day-to-day businesses to his deputy, Thabo Mbeki (Marx 2012, p. 292). Many bureaucratic employees of the former Apartheid regime kept their positions in the new government after 1994. Thus the same economic advice was imparted to the new leadership (Williams and Taylor 2000, p. 27). Likewise, the International Financial Institutions such as the International Monetary Fund and the World Bank influenced the decision-making of the ANC and pushed for neoliberal principals in order to keep up their support (Marx 2012, p. 297).

More than half a year after the elections, a white paper on the *Reconstruction and Development Programme* (RDP) appeared and vaguely stated how the government would translate proposals into policies. Previous white papers had emerged before but were heavily criticised by COSATU, the Congress of South African Trade Unions. The South African labour movement

made the adaption of the RDP a condition for its entry into the Tripartite Alliance¹⁰. As Williams and Taylor (2000, p. 31) explain: "[a]cceptance of the programme was made easier by its vagueness and lack of concrete proposals. The result was a compromised document from a compromised administration, desperate to reconcile the multiple voices in South Africa's domestic polity with the mantras of globally- orientated capital."

Supporting nationalism in the Base Document and pushing for privatisation and fiscal discipline in the White Paper, the RDP was a concession. Furthermore, the role of the state was also reduced within the final document (Williams and Taylor 2000, p. 31).

The vagueness and compromising revealed were largely criticized because of paradoxical goal-setting and the unworkability of the RDP. The newly elected government was accused both from the right and the left of not selecting a clear and ambiguous pathway in the context of macroeconomic decision-making (Williams and Taylor 2000, p. 32).

Due to the failure of the RDP, the South African economy was in a flux and provided the basis for a more radical neoliberal agenda. Thabo Mbeki announced a new economic strategy in February 1996: *The Growth, Employment and Redistribution Programme* (GEAR) (Marx 2012, p. 298). The goal-setting of GEAR was marked by employer-friendly economic policies and supported profit maximisation on the part of companies and corporations (Marx 2012, p. 298). The strategy was developed by a small group of *experts* and to the exclusion of senior ANC leaders. Furthermore, the Minister of Finance declared the strategy as non-negotiable. With the objectives of a conservative fiscal policy, trade liberalisation and a shift from consumption to investment spending, the GEAR represented the final move towards neoliberalism.

Redistribution was no longer at the centre of the economic policy but a by-product of growth. To summarise, the shift towards neoliberalism in South Africa was shaped by three factors: the influence of the International Financial Institutions, the legacy of Apartheid structures, and the dispute with the Tripartite Alliance. Not having developed a clear economic programme after Apartheid was the ANC's *weakness*. The key priority during the Apartheid was the fight against racial segregation. Moreover, the international discourse about neoliberalism made the paradigm appear to be "the only sensible and socially neutral policy option" (Williams and Taylor 2000, p. 36).

¹⁰ Alliance between the ANC, COSATU and the South African Communist Party (SACP)

The implementation of neoliberal principals also influenced discussions on how to deal with public service delivery. Redistribution was no longer seen as the key goal for economic restructuring. The highest priority was granted to cost recovery and privatisation within the water sector. One of the core activities in terms of privatisation within service delivery was the official allowance of private sector involvement in water provision granted by the Water Service Act no. 108 of 1997 (Republic of South Africa 1997; 19, (2)).

At the local level post-Apartheid cities struggled to keep up with the need of their citizens, such as housing, unemployment, illiteracy and poor social services.

In urban South Africa there are various problems detracting from progressive spatial and non-spatial change, including, amongst others: a steady population growth, unemployment, lack of housing, poor health services, limited access to land, inefficient utilization of land, fragmented urban structure, inadequate transportation network, the absence of a coordinated environmental policy, inadequate educational and training services and a largely ineffective local government.

(Williams 2000, p. 172)

Even though 79% of households had access to piped water within their dwelling in Cape Town in 1996¹¹, a massive discrepancy between former white, coloured and black areas was visible. In former townships, such as Khayelitsha, parts of Nyanga and Gugulethu only up to 30% had piped water in their homes. In Langa, the oldest township of Cape Town about a half of the households were connected to the municipal water system. Former coloured areas were mostly better off in 1996 (Stats SA 1996) .

Moreover, post-Apartheid cities had to fight with an increase in crime associated with a rise in fear of crime. In order to mitigate that fear, communities built enclaves which led to the exclusion of particular social groups and thus to an increase in social polarisation (Lemanski 2004, p. 101). Lemanski (2004, p. 110) calls this a new form of Apartheid characterised by three similarities: the use of anxiety to justify exclusion, the practise of spatial mechanisms for relocating social problems, and lastly, the dominance of social and symbolic exclusionism. Despite many aspirations by the CoCT to antagonise these developments, Cape Town is still segregated by old Apartheid racial patterns.

¹¹ Calculated from the Census of 1996

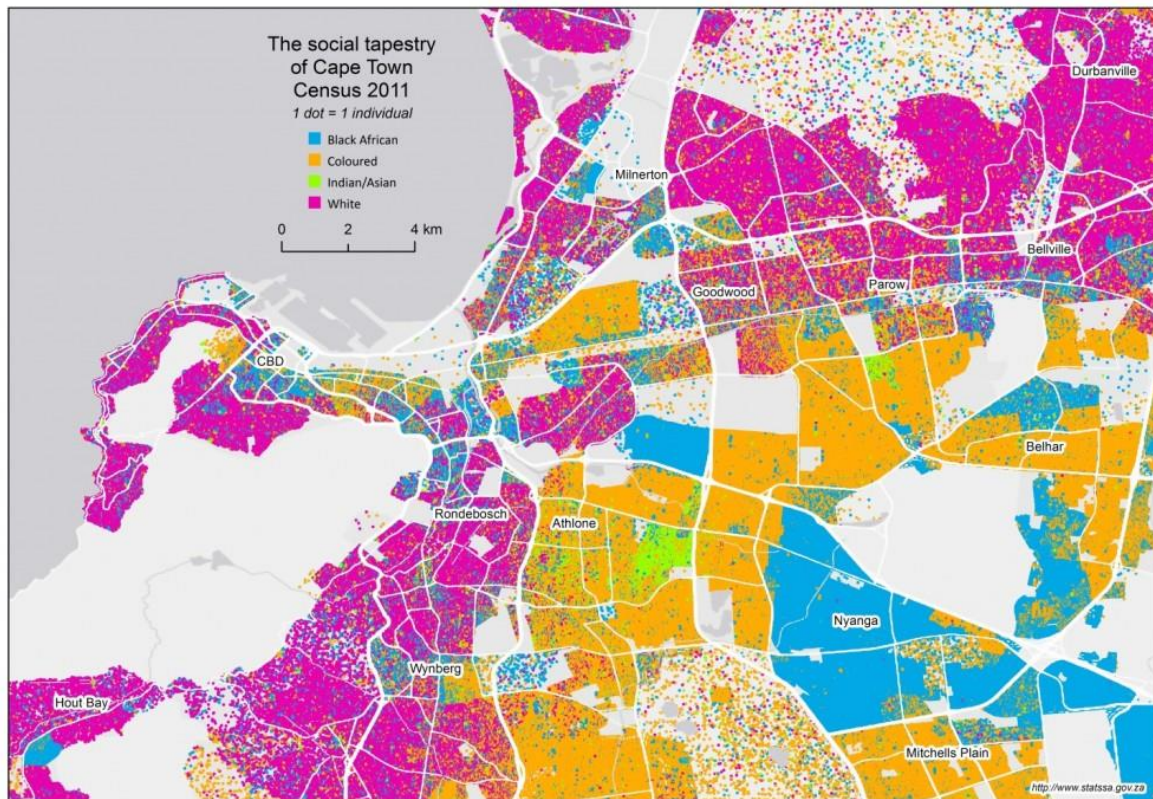


Figure 3: Cape Town - patterns of racial neighbourhood integration and segregation

Source: <http://www.statssa.gov.za/?p=7678>

4.4. Cape Town Today

Even today, Cape Town is constantly growing. The latest census of Cape Town (2011) counted an overall population of 3,740,025 (City of Cape Town 2012, p. 1). Estimations for 2019 assume that Cape Town grew to an overall population of 4,094,582 (Western Cape Government 2017, p. 2), stretching over an area of 2440 km² (Western Cape Government 2013, p. 3). The city therefore shows one of the largest growth rates within the country between 1996 and 2011 (South African Cities Network 2016, p. 32). Not only is the city growing due to natural urban population growth, but also due to migration. Cape Town shows one of the highest migration flows in comparison to other South African cities (South African Cities Network 2016, p. 134). National and cross-border migration to urban areas is motivated by aspirations for better opportunities in terms of employment and living standards, such as access to basic services (electricity, water and sanitation, refuse removal) (South African Cities Network 2016, p. 135). After 1994, urban migration patterns changed and apart from the job-seeking migrants, there

were also “professionals, students and women who engage the city differently” (South African Cities Network 2016, p. 135).

Migration to Cape Town is on the one hand perceived as a revitalisation of the Cape-Liberalism and the new identification of the rainbow nation and on the other hand, as a threat, and xenophobic attacks have often been the reaction to cross-border migration and fear of migrants taking away jobs from locals. Nevertheless, the majority of South African cities¹² do not seem to address cross-border migration through policies and frameworks (South African Cities Network 2016, p. 135). Drawing on McDonald (2008, p. 290), South Africa is referred to by some comparative international studies as the most xenophobic country in the world. Moreover, he describes racism as remarkably strong in Cape Town and provides a definition of (white) racism in reference to Pulido: “practices and ideologies, carried out by structures, institutions and individuals, that reproduce racial inequality and systematically undermine the well-being of racially subordinated population” (Pulido in McDonald 2008, p. 286). He elaborates that this definition of racism allows an understanding beyond the individual, psychologically constructed phenomenon. Racism is, furthermore, a larger societal process shaped and accelerated by the material and social needs of those who maintain the most advantages from its perpetuation (McDonald 2008, p. 286).

Socially and spatially, cities in South Africa still have to fight the legacy of Apartheid. Racial segregation can be observed within the city scape and especially within various infrastructure systems such as the distribution of water as well as electricity supply. Looking at Cape Town, the city exhibits characteristics both of the so-called first and third worlds. Although the concept of the dual city has often been criticised for its simplicity, Lemanski states that many South African cities struggle to overcome such social and spatial divisions (Lemanski 2007, p. 451). Even though the CoCT managed to connect 90% of all households to urban infrastructure by 2010 (Swilling 2014, p. 3185), many households in former black areas still do not have piped water running to their homes (52.6% in 2011) and/ or their own sanitation facilities (not stated in Census 2011) (City of Cape Town 2012, p. 4). Nevertheless, Cape Town has one of the highest proportions (in South Africa) of households with piped water inside the residential structure (South African Cities Network 2016, p. 181).

25 years after Apartheid, service provision still represents a challenge for many South African municipalities. Due to this dissatisfaction with service delivery, many citizens take part in

¹² Except Johannesburg that addresses the problem more eagerly

protest actions to give their grievances a voice. Cape Town (next to Johannesburg) is one of the most protest-prone municipalities within South Africa. More than half of the protests can be linked to “municipal services or municipal (mal)administration, indicating high levels of dissatisfaction in urban spaces” (South African Cities Network 2016, p. 153).

These cities represent the best resourced, globalising and therefore desirable cities to move to and live in. However, the service protests imply that cities are not adequately satisfying their citizens’ rights to access urban resources and services. (In some cases, protests may have been politically motivated.)

(South African Cities Network 2016, p. 152)

Even though Cape Town aligned with the national policies to create an inclusive environment for all citizens and therein support processes of public participation, in practice, many Capetonians complain about their exclusion from local decision-making. Especially in the context of service delivery, citizens bemoan the failure of the local government to address them adequately. Residents from lower income areas and townships often lack the information about who to consult in terms of service delivery problems. Nevertheless, responsible local councils lack the capacity to get involved and are overtasked with citizens’ concerns. Councillors are directly elected by the residents in order to represent their interests.

In order to get involved in the decision-making, citizens need to be informed and have access to the means of holding their representatives accountable. The legal framework in South Africa guarantees many of these amenities but still large parts of the society are excluded from processes of public participation. Often the consideration of the public voice is viewed as a must-do from the governmental side and yet, true engagement nevertheless fails to take place. McDonald demands:

A more progressive form of engagement would involve citizens in discussions over a longer period of time and in much larger numbers, giving people an opportunity to learn about the technical and budgetary issues at hand and providing the time and space for more radical ideas to percolate through the consultations.

(McDonald 2008, p. 302)

As we will see later, social mobilisation and public participation processes also played a major role during the water crisis and service delivery in general. Different civic organisations established grass-root organisations to protest against the water crisis management and depending on their orientation and individual interest and grievances, focused on different focus areas in particular. Further elaborations will be continued in Chapter 6.

5. Water Governance and Hydropolitics

The term hydropolitics describes the policies and politics around the availability, allocation and management of water and is concerned with the question of “who gets what, when, where and how” (Turton and Henwood 2002, p. 16). In order to provide people with water, a system of infrastructure, is needed. This chapter will give an introduction to South Africa’s water supply and demand management and connected legislative frameworks (Chapter 5.1.). Water management always implies a certain understanding of water as a social or economic good. These standpoints are often discussed in terms of a broad neoliberal shift promoted by international organisations such as the World Bank or the International Monetary Fund. In Chapter 5.2., I will introduce both the economic and social standpoint and how these concepts influence water management in turn. Since the end of 2015, Cape Town has been experiencing a dearth in rainfall. The developments up to a drought and the resulting water crisis in 2017/18 and the announcement of Day Zero at the beginning of the year 2018 will be explored in Chapter 5.3. The CoCT introduced strategies and interventions for managing the demand and supply side of water and for eventually overcoming the crisis. These policies will be explained and critically discussed in Chapter 5.4.

5.1. Water Management and Political Frameworks

Since the beginning of the 1990, South Africa has been undergoing massive transformations which also had implications on public service delivery. After the first free elections, the country had to work out how to overcome the massive inequalities which the Apartheid regime had placed upon society. The introduction of the *White Paper on Water and Sanitation of 1994* points to the immense polarisation between rich and poor:

In a country with nuclear power, cellular telephones and vast inter-catchment water transfer schemes, more than 12 million people do not have access to an adequate supply of potable water; nearly 21 million lack basic sanitation.

(Department of Water Affairs and Forestry November 1994, p. 1)

It was the first official document that picked up on the nuisances in the water service supply after the abolishment of Apartheid. The newly established Department of Water Affairs and Forestry was responsible for water and sanitation. During Apartheid, there was no national department responsible for water supply and adequate sanitation. Local governments in the

former four provinces and the ten nominally autonomous homelands were in charge of service delivery. Consequently, there were no clear and consistent frameworks or policies (Muller and Lane 2002, p. 2).

The new government recognised these nuisances and assigned the task of ensuring access to water to the Department of Water Affairs and Forestry. In November 1994, the White Paper on Water and Sanitation was drafted in consultation with a range of interested parties that recognised the unacceptable situation that South Africa was in:

Public action is needed to remedy this unacceptable situation, but it must be action based on a clear policy which is premised on the rights of all people to determine their own future. The goal of Government is thus to ensure that all South Africans have access to essential basic water supply and sanitation services at a cost which is affordable both to the household and to the country as a whole.

(Department of Water Affairs and Forestry November 1994, p. 1)

Hence, the newly developed corner stones of the policy in terms of water supply were the following:

Table 1: Cornerstones of Water Policy (1994)

Source: Department of Water Affairs and Forestry November 1994, p. 15

Quantity	- 25 litres per person per day - Minimum required for direct consumption, - Not considered to be adequate for a full, healthy and productive life
Cartage	- maximum distance 200 m (from dwelling)
Availability	- flow rate: 10 litres a minute - available on a regular, daily basis
Assurance of supply	- availability of "raw" water for 98% (no fail due to drought more than one year in fifty) - Operation and maintenance of the system must be effective (no more than one week of interruption in supply per year)
Quality	- In accordance with currently accepted minimum standards with respect to health-related chemical and microbial contaminants
Upgradability	- The desire of many communities to upgrade a basic service to provide for household connections should be taken into account during planning

Even though the White Paper had a clear vision about water as a basic human right, it also points out the economic value of water and the need to ensure cost recovery in order to maintain the system of infrastructure. The paper therefore clarified the *misconception* that the access to water is in fact a basic human right, but that does not imply that it is free of charge. Non-

payment has led to serious financial problems that, moreover would lead to interruption of services (Department of Water Affairs and Forestry November 1994, p. 23). The paper emphasises the importance of awareness creation and conscious usage of water to minimise stress on the resources and introduces a culture of conservation.

Although South Africa is still fighting for social transformations, it was the first country in the world to integrate the basic right for water in their constitution (Bourblanc 2012, p. 640). The *Constitution of the Republic of South Africa* states that everyone has the right to have access to sufficient water (Republic of South Africa 1996, s 27 (1)(b)). Looking at a large part of the population living in informal settlements, this right has so far not been successfully implemented in its entirety.

In Cape Town, the CoCT endeavours to provide access to water and sanitation to all residents of Cape Town with differences in the means of supply. *Formal* properties are connected to the municipal water infrastructure system, whereas *informal* settlements mostly receive their water through standpipes in communal areas.

Following the ideas and concepts of the 1994 White Paper, the *Water Service Act of 1997* formed the legal basis for the right of access to water. Furthermore, it provided a governmental structure and regulatory framework for allocating tasks and responsibilities to the different institutions and authorities. This distribution of responsibilities to all spheres of government should ensure water supply and sanitation services in an efficient, equitable and sustainable manner (Republic of South Africa 1997, Preamble). Cooperation between the spheres underlies the principals of co-operative government captured in the Constitution of South Africa (Republic of South Africa 1996, ss 40-41) and to this day, the distribution of tasks to the three spheres of national, provincial and local government remains in place.

At the national level, the Department of Water and Sanitation (formerly the Department of Water Affairs and Forestry) is responsible for developing the legal framework upon which the water institutions can rely and act. The Minister of the Department of Water and Sanitation is the executive political office bearer of the department and is responsible for monitoring and intervening in any case of ineffectively performed functions and responsibilities (Republic of South Africa 1997, ss 62-63). He/ She is also responsible for prescribing norms and standards with respect to tariffs for water services. Among other factors, cost-recovery needs to be taken into account when recommending the norms and standards for tariffing (Republic of South Africa 1997, s 10 (3)(d)).

Water Service Authorities (WSA) bear the responsibility for water distribution and sanitation. They can provide water to the municipality by themselves or form a joint venture with another service institution, such as municipally owned enterprises or private owned companies (Republic of South Africa 1997, ss 19-20). The service provider as well as the WSAs need to act in line with the constitution, the Water Service Act (no. 108 of 1997) and by-laws implemented by the national Department of Water and Sanitation.

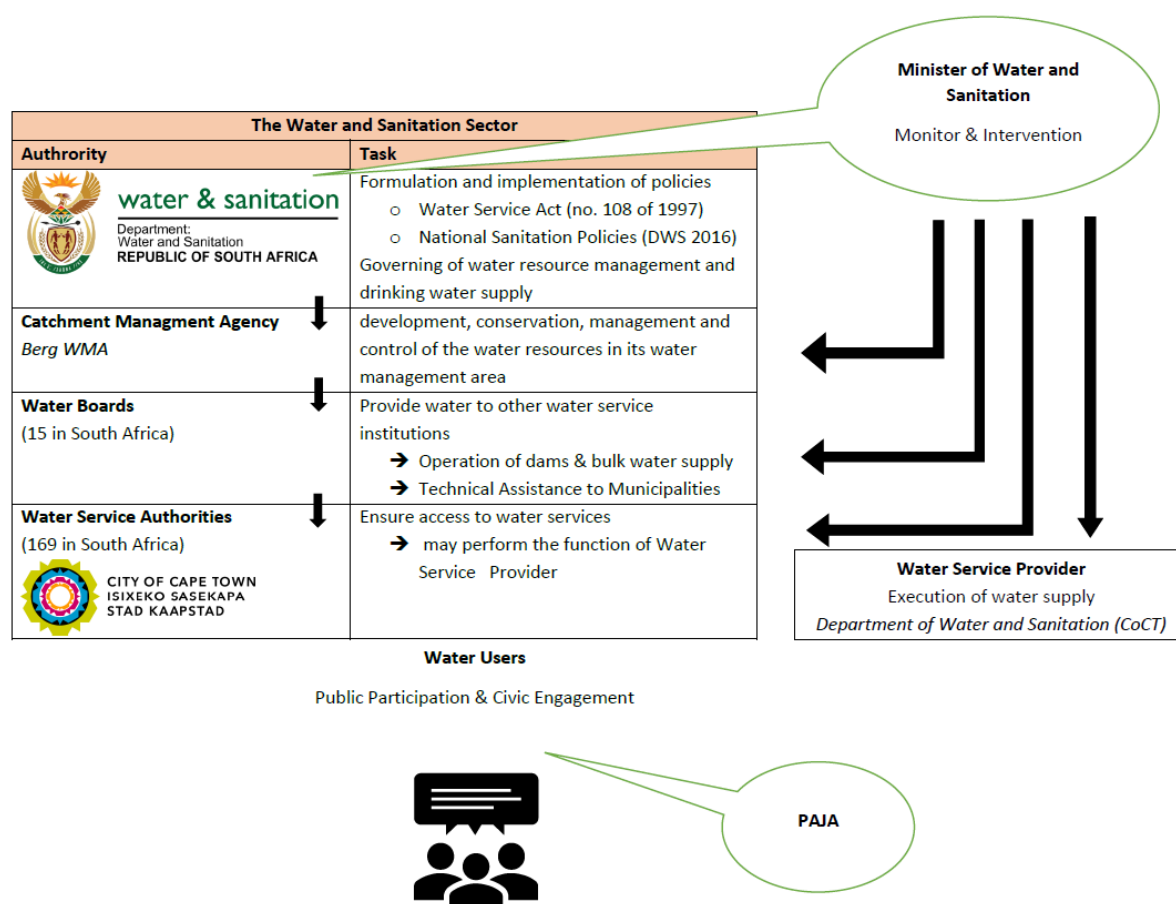


Figure 4: The Water and Sanitation Sector

Source: Own figure based on the Water Service Act no. 108 of 1997 and National Water Act no. 36 of 1998

Although it is the WSA's duty to ensure water services to the community, this duty is subjected to the duty of consumers to pay reasonable charges (Republic of South Africa 1997, s 11 (2)(d)). These charges must be in accordance with any prescribed norms and standards for tariffs for water services. Should the consumer be unable or unwilling to pay, the WSA has the right to limit or discontinue the provision of water services (Republic of South Africa 1997, s 11 (2)(g)). Another institution for water service provision plays a key role within South Africa's water sector, so-called Water Boards. Water Boards are established by the Minister of Water and Sanitation and are government-owned. They largely contribute to water resource management

by operating the dams and bulk water supply infrastructure. Furthermore, they provide water services (and other services) to other water institutions and provide technical assistance to municipalities and report to the Department of Water and Sanitation (Republic of South Africa 1997, s 28).

Another important legal document within the transformation of South Africa is the *National Water Act, No. 36 of 1998*. Other than the Water Act no. 108 of 1997, this act focuses mainly on water as a scarce and unevenly distributed national resource. Water is a natural resource that everyone should be able to have access to and that is furthermore entirely administered by the national government (Republic of South Africa 1998, Preamble). The National Water Act acknowledges the responsibility and authority the national government holds on the national water resources. In that sense, the national government is responsible for guaranteeing the equitable allocation of water for all citizens. On the one hand, management and consumption of water resources needs to be efficient, sustainable and beneficial for the entire society, and on the other hand, the RSA is interested in overall measures of protection and conservation (Republic of South Africa 1998, s (2), (a)-(k)). To achieve these goals the National Water Act provides strategies that are in line with the objectives.

The Municipal System Act (no. 32 of 2000) reverses the notions of the National Water Act and transferred some of the accountability for water supply over to the local government. In order to do so, the Municipal System Act provided clear parameters by which the municipalities could be monitored and evaluated (Muller and Uys 2004, p. 8). The paper also draws on the factors of affordability of basic services for poor households. Poor households must be guaranteed access to at least basic services through a tariff system reasonably priced for previously neglected groups (Republic of South Africa 2000a, s 74 (2)(c)). Nevertheless, the tariff system needs to reflect the capital costs as well as operating, maintenance, administration and replacement costs, as well as interest charges (Republic of South Africa 2000a, s 74 (2)(d)).

Reflecting on the legal frameworks presented here, we can observe a shift in responsibilities from national government to local authorities. Muller and Uys (2004, p. 8) point out that this changing role also underpins the principle of co-operative government supported by the Constitution of South Africa. The national and provincial governments are responsible for formulating and developing policies and frameworks that the local governments can implement and adjust (Muller and Uys 2004, p. 8).

Based on the principle of a co-operative government, the RSA introduced the *Free Basic Water Policy* (FBW) in 2000 as a strategy for local governments to implement by their own means. To that extent, the national government developed a framework on how to provide an environment for municipalities to implement the FBW Policy.

The foundation of the FBW Policy is to provide (poor) households with 6000 litres of safe water per month free of charge (Department of Water Affairs and Forestry 2002, p. 7).

The intention is to remove pressure from poor households with free basic services as a significant poverty alleviation measure. To provide these services, however, poverty has to be defined as such. Indicators for identifying households that fall below this definition have to be defined, moreover, by the local governments. Due to cost differences across the country and other local circumstances, local indicators have been decided to be more appropriate than national indicators. Guidelines for this process are made available by the national government (Department of Water Affairs and Forestry 2002, p. 8).

The FBW Policy draws on the legal frameworks of the Municipal System Act, the Water Service Act (no. 8 of 1997) as well as on the South African Constitution. A tariff system developed by the local government but based on the principals defined by the Municipal System Act is to be chosen. The FBW Policy provided three options for targeting a polarised population:

Table 2: FBW-Policy (2000)

Source: Department of Water Affairs and Forestry November 1994, p. 15

A rising block tariff	- A free basic amount is provided to all users within the first block - Increasing consumption applies a higher tariff (per block) - A meter is required to measure the water flow
Targeted credits or subsidies	- Consumers selected for poverty relief get a credit to cover the basic needs (often 6 kl/ month)
Service level targeting	- Service levels with restricted flow are provided at no charge - Access to water is limited to the free basic amount - Works with the assumption that communities provided with a communal tap (200 meters from every dwelling) are unlikely to carry larger amounts of water than the free basic quantity

The policy as well as the methods of providing water to the community were widely criticised. The rising block tariffs – the most commonly used system – would only work in municipalities with a large number of high water users to cross-subsidies feasibly (Earle et al. 2005, p. 20).

Gowlland-Gualtieri (2007, p. 7) furthermore argues that 6000 litres per household per month often does not cover the basic water needs of households with more than eight members:

In a household of eight people, the six kilolitre per household per month amount translates as 25 litres per person per day. To illustrate concretely what this means, it allows the household 40 baths per month (i.e. five baths per person) or 16 toilet flushes a day (i.e. two visits to the toilet per person per day).

(Gowlland-Gualtieri 2007, p. 7)

The World Health Organisation (WHO) states that 20 litres per person per day with a collection radius of 1 km as sufficient for basic needs. Nevertheless, the level of health concern is rather high in that case (World Health Organisation 2017, p. 84). Although the FBW Policy is in line with the WHO guidelines, the amount of basic water does not cover the needs for subsistence farming or the water supply for special needs such as in case of illness. Considering the high rate of HIV/ AIDS in South Africa, 25 litres per person per day is absolutely insufficient (Earle et al. 2005, p. 17)

Likewise, the rising block tariff system puts another burden on the poor communities with average household sizes between six and ten people. After the free amount of basic water, the second block is charged at a higher tariff, meaning that poor families often end up paying even more than under the previous tariff system (Earle et al. 2005, p. 18).

Lastly, is it worth noting that the need is not only for a reliable infrastructure system to supply water but also to meter, monitor, detect and control leaks and as well as issue invoices and credits (Earle et al. 2005, p. 20). Most cities in South Africa are still lacking the funds and the capacity to maintain such a system and as a result, the FBW Policy is failing in stated matters.

The CoCT applied a combination of all three options to target its population. For all households connected to the municipal system, a block tariff applies. Residents who fall under the poverty relief category can apply for an indigent grant to receive the first 6kl per month free of charge for the financial year 2017/ 2018¹³ (based on the assumption a household has 4 members) (City of Cape Town 2017a, 44.1). Informal settlements in Cape Town are usually provided with standpipes. During the water crisis, the CoCT adjusted the block tariffs. Restriction levels between one and six applied rising tariffs to all blocks, one the one hand, to achieve water saving measures and on the other, to cover the costs for service delivery.

¹³ The tariff policy was effective from 1st July 2017 – 30th June 2018

Every five years at the beginning of the period of governance, every municipality is responsible for developing an *Integrated Development Plan* (IDP). The Municipal System Act 32 is the legal basis for the development of integrated planning on the local basis (Republic of South Africa 2000a, ss 23–37). The Plan is an overall strategic framework for delivering on the city’s objectives with regard to citizen’s well-being, environmental protection and economic growth (City of Cape Town 2017c). In terms of service delivery, the IDP needs to identify “communities which do not have access to basic municipal services” (Republic of South Africa 2000a, s 26 (b)). Furthermore, the IDP represents a very important instrument of public participation at the local level. The IDP allows for “the local community [is] to be consulted on its development needs and priorities” and “[...] to participate in the drafting of the integrated development plan” (Republic of South Africa 2000a, s 29 (b)(i)(ii)).

5.2. Water – economic or social good?

Water has not been spared by neoliberal pursuits and their considerations on how to efficiently allocate it. Since the Dublin-based international Conference on Water and Environment in 1992, a broad understanding has emerged that “water has an economic value in all its competing uses and should be recognized as an economic good” (International Conference on Water and the Environment 1992, p. 4). This statement is one of four principles developed at the conference. The principles should “enable countries to tackle their water resource problems on a wide range of fronts” (International Conference on Water and the Environment 1992, p. 5). The argumentation of the need for the recognition of water as an economic good follows the idea that in the past, water was used in a wasteful and environmentally damaging manner. The economic value of water is supposed to incentivise an efficient and equitable use of the resource and furthermore encourage conservation and protection (International Conference on Water and the Environment 1992, p. 4). In the following paragraph, I critically discuss the advantages and disadvantages of water being treated as an economic good in a Cape Town context.

Savenije and van der Zaag (2002, p. 98) argue that the concept of water as an economic good and its implications on pricing is largely misunderstood. There are two approaches towards the understanding of water as an economic good. The first approach argues that water should be priced based on its economic value and that the market should regulate its allocation and pricing. Thus, water is like any other economic good. The second approach conceives of water as an economic good in the sense of integrated decision-making on the allocation of scarce

resources. This understanding does not inevitably comprise financial transactions (Savenije and van der Zaag 2002, p. 98). There are many aspects that distinguish water from *other* economic goods and thus the treatment as such:

- Water cannot be replaced with another resource and therefore there is no choice to be made between substitutes.
- Water uses holds high societal relevance but are often coupled with a limited ability to pay. Decisions are not made solely dependent based on financial reasonings, but incorporate social, cultural and environmental interests.
- The future value of water cannot be expressed in monetary terms. Economic thinking does not consider societal or personal values of things.
- The aspect of participation to include the interest of all stakeholders precludes economic pricing (or makes it extremely difficult).

(Savenije and van der Zaag 2002, p. 99)

Referring to Savenije and van der Zaag (2002, p. 99), the treatment of water as an economic good is supposed to provide reasonable decision-making in terms of beneficial and sustainable use of water. Water pricing that often goes along with that understanding involves the *pitfall* of the concept and should not be used as a mechanism for demand management (Savenije and van der Zaag 2002, p. 99). Nevertheless, the understanding of ‘water as an economic good’ can be linked to water demand management approaches. Water demand management contributes to awareness creation and seeks to allocate water in a sustainable manner to achieve equity and environmental integrity and can be implemented via several instruments other than economic pricing. Water pricing is in this sense not to be understood as an instrument of water allocation and exclusion, but as a tool for accomplishing financial sustainability to provide safe water and maintain the water infrastructure (Savenije and van der Zaag 2002, p. 100). The treatment of water as a sole economic good where only the market regulates the allocation leads to the exclusion of large parts of society from basic water needs and reinforces inequalities.

In South Africa, the approach of water as a sheer economic good was implemented with vigour during the period of transformation after the first free elections with reference to the principles developed during the Dublin conference. Nonetheless, the South African water framework includes a human right approach to water which is part of the South African Constitution and implemented in terms of a provision of free basic water (Department of Water Affairs and Forestry 2002, p. 9; Republic of South Africa 1996, 27 (1)(b)). These contrary approaches

created major challenges in the realisation of the right to water. Policies of cost-recovery put in place to ensure that the accounts were in balance however largely exacerbated and occasionally denied access to water for the poor population of South Africa. To some extent, privatisation took place in the water service sector that ultimately reinforced the unequal treatment of water users. Arguments on why water cannot be treated like any other economic good as was pointed out by Savenije and van der Zaag had largely been ignored and service was cut-off due to inability to pay and as a result WMDs were installed.

Cost-recovery is the reflection of the “true societal costs of consuming the resources and to finance the cost of managing and delivering it to end-users” (Gowlland-Gualtieri 2007, p. 8). The service provider aims to achieve the coverage of its costs to supply the service to the customer. Furthermore, the infrastructure needs to be maintained and replaced from time to time. Hence, costs need to reflect these circumstances and include this in the rates charged. Furthermore, McDonald (2003, p. 18) notes that the privatisation of water services would lead to the endeavour of companies to create a surplus. Water service providers should therefore remain publicly owned. Additionally, water demand for essential needs such as drinking is inelastic, meaning the price has no or very little influence on the demand since basic water is needed. Water providers with the need and goal of profit maximisation are tempted to raise tariffs, which will always result in higher revenues which would leave poor communities within an inability to pay for basic needs and furthermore without water (Savenije and van der Zaag 2002, p. 102).

For implementing the concept of water as an economic good in one way or the other, water metering is essential for measuring the consumer’s water use. In Cape Town, domestic water use is billed through a system raising block tariffs. Meanwhile, subsidies are provided to indigent households and service level targeting is implemented for informal settlements. The National Norms and Standards for domestic Water and Sanitation Services state that water is to be viewed as an economic good and residents are supposed to be educated on the need for metering (Department of Water and Sanitation 2017, p. 16). For metering purposes, different technologies are available to domestic users to monitor their water use. Different forms of conventional meters measure the amount flowing through as well as smart meters in different versions such as pre-payment meters or water management devices (WMD) (Department of Water and Sanitation 2017, p. 16).

The latter is often installed to ensure cost-recovery within poor communities and to avoid inability to pay. Often these meters are sold as *pro-poor*, i.e. helping to manage water consumption and providing residents with the daily free allocation without the worrying about any further charges. The local government moreover incentivised the installation with the writing off of all water and sewerage arrears as well as the repair of all faulty plumbing free of charge (Department of Water and Sanitation City of Cape Town 2017b).

For those households connected to the municipality, a tariff system applies. This tariff system is employed “to enable effective and productive water use” (Department of Water and Sanitation 2017, p. 17). Hence, the tariffs system must ensure coverage of all emerging costs, such as operational and maintenance costs. The national Department of Water and Sanitation only sets the guidelines on how the tariff system must be characterised. For the execution, every Water Service Authority (WSA) – in the case of the Cape Town the CoCT – is responsible for itself. Furthermore, the WSA must ensure education in the fields of effective water use and conservation, the purpose and need of metering and subsequent tariffing (Department of Water and Sanitation 2017, p. 17). “Water shall be viewed as an economic good as per the Integrated Water Resource Management (IWRM) principles, and all users shall be educated on the need for metering” (Department of Water and Sanitation 2017, p. 16).

Cost-recovery in South Africa was implemented with vigour, and pushed with fiscal, moral, environmental and commercial arguments. One popular argument emphasized by the World Bank is the need to keep the books balanced in order to attract capita and make a city globally competitive. With the principal of cost-recovery often comes the argument of gratitude. Only if one knows the monetary value of a good, is one able to truly appreciate it:

But tariffs serve other goals beyond raising revenues to cover all or part of costs. They also are used to ensure access across socioeconomic groups, to send price signals to users about the relationship between water use and water scarcity, and to ensure fairness in water service delivery.

(The World Bank 2010, p. 1)

Even though policies in South Africa ensure a right to water, they always connect it to an obligation to pay for it. As stated by Savenije and Zaag the implementation of water as an economic good is supposed to provide the means of keeping the system of infrastructure underlying the water service delivery maintained and running but also achieving a surplus. Although water pricing is often used as a tool to create awareness for water as a scarce resource, there is limited scientific evidence on its effectiveness (Savenije and van der Zaag 2002, p. 100)

Demand management is much better implemented via communication campaigns, education and training. The national norms and standards communicate a certain need for education in the context of water use but mainly focus on the monetary value of water and the education of the need of metering. Water demand management is better implemented via communication campaigns and training that ensure that all interests of the stakeholders involved are met. Often citizens are unaware and lack the capability to understand the urban water supply system. Instead of punitive tariffs and disconnections, processes of public participation and citizen engagement are needed. The top-down implementation of water as a sheer economic good led to a contradiction with the human rights approach stated in the constitution.

5.3. Day Zero – A Chronology

The following chapter will give an overview of the drought beginning in 2015 up until the announcement of Day Zero in 2017 and its cancelation in March 2018. For the investigation, an online drought timeline was provided by Andrew Boraine from the Western Cape Economic Development Partnership (WCEDP), who I was lucky to interview during my fieldwork and who helped to identify key events that led up to the crisis. Although I was not able to interview any city officials, I had the chance to gain some insight from three ward councillors that engaged in the gap between city government and civil society. Furthermore, a media analysis and a literature review helped to reflect on the clouds and circumstances that influenced the development of the water crisis.

The beginning of the drought is dated 2015 since then Cape Town received less rain than usual and had thus been facing a water scarce period for the past three years. At the beginning of the hydrological year on 1st November 2014, dam levels were still at 97%. Yet after the hot and dry summer, the rainy season of the following winter did not provide the usual water to fill up the dams. Dam levels in November 2015 only reached 71% (Western Cape Government, 5 Nov 2015). For that reason, the Western Cape Government applied for a disaster declaration for the Western Cape region. In January 2016, disasters were declared for five municipalities within the province, but Cape Town was not one of them (Western Cape Economic Development Partnership 2018). The CoCT nevertheless implemented Level 2 water restrictions for the municipality in order to ration the water in the dams (news24, 10 Dec 2015; Cape Argus, 11 Dec 2015). Since Cape Town is situated in a water scarce region, Level 1 restrictions are always

imposed. Level 1 restriction attempts to save 10% of water at all times (City of Cape Town 2017a, 44.1).

In November 2016, dam levels dropped further due to scarce rainfall during the winter months. The restrictions were therefore lifted to Level 3, which not only affected the water tariffs but also restricted outdoor water use such as domestic hosepipes. Alongside the implementation of rising water tariffs and restrictions, the CoCT enacted communication campaigns to call attention to the situation and motivate citizens to save water. Patricia de Lille, mayor of Cape Town remarked: “[w]e have such great water ambassadors in every suburb, but we have many rotten apples as well who are spoiling all of our efforts to conserve water” (Patricia de Lille in Cape Times, 24 Feb 2017). A few days later, she endorsed the release of a list of the top 100 water abusers within the city. The idea was to name and shame the responsible water abusers and put public pressure on them. In context of the release of this list, Patricia de Lille pointed out: “[w]e may not have control over the weather, but we do have control over our use of potable water for non-essential purposes. Our actions can change the scenario” (Patricia de Lille in news24, 27 Feb 2017).

In February 2017, the dam levels of the largest dams supplying Cape Town with drinking water dropped to 34% and induced the CoCT to impose restriction Level 3B (Western Cape Economic Development Partnership 2018). During this period, the media presence of the water situation rose tremendously to inform Capetonians about the gravity of the situation and to motivate the population to more intensive water saving measures (Visser 2018, p. 3). On the 3rd of March the mayor declared the municipality a disaster area for the purpose of tackling the drought with vigour (Weekend Argus, 5 Mar 2017). The declaration of a local state of disaster gave the municipality the right, specifically, to “make by-laws or issue directions, or authorise the issue of directions” (Republic of South Africa 2002, s 55 (3)). That is, in a case of an emergency, the municipality is able to speed up decision-making and allocate resources more flexibly. The declaration was valid for a duration of three months with the possibility of extending it on a monthly basis.

In June 2017, restriction Level 4 was introduced including restrictions on domestic outdoor use and garden irrigation (Western Cape Economic Development Partnership 2018). The reuse of water was encouraged through (social) media, especially toilet flushing and garden use. Several waterless products for cleaning purposes were promoted as well. Once again, the winter in 2017 did not bring the desired rain and restriction Level 4B was implemented accordingly. The CoCT

agreed on an overall use of 500 million litres per day for Cape Town. Capetonians were thus restricted to limit their use to 87 litres per person per day regardless of their ability to pay for more. Furthermore, the CoCT rescinded the allowance of 6 kl of free water for all households. Only households registered as *indigent* would still receive basic water free of charge (City of Cape Town 2017a, p. 248). With further dropping of the dam levels, the CoCT introduced restriction Level 5 by September 2017. Water consumption could be reduced by 27% but still not enough to defuse the situation. At the same time, the CoCT was focusing on the emergency water augmentation plans to provide water from alternative sources such as the aquifers and temporary desalinations plants (Visser 2018, p. 4). A critical Water Shortage Disaster Plan was published by the CoCT in October 2017 and stressed the “severity of the situation” and provided information on a possible disaster scenario (City of Cape Town 2017b).

The term ‘Day Zero’ first appeared within civil society and academics as the day that the city would run out of water around April 2017, and found its way to the wider public (Western Cape Economic Development Partnership 2018). The CoCT adopted the term in November 2017 and formed an avoidance campaign around it and defined Day Zero as the day the municipality would turn off the taps. This scenario would have become reality if the major dams supplying the municipality with drinkable water fell below the 13.5% mark. Water would be supplied through 200 water collection points all over the city.

Day Zero was quite quickly completely misunderstood by a lot of media. [...] The narrative became, "Cape Town was going to be the first city to run out of water. [...] Day Zero never ever meant that. What Day Zero actually meant technically was it's the day when the city switches from voluntary savings to enforce savings of water.

(Int. 15: Andrew Boraine)

With the dam levels at 38.4% at this point, restrictions were intensified. In addition to the increase in tariffs, the CoCT also implemented other strategies for overcoming the drought. The strategies shifted more intensively from water supply management to water demand management. Having campaigned before with the slogan “a well-run city does not run out of water”, mayor Patricia de Lille changed her course of action and turned to demand management and the implementation of what Capetonians identified as scare tactics.

I think that caused panic. I don't think it caused compliance. It caused panic and people rushed out to the springs. They grabbed their water bottles; they went to the springs and they started implementing their own water saving methods. Then the city brought out these fines and tariffs. If you use more than your allocated amount per month, you're going to pay a fine on top of

it. It was all punitive. There wasn't an education to say, if you want to save water, this is how you should save water.

(Int. 12: Grant Haskin)

The Day Zero avoidance campaign communicated the dam levels as well as a date for Day Zero through an online water dashboard. The launch of the dashboard intended to motivate Cape Town's citizens to save water and to drive behavioural changes.

When the summer arrived in Cape Town in 2017 and the heatwave hit the city, restriction Level 6 was introduced. At the beginning of the year 2018, the water crisis in Cape Town reached its peak. The CoCT had implemented Level 6B water restrictions that allowed every citizen to use 50 litres of water per day and charge a higher tariff for water consumption. For indigent households, 6 kl per month per household were still free of charge (households of four people) (City of Cape Town 2018b, 43.1).

In many areas, water pressure was reduced as a measure to save water as well. Well before the crisis, the CoCT replaced standard water meters with WMDs, which allowed their users only to use a certain amount per day. During the drought the City government raised the number of the installation of WMDs to restrict prolific water users and to stretch out the water supply.

The city government and Cape Town's mayor emphasized that Day Zero was likely to happen since 60% of Capetonians did not save water. By not saving water, Day Zero was estimated for the 21st of April 2018. The anticipated date for Day Zero was constantly updated during this period and only two weeks after the first estimation was predicted for as early as the 12th of April 2018.

With the constant pressure of the CoCT on its citizens such as the increase in tariffs, the threat of the implementation of a drought levy and the continuous installation of WMDs, people felt betrayed by the city government. Day Zero was assumed to be an invention by the city government that had to fight its own mismanagement during the drought.

The credibility of the city and of the political party is out the window. Credibility is gone. I think the overwhelming majority of people that I've talked to, they don't believe what the city's going to say, they don't believe what the city's planning to do, because they promised all this before, and they didn't do it. They see the city as bad at budgeting, bad at spending. Wrong budgeting priorities. [...] The city doesn't have credibility and the DA has

lost credibility. When a municipality loses the credibility, loses the trust of the ratepayers, the ratepayers no longer want to pay their rates. Now the city is going to spend more money on debt collecting.

(Int. 12: Grant Haskin)

Mayor Patricia de Lille came under particular pressure as she began to increasingly manage the water crisis in her own capacity. The extreme water saving measures affected the city budget accordingly. The mayor thus proposed charging the residents with a drought levy based on property value to balance out the deficits (news24, 17 Jan 2018). Hundreds of people protested against the CoCT's water crisis management, especially the tariff increases and the introduction of the drought levy. Powerful civic organisations as well as newly established initiatives accused the CoCT of disregarding civil society. Many of Cape Town's residents expressed their bewilderment on the drought levy to the city council which caused internal infighting within the city government. Patricia de Lille was relieved of her responsibilities and duties concerning the water crisis management and control was transferred to a new drought management team (Visser 2018, p. 5).

Throughout February, Day Zero was constantly pushed back until it was cancelled for 2018 altogether at the beginning of March. The drought in the Western Cape was nevertheless declared to be a national disaster which allowed the government to access special funds for managing the disaster situation (news24, 13 Mar 2018).

Over the period from April to June 2018, near normal and above normal rainfall was received in the Western Cape catchment area. This led to a discussion of releasing the Level 6B restrictions between the CoCT and the national Department of Water and Sanitation with the result of leaving restriction in place until the end of August. Dams had been filling up but "nowhere near 85% where the restrictions can be lifted as per the Gazette of October 2017 and January 2018" (Regional head of the Department of Water and Sanitation Rashid Khan in news24, 20 Jul 2018).

Only on 1st October 2018 were water restrictions relaxed to Level 5. Instead of using only 50 litres per day per person, Capetonians were allowed to use 70 litres. Nevertheless, the CoCT emphasized the need to keep water conservation up and running (City of Cape Town 10.09.2018).

5.4. Water Management during the drought: Strategies and Interventions

The Water Service Development Plan (WSDP) focuses solely on the strategic planning of the water sector in Cape Town. As a Water Service Authority the CoCT is responsible for drafting this plan at the beginning of the elected term and subsequently update it every year (Republic of South Africa 1997, s 12). The Water and Sanitation Department of the CoCT is the Water Service Provider for the CoCT as Water Service Authority.

The major challenges for the Department of Water and Sanitation in Cape Town are to provide services to a growing population in a sustainable manner using an aging system of infrastructure. At the same time, the department is responsible for contributing to the economic growth of the city and for ensuring a limited environmental impact. Especially in the years 2017 and 2018, Cape Town faced a huge challenge with the drought situation on top of all the responsibilities and tasks (Department of Water and Sanitation City of Cape Town 2018b, p. 10).

The climate in the Cape Town area is characterised by hot and dry summers and winter rainfall. The water supply relies almost entirely on the catchment of rainfall. 98% of Cape Town's water is supplied by the dams located in the catchment areas east and north-east of the city where rainfall is highest due to the surrounding mountains. Cape Town is supplied by 14 dams, whereas the major six dams provide approximately 900 million m³. The unconstrained daily demand is usually at about 1350 million litres per day and supplies the citizens and businesses of Cape Town, as well as agriculture and some other urban areas (Department of Water and Sanitation City of Cape Town 2018a, p. 1). During a drought situation, this demand has to be reduced. To that end, the CoCT developed strategies for overcoming the drought in 2017/18.

The dams supplying Cape Town are part of the Western Cape Water Supply System and are owned and operated by the CoCT, the national Department of Water and Sanitation and Eskom, a parastatal company. Because of the specific climate in the Cape, rainwater has to be collected and stored over the winter months to supply the city with water throughout the entire year. To overcome the hot and dry summer, the CoCT often has to apply water restrictions at the end of the summer to bypass the hot and dry summer period. To that extent, the CoCT developed a levelled block tariff system for domestic water use of uncontrolled flow: each additional unit of water used becomes more expensive as greater volumes are used (based on a block system). The block system counts six blocks, while the basic usage (0 – 6 kl) is free of charge for indigent households. The rates for the following blocks differ depending on the restriction levels

implemented. Prior to the water crisis in all households in Cape Town received 6 kl free of charge, wherein indigent households received an extra 4.5 kl free of charge. The budget for 2017/2018 removed the 6 kl of free supply for non-indigent consumers and the 4.5 kl of additional water for indigent households free of charge, due to water restrictions (City of Cape Town 2017a, 44.1). For the budget of 2018/ 2019, the CoCT introduced a pipe levy, a fixed monthly connection charge depending on diameter of the supply pipe entering the property (Parks et al. 2019, p. 4).

Alongside the block tariffs, restriction levels are applied depending on the amount of water needed to be saved to get through the dry season. Tariffs are linked to the restriction level meaning a lower restriction level translates into lower tariffs. The levelled restrictions can be translated into the attempt to save 20% during restriction Level 2, 30% during restriction Level 3, and so on. The idea behind the restriction levels is to save the amount of water requested and therein face no increase in actual costs. This way, the CoCT also aims to secure the necessary income for maintaining the infrastructure.

During the water crisis, the CoCT implemented various strategies for overcoming the water crisis. Even though the drought presented the city and its residents with an exceptional situation, strategies and interventions were nevertheless supposed to ensure sufficient water supply to all Capetonians.

The CoCT found itself in a catch 22: on the one hand, citizens had to be motivated to use as little water as possible to avoid the Day Zero scenario, but on the other hand, the CoCT is reliant on the ratepayer's money to keep the system of infrastructure going. South Africa's water legislation had already been contested before, but during the water crisis, water management seemed unable to introduce sustainable measurements.

The CoCT followed three approaches in overcoming the drought situation: a) managing the remaining water in the dams, b) reducing demand as much as possible and lastly c) developing alternatives to provide the city with water. The following strategies will mainly focus on the demand management and communication campaigns introduced during the water crisis.

a) Managing dam levels

The dams in Cape Town drop as a result of use by agriculture, as a result of the city's use for residents and business and as a result of the supply to other municipalities and lastly also evaporation as well. The CoCT and the national Department of Water and Sanitation therefore

closely monitored the dam levels and communicated them to the public. All further restrictions and resulting strategies were based on the remaining water in the dams. The Day Zero scenario is also based on calculations of the remaining water in the dams (using maximum evaporation, urban and agricultural use) (Department of Water and Sanitation City of Cape Town 2018a, p. 2).

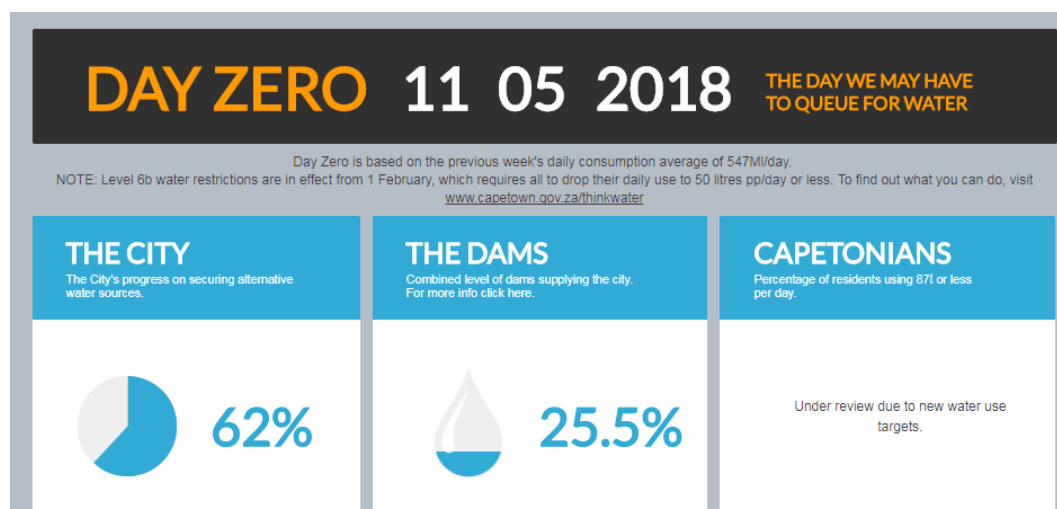


Figure 5: Screenshot Water Dashboard

Source: <https://coct.co/water-dashboard/> (05.02.2018)

b) Demand Management

Reducing Water Pressure

Water pressure controls the flow of water in the reticulation network via adjusting valves. The CoCT introduces water pressure reduction to compel lower water usage. Depending on the restriction level, the CoCT agreed on an overall water supply for the city private households, businesses and agriculture. In the way, the reticulation system is divided into pressure zones that can be managed separately. If water usage is too high in a particular area, pressure is reduced. During the water crisis water, pressure was constantly low. The Critical Shortages Disaster Plan stated that water pressure reduction would not result in a complete system shutdown, but that some areas might experience water supply outages. During these outages, water supply might be limited or off entirely. For such occasions, residents are encouraged to keep emergency storages (Department of Water and Sanitation City of Cape Town 2017a, p. 3).

As an effect of reduced water pressure, interview partners reported about effects on their daily routines:

[...] our water pressure got turned down. So, little water came out of our taps and if you had an upper story, if you go upstairs, then no water comes up, so only water downstairs. It's not nice because our bathroom and our shower is upstairs, so that wasn't nice at all. [...] I was forced to go to the gym to shower.

(Int. 3: Daniel)

The CoCT furthermore stated the positive aspects which the pressure reduction entails such as the lower impact of water loss due to leaks and reduced frequency of pipe bursts and further leaks (Department of Water and Sanitation City of Cape Town 2018a, p. 2). Cape Town's citizens felt differently about the effects on the pipes which the pressure management had. Through various channels people told each other about their experiences and what they got told by plumbers fixing their leaks:

The pipes can't handle the pressure. There is something called-- the plumbers have a name for it. When you adjust water pressure in pipes, there's certain stresses and strains on the piping itself and if there's a weak link, there is going to be a leak there. If you pressure too much, too quickly, or if you reduce it too much too quickly, it has the same effect. You will still spring a leak. A lot of the leaks on private properties could just as well be the cause caused by the city reducing the water pressure around the city. No there--, all it needs is that the pipe was fine as it was but now as soon as you reduce the pressure, the pipe stresses and strains become evident that now the people are charged for the water.

(Int. 12: Grant Haskin)

Communication Campaigns

In pursuit of propelling behavioural change, the CoCT implemented several communication campaigns to educate about the severity of the drought and encourage Capetonians to save water. Under the Hashtag *#ThinkWater* the CoCT attempted to create awareness about the situation and motivated people to keep track of the water levels. The online dashboard was installed for information purposes. The dashboard provided information on targeted and actual water consumption and dam levels. Furthermore, tips on how to use 50 litres effectively were distributed across various channels online and offline. These campaigns were used for educational purposes and to change social norms surrounding water use:



Figure 6: Communication Campaigns of CoCT

Source: Own photos

While the afore-mentioned communication campaigns were widely viewed as contributing positively to behavioural change, the CoCT was also behind the efforts what people identified as ‘naming and shaming’ campaigns, starting with the release of the 100 worst water abusers in February 2017. Moreover, the CoCT provided a hotline for the report of contraventions of water restrictions for citizens. The CoCT argued that drastic measures were required in order to avoid a Day Zero scenario. The *Cape Town water map* is in the same line of argumentation. The map available online provided data on every household’s water use, accessible for everyone with internet access. The motivation of the map was announced as follows: “[t]he main purpose of the map was to publicly acknowledge or ‘reward’ households that saved water, thereby normalizing and incentivising water conservation behaviour” (City of Cape Town 2018a). The dark green dots on the water map showed a consumption below 6 kl per month, where a light green dot showed consumption below 10.5 kl per month. Grey dots referred to households where no data was (made) available due to group housing, no water use at the property or consumption of more than 10.5 kl.

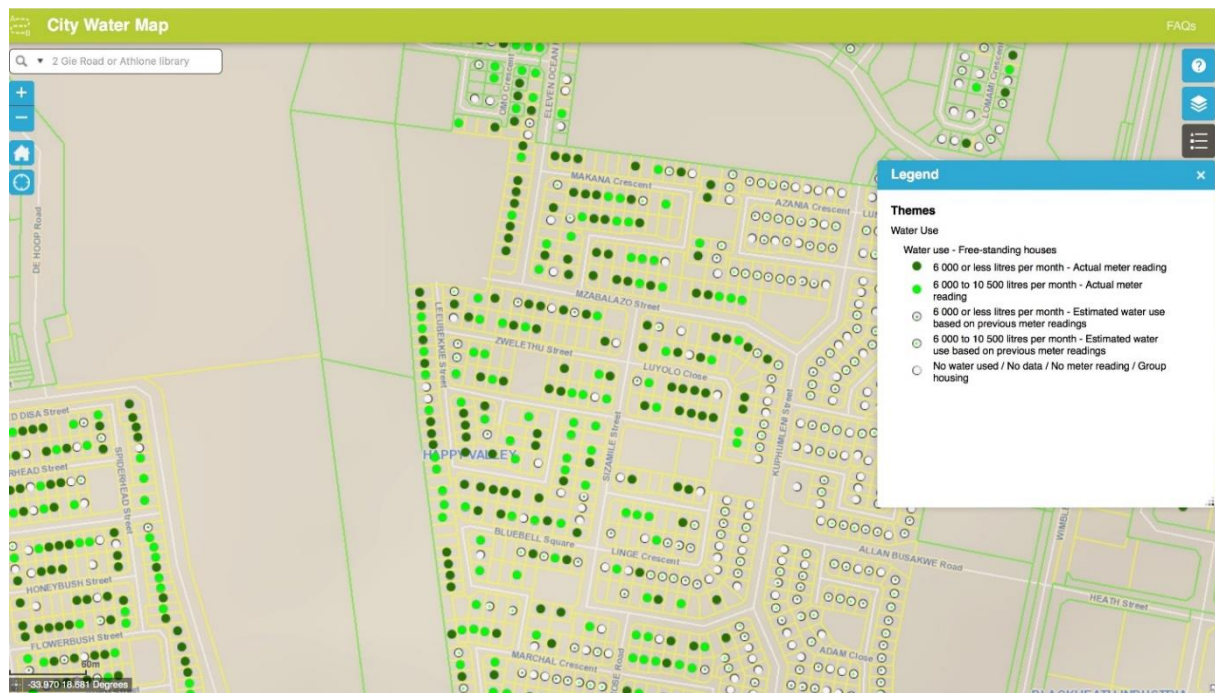


Figure 7: Screenshot of the Cape Town Water Map

Source: <https://citymaps.capetown.gov.za/waterviewer/>; data no longer available)

The reactions to the water map during my research were very different. On the one hand, people referred to it as a naming and shaming campaign that would lead to disputes within society and to people turning against one other.

That's individualizing and terrorizing the people because it's turning us one against- it's a distracter to say, "No, I must fight my neighbour instead of fighting the city," that was the whole aim. It's got nothing to do with saving of water because they have got the tools to save water.

(Int. 18: Shaheed Mahomed)

On the other hand, people argued that if you have nothing to hide and are saving water as you are supposed to, the map would finally bring some justice.

I think it's a good thing because nowadays, especially here in South Africa, people don't do what they're supposed to do unless somebody is watching them. From my perspective, because I've said I've got nothing to hide. But if I have something to hide, then I wouldn't want that, exposed like that. I think it's good because now people will do what they're supposed to do. They're not very conscious of doing the right thing even if they're not criminals.

(Int. 1: Naomi)

Water Management Devices (WMD)

The original idea behind installing WMDs was to assist poor households that were struggling to pay their bills and to reduce water wastage caused by leaks. The CoCT promotes WMDs as a device for managing water consumption carefully in order to avoid having additional water and sanitation charges. The idea behind the technology is restricted water use: “Water management device, but in fact it's a misnomer to say Water Management Device, the actual technical term is a water restricted device because that's what it's doing” (Int. Shaheed Mahomed).

Every morning at 4 o'clock, the device switches on and allows the user to consume 350 litres of water over the next 24 hours. 350 litres is the amount that is agreed on for a household of 4 members but can be negotiated if a household has more than 4 members. During restriction Level 6B, only 200 litres were available. If the daily quota has been used, the device switches off and water use is denied. Not until the next morning at 4 o'clock does the device reset and allow households the allocated amount. Any amount not used is carried over to the next day during the calendar month. The used excess cannot, however, be carried over to the following month (Department of Water and Sanitation City of Cape Town 2017b).

During the water crisis and with the introduction of restriction Level 4B, the CoCT started to install WMDs in households of excessive water users. At restriction Level 4B, the CoCT installed WMDs for households exceeding 20 kl per month. During Level 6 water restriction, the limit was set to over 10.5 kl. As of October 2017, the CoCT has accelerated installations for excessive water users. In March 2018, the CoCT listed over 10,500 non-indigent water users exceeding 20 kl/ month. Restricting those households would reduce water consumption by 87% a year (Department of Water and Sanitation City of Cape Town 2018a, p. 2).

The installation of WMD caused considerable anger within communities. People reported that they got home one day and had a WMD installed without previous notice and subsequently received the bill to pay for the device as well. Sometimes the installations were due to underground leaks that the members of the household were not even aware of. Other than with the installation of WMDs in indigent households, the fixing of water leaks is not included in the service.

The water management device definitely affected it [the daily routine] because when they had it installed; we still had the leak for about three months. Eventually, we found out that the leak was leaking away – was taking

away half of the water that was let in. We were literally living on jeez per 100 litres a day. That's what we discovered with the plumbers, we were living on a 100 litres a day. We started doing hand washing, we couldn't put the machine on any longer. My two children who's eight and nine and – I don't know if you've ever done hand washing? It's horrendous.

(Int. 4: Sue)

Another interviewee told me that even after the installation of the WMD, the water bill remained unbearably high and that family could not afford to pay it. In order to nevertheless extract payments, the CoCT takes the money which the family pays for their prepaid electricity meter. Instead of getting the full units of electricity for the price they paid for, the CoCT deducts an amount to cover the arrears (Int. 9).

During a focus group interview with a group of activists from Justice4CapeTown, one activist called the device a “weapon of mass destruction” (Int. 20c)). Furthermore, the device was discussed to be not working accurately and not being able to handle the pressure management implemented during the drought. Especially on social media, videos circulated *proving* that the WMDs are easily breakable.

At some point, they're going to have to put on the pressure, so now what happens is you have a – remember that blue meter's a plastic meter, so now I don't know if you've seen the video where the guy could even blow through it and the thing moves. With air, he could move the meter. It just shows you how flimsy these Chinese meters are. What happens is, this is my water meter, now pressure comes back, I don't know if you've seen the pipes underground. Those huge pipes. You can imagine the force of the water. Now the pipe is small, but the force remains the same. What happens, they put the water back on, it goes through the meter, the meter cannot handle the pressure and it pops on this side. I can even give you a document by the water research commission of South Africa where they have explained that these meters cannot handle negative pressure.

(Int. 20 h): Shireen Nordien-Ismail)

Restriction Levels and Punitive Tariffs

As explained above, Cape Town has to deal with water restrictions annually before winter rains arrive. Nevertheless, the implementation of such high restriction levels only take place in a state of exception. Restriction Level 6 was introduced in January 2018 and restriction Level 6B only shortly afterwards in February 2018. Daily individual consumption had to be reduced to 50 l per person per day to reach an overall goal for the city of 450 million litres per day including businesses and agriculture. For every usage above the 50 l per day per person the CoCT applied punitive tariffs. The rising block tariffs were adjusted so that with higher volumes, costs

increased. Within restriction Level 6B, punitive tariffs apply for as little as every litre above the limit of 50 litres per person per day (Department of Water and Sanitation City of Cape Town 2018a, p. 2).

Table 3: Restriction-Levels

Source: Presentation CoCT provided by Mark Kleinschmidt

LEVEL	DATE	RESTRICTION	TARGET
Level 1	2005	- No irrigation 10:00-16:00 - Spray nozzles for hosepipes - No hosing down hard surfaces - No dampening of building sand	10% savings
Level 2	1 January 2016	- Irrigation for 1 hour on Tue, Wed, Thur - No irrigation 9:00-16:00	20% savings
Level 3	1 November 2016	- Buckets only for watering gardens - Pool covers	30% savings
Level 3B	1 February 2017	No private car washing	30% savings
Level 4	1 June 2017	- No irrigation - No topping up of private pools	100 Litres pp/day
Level 4B	1 July 2017	No topping up of public pools	87 Litres pp/day
Level 5	3 September 2017	Fines: - Residential > 20kl/m - Commercial: 20% less than same month previous year	87 Litres pp/day
Level 6	1 January 2018	- Households consuming more 10.5kl/m prioritised for WMD - Non-residential properties reduce by 45% less than pre-drought consumption (2015) - Agriculture to reduce by 60%	87 Litres unless targets continue to be missed in which case this will be reduced
Level 6b	1 February 2018	- Households consuming more than 6 kl/m prioritised for WMD - Punitive tariffs for >10.5kl/m	50 Litres pp/day

While Naomi argues that it takes some hard work to stick to the limitations and thus keep the water bill low, other interviewees felt punished for their saving attempts:

A lot of people are complaining about [the tariff increase], I just seem to think that I must do my bit. You do your bit, and then there shouldn't be a problem because the way I think of it is, I must pay for what I use. If I'm using a lot, then I must pay for it. I can stop that by using a little. Then, I don't need to pay. Then, why am I complaining? It takes some hard work, and that's exactly why other people are complaining.

(Int. 1: Naomi)

I said the city of Cape Town must be the only administration in the world where they ask you to save water and then they punish you for it. Does it make sense? You're doing what your government asks you to do and then they punish you for saving that water.

(Int. 20 h): Shireen Nordien-Ismail)

Furthermore, restriction Level 6B comprises more than just the restriction in water consumption and raise in tariffs. Rules and regulations structure how water is to be used and what citizens are prohibited from doing:

Table 4: Level 6B Water Restrictions

Source: Data from own photo of poster (CoCT)

Categories	Level 6B
Consumption per person	50 litres or less or less per person per day wherever you are: home, work, school, etc
Limit for individual residential units	Residential units exceeding restrictions limits will be prioritised for enforcement
Commercial properties	Reduce consumption by 45% compared to the corresponding period in 2015 (pre-drought) Properties exceeding this will be fined
Irrigation with municipal drinking water	Prohibited
Borehole/ well point water	• Outdoor use strongly discouraged • If used for irrigation, then limited to a maximum of one hour only on Tuesdays and Saturdays before 09:00 or after 18:00
Bathroom	Flushing toilets (e.g. manually using a bucket) with greywater, rainwater or other non-drinkable water encouraged
Water features	Use of municipal drinking water prohibited
Swimming Pools (public and private)	• Top-up, filling or refilling with municipal drinking water prohibited • Use of portable play pools prohibited
Washing vehicles (privately or at a formal/ informal car wash)	Prohibited with municipal drinking water
Facilities	• Operation of spray parks prohibited • No new landscaping or sports fields may be established, except if irrigated only with non-drinking water
Indigent Water Allocation	Still applies

c) Supply Management

To provide alternative water sources for supplying the city with water the CoCT developed short- and long-term solutions. Part of the short-term solution is drilling in various aquifers in Cape Town. One of the biggest aquifers is the Cape Fats Aquifer extending between Tygerberg

Hills and Milnerton for about 400 km² (Sorensen 2017, p. 517). The dense population on the Cape Flats unfortunately contributes to the pollution of the aquifer. Water needs to be treated in order to use it. Depending on the purpose of the water use, water treatment needs to be adjusted.

Another attempt to provide extra water is the installation of desalination plants. The CoCT therefore built three plants that would provide 16 million litre of water a day in total, which contributes relatively little to the daily water demand of Cape Town (1350 million litres per day) (Department of Water and Sanitation City of Cape Town 2018a, p. 3).

Table 5: Alternative Water Sources

Source: Presentation CoCT provided by Mark Kleinschmidt

TYPE	LOCATION	MLD	FIRST WATER	FULL PRODUCTION
Short-term, temporary desalination	Strandfontein	7	March 2018	May 2018
	Monwabisi	7	March 2018	May 2018
	V&A Waterfront	12	March 2018	May 2018
Groundwater abstraction	Cape Flats aquifer	80	May 2018	June 2018
	Atlantis aquifer	20	May 2018	October 2018
	TMG aquifer	40	February 2018	June 2019
Springs	Newlands Albion spring	3	In operation	
	Oranjezicht	1	In operation	
Water re-use	Zandvliet	10-50	June 2018	December 2021
	Cape Flats	10-75	June 2018	December 2021
	Macassar	20	June 2019	
	Potsdam	10	June 2019	
	Ahtlone	75	December 2021	
Permanent desalination	Koeberg		(pilot underway)	

The investment into desalination plants was also criticised by several activists (Int. 18,20 c),g),h)).

A lot of it was in public hands and therefore the process of privatization of each of those sectors then started. Out of that, that's really the background to the so-called Day Zero scenario here in Cape Town, because it's an excuse

to privatize the water in a rapid way and to build desalination plant which need power, they need huge amounts of power. They need billions of rand every year as an ongoing cost, they need billions of rand to pay off that amount of money. Then banking capital comes in, the whole question of, it's another field out of which profit can be made. That's really why they cooked up this Day Zero scenario.

(Int. 18: Shaheed Mahomed)

As explained in the historical background of Cape Town, the city disposes several natural springs that Capetonians use for the collection of drinking water even prior to the drought. With the tariff increases and rising distrust in the water quality of the municipality water supply, people collected water at the natural springs of Cape Town such as in Newlands. The demand of spring water rose tremendously so the CoCT restricted the water allocation at the springs to 25 litres per person per collection. After noise complaints from residents living in the area of the spring, coupled with the traffic congestion, the spring in Newlands was rerouted to a different collection point (news24, 31 Jan 2018). The redirecting of the spring caused irritation among Capetonians who had been collecting water at the Newlands springs for as long as decades. The disputes revealed issues of Apartheid spatial planning and were connected to the forced removals during Apartheid:

They closed down Newlands Spring. Why? Because people were collecting water for free and the surrounding neighbours complained about the activity that was there. Forgetting that those people that live in Newlands are illegally there in the first place, because that was a coloured community, same like District Six, same like Claremont. People were forcibly removed from those areas to make way for Whites, that was in Apartheid.

(Int. Shireen Nordien-Ismail)

5.5. Cape Town – a Resilient City?

The IDP developed by the CoCT for the period from 2017-2022 focuses on five core areas which are defined under the terms of opportunity, safety, care, inclusiveness and well-run city operations, and addresses key priorities and clear visions, deciding how public funds will be spent and how resources will be allocated for the council's elected term. The CoCT recognises the fact that cities are facing dramatic changes and need to be prepared in order to adjust to the new circumstances such as biodiversity loss due to increased waste and population and social concerns (City of Cape Town 2017c, p. 17). Especially in developing-countries, many cities cannot keep up with the demand for housing and public services (City of Cape Town 2017c, p. 16f). The concept of resilience is also identified by the CoCT as an appropriate approach for

addressing present challenges such as a drought. These encounters of urbanisation call for a more sustainable development, meaning “to meet the needs of the present city population without negatively affecting the prosperity of the city and its future residents” the CoCT notes (City of Cape Town 2017c, p. 17).

When referring to the resilient city as a new fitting concept for the needs of Cape Town, especially during the water crisis, the city government draws on SDG 11: “[m]ake cities and human settlements inclusive, safe, resilient and sustainable” (United Nations 2016). Resilience in this context refers to the ability to adjust and adapt to the new environment (City of Cape Town 2017c, p. 18). Especially when it comes to resource allocation and service delivery, a city like Cape Town needs to be able to adjust to changing climate conditions and its effects such as changing rainfall patterns and temperature extremes in order to be able to provide resources to a growing population (City of Cape Town 2017c, p. 20).

This understanding of resilience goes along with the definition developed by the UN-Habitat. Cities need to be prepared for abrupt or slowly, expected or unexpected appearing shocks. For that reason, the urban system should maintain stability and the ability to adapt to a changing environment (UN-Habitat).

Nevertheless, the management of the water crisis revealed a different picture than the attempted long-term preparation for shocks. As pointed out in Chapter 5.3., the severe drought which Cape Town was facing was neither unexpected nor slow-onset and actually allowed the CoCT to prepare for the circumstances more appropriate. However, the city government was alleged to have acted too late and with irresponsible measurements (Int. 12,16). The city government very abruptly changed its strategy from supply-side management to demand-side management when it realised the situation was urgent. Up until mid-January the mayor of Cape Town referred to the IDP’s quote of Cape Town being a well-run city – and a well-run city would not run out of water. In a press conference in January, she changed her way of action and communicated Day Zero as inevitable (Int. 12, 15).

Boraine emphasizes that the resilience-thinking allows the tackling of such situations:

Resilience thinking [...] leads to deliberate circle of collaboration, learning, and adaptation. For us, the key concept coming out of resilience is adaptive governance, adaptive leadership, adaptive management, being able to

respond to change and change yourself and those around you. I think that's what we've learned from the natural world and we've tried to apply to governance.

(Int. 15: Andrew Boraine)

The WCEDP consults and cooperated with the CoCT in terms of water governance and crisis management. Andrew Boraine points out that the CoCT lacked the means for addressing the crisis with the right tools. At various levels, co-operative governance and good relations are missing in the pursuit to identify public interest and demands. Although the organisations and initiatives are established, and the legal framework allows for involvement, no appropriate relations are established to “help organise appropriate top-down support for bottom-up initiatives” (Int. 15).

Looking at the governance system, the same nuisance can be observed. The governance system is a complex network of the national department of water and sanitation, the provincial government and several WSAs. Every entity makes sure their part of the system is intact and running, and that the budget and numbers are in line with frameworks and plans, but that often leads to fallouts for the entire system.

That's [...] how to build up a better approach from the city's perspective to a more robust water governance system which means better design and planning of the system, better implementation and execution, better monitoring and evaluation of the use of the system, new technologies. That should all be there. Everyone is doing parts of it and that's not coming together.

(Int. 15: Andrew Boraine)

Conceiving of the city as an entire urban metabolism where the system of water infrastructure is only one subsystem allows us to trace the associations of the network including material and ideological perspectives. Infrastructure is usually perceived as mundane and invisible while it is working uninterruptedly (Star 1999, p. 379). In Cape Town, this system was affected by a drought. This interruption was not solely noted through an actual interruption of water supply but also through a political system that reacted to that impairment. Lester September, chairperson of the Forum of the Cape Flats Civics, elaborates that the water infrastructure in Cape Town is still largely affected by Apartheid spatial planning:

Before segregationist policies came out, Cape Town was a fairly compact city [...] a more compact city would be more efficient where one of the benefits would be that we certainly would have more water than we actually needed because the water has been allocated along 20,000 kilometres. In

fact, the water system itself is about 11,250, the rest is sewage. You've got this huge infrastructure that needs to be maintained. You're looking at the actual services that need to come out of that and how many people are actually dealing with that maintenance work. As you're increasing maintenance costs, you're increasing service delivery which is starting to be affected.

(Int. 17: Lester September)

He criticizes the CoCT for not having acted quick enough and not being able to work collaboratively across departments to undo the inequalities of the past that shape the urban metabolism.

Yet the question begs, is Cape Town a resilient city? Furthermore, is being resilient as desirable as stated by various international organisations? As reflected in Chapter 3.1.2., resilience has been discussed from various viewpoints and been criticised for supporting the neoliberal agenda and the development of private and individual forms of safeguarding one's interests. This understanding would therefore go along with the understanding of human beings as rational calculating actors promoted as the *homo oeconomicus*.

During the water crisis and especially after having implemented demand management, the CoCT eagerly promoted the responsibility of every resident of Cape Town to contribute to water savings during the crisis. Although that motivation exemplified the obligation of every citizen to contribute to the avoidance of Day Zero, it also showed that this attempt is to be reached together through citizen engagement. The scare tactics implemented by the CoCT interfered with that goal-setting, ultimately turning citizens against each other and leading to the disintegration of corporations and fragmenting of the system of infrastructure. Often the grievances and frustrations about the mismanagement of the CoCT encouraged citizens to move closer together again and mobilise in the context of their dissatisfaction. Paulette van Herdeen as chairperson of a local NPO elaborates on the need for the establishment of active citizens when government fails to address citizens' demands:

[W]e are focused on [...] sustainability and changing people's lifestyles. Making them understand that it's fundamentally important how they behave themselves on a daily basis. We talk about being an active citizen. To contextualize, we've come out of nine years of the most horrific leadership this country, hopefully will ever have. All our systems are broken and in a bad state. We have people who've got put into their positions because of nepotism, not because of their skill. [...] To rebuild our country in any recognizable way, because our economy's been put down to trash level by the international guys we need to get involved. It will not happen if we wait for

local and national government to do the turnaround. I think if we all accept that we have to be active citizens.

(Int. 16: Paulette van Herdeen)

The strategies and interventions of the CoCT can therefore not be considered resilient as they had articulated in the IDP. Instead, the engagement of civil society in the context of their dissatisfaction with the crisis management refers to what Boraine understands as resilience-thinking. Resilience-thinking enables inventiveness, empowers relations and promotes creativity and encourages individuals to engage within broader communities to participate in (political) debates (Larner and Moreton 2016, p. 51). Nevertheless, the role of the state in the context of urban governance should not be reduced to sole service supply, but instead government should make sure to provide an environment for fruitful public engagement which can result in cooperative governance. This way, resilience and resilience-thinking are not to be seen as promoting neoliberalism but as considering diverse aspects of political life and reconfiguring them into “[...] governmental formations that attempt to move beyond neoliberalism” (Larner and Moreton 2016, p. 51). How civic engagement during the water crisis in Cape Town looked is the next topic I turn to for elaboration in the following chapter.

6. The Water Crisis and the Constitution of Hydraulic Citizenships

After providing the theoretical foundation by referring to concepts of governmentality and biopolitics, I summarised the historical events in Cape Town and its implications for the urban development with a particular focus on public service delivery. In Chapter 5, I expounded on and critically discussed the policies and interventions in the context of water distribution in general and in the context of the crisis in particular. In this chapter, these two lines of thought will be connected and linked to my own findings during my field research in Cape Town and will be discussed in the context of power relations and subject formation. During the water crisis the CoCT addressed particular groups of society with different (techno)-political strategies. Hence, Cape Town's citizens developed different strategies and tactics for coping with the situation. The formation of different forms of agency are examined as forms of *hydraulic citizenship* in reference to Anand (2011, p. 545). These forms of *hydraulic citizenship* are not to be seen as passive subjections to (water) governance but as active agency in pursuit of constituting an individual self in the context of this form of governance. Furthermore, a closer look is taken at civic engagement and the development of forms of resistance in the context of the water crisis.

6.1. Technologies of Government – Technologies of the Self

Although we cannot divide technologies of government and technologies of the self into two binary forms of governance, it helps us to grasp different positions during the intervention in the water crisis. While the CoCT introduced strategies for interfering with the water demand of its residents, citizens likewise developed strategies for dealing with water and the restrictions placed upon them during water scarce periods. To that extent, Capetonians are not solely passive targets of state power to which they are subjected, but instead, they choose alternatives and act within and beyond the conditions they are put into by governing discourse and the environment around them (Stern et al. 2015, p. 1). Some of these strategies were developed directly in response to the water crisis, whilst others were indirectly established over the years due to moral obligations developed in line with a certain understanding of water and governing principles. These moral obligations were influenced by the present neoliberal paradigm and conceptualisation of sustainability and resilience in the context of water use. The promotion of water as an economic good influences the moral obligation for dealing with the matter. Furthermore, as outlined in Chapter 5, drinking water is mostly provided through winter rain

which is why Capetonians are used to water-scarce periods for getting through the rainless seasons since saving strategies are not only exerted during a drought.

Staying with a family in Southfield during my field research I not only experienced and learned about the water crisis through people's narrations, but moreover, through everyday life and participation and observation. This situation also allowed me to ask questions immediately when they arose in the context of everyday habits and practices. On a daily basis Naomi and Nazim agreed on a number of strategies that they had developed on their own and others through interactions with their community and (social) media. At the time of my research stay, we were living in the house with up to six people since the family had two sons that would occasionally stay with the family. Water saving strategies were not something we would talk about regularly or that the family insisted on, but rather something every member of the household was supposed to act on within their own frame of judgement and comfort zone.

In addition to researching the everyday life of a middle-class family at the borders of the Cape Flats, I approached the field through engagement with social media groups that were often actively involved with the topic either in developing and sharing water saving mechanisms or in formulating their outrage about the mismanagement of the CoCT in the context of the water crisis. The mismanagement of the water crisis by the CoCT was observed and communicated by almost all my interview partners who, as a result, articulated some form of mistrust towards the local government. However, mismanagement was defined by different groups or individuals in diverse ways. Through online engagement with the members of social media groups, I was able to get in touch with several activists and politicians in person. I conducted interviews and attended events dedicated to the crisis that again allowed me to enlarge my network and gather different perspectives.

Daily Strategies

The CoCT implemented strategies that addressed communities in different ways. The middle-class was at the centre of these strategies due to the campaigns' focus on behavioural change in terms of household water use which required having a water connection in the residence. Poor people often did not have individual access to water and therefore the strategies and campaigns did not fit their means of water use. Consumption was policed by the CoCT itself as well as through mechanisms of self-surveillance and peer-pressure. Interviewees reported on the saving strategies that they had developed and shared them with their neighbours, communities and friends via various channels. Water was recycled at least twice due to various collection

mechanisms such as using a bucket to collect water during showering, placing a heavy object in the lavatory cistern and developing strategies to catch the washing water of the washing machine. To do so, the washing machine is required to be a top-loader machine with a mechanism for manually filling up with water. Furthermore, doing laundry needed constant observation during the washing process in order to make sure the water was not draining. Washing this way became a lot more time-consuming and required one's full attention. Living with Naomi and Nazim, I helped with daily tasks during my stay wherein doing the laundry was one of them. While the CoCT educated their citizens on how much water to use for particular daily tasks, citizens also developed their own strategies and passed them on personally or via social media channels.

[...] you can't flush your toilet after you make a number one because it's wasteful because every toilet uses like 15 litres of water to flush once. Then they [the CoCT] encouraged us to fill a bottle of water, like greywater, and put it in your system so your system instead of taking the 15 litres, it's maybe now take 10 because you're displacing some of the water. Then it just got progressively you were to then use – only wash when you have a big load of washing.

(Int. 1: Naomi)

Especially toilet behaviour was a topic of discussion from various perspectives during my research. While Naomi and her family agreed on only flushing after defecation, as enforced by the municipality, they felt a certain discomfort associated to hygienic concerns in doing so. Naomi also emphasised that she would not use that strategy in a public lavatory due to hygienic concerns. At home, she used a lot of bleach and disinfection to sanitise the toilet and prevent health risks. To flush the toilet at Naomi's and Nazim's house, five-litre-bottles were piled up next to the toilet. The water was collected from showering where the family used a plastic tub to collect all the water or from doing laundry. The grey water was filled in big containers for reuse.

Other than Naomi, Maria expressed the need to also use such saving strategies in public toilets. She explained that it would upset her when she would recognise someone would flush in a public toilet after solely urinating:

It's sometimes quite embarrassing. I'm out in a super expensive restaurant and I go, and I throw my toilet paper in the bin. I don't flush it and I don't flush the toilet. I just walk out. Then sometimes people come after me and

they flush the toilet. Then I knock against the door before they pee, and I say: 'water crisis'.

(Int. 5: Maria)

Maria also emphasized the need for the throwing of the toilet paper in a bin provided next to the toilet when flushing the toilet less frequently in order to avoid sewer blockages (Int. 5).

Most of my interview partners stated that they would generally shower less frequently and shorter so as not to be wasteful with water (Int. 2, 6, 3). Most households also installed rain barrels such as JoJo-tanks to catch rainwater for daily tasks and to irrigate the garden. Nevertheless, JoJo-tanks were perceived to be very expensive and named as an example of exploitation since prices rose during the crisis (Int. 1, 20).

Shifting boundaries of Public and Private Realm

During the water crisis the boundaries of what was understood to be the public or private sphere shifted or were actively pushed and therefore became blurry and fluid. Concerns that were usually assumed to be one's private business often moved into the spotlight of public discussions, such as on the topic of the excretion of human waste. The implementation of saving strategies bore concerns about hygiene and health that were not sufficiently addressed by the CoCT. While Maria did not flush her urine in a public toilet, other interviewees expressed their concern for health and hygiene in this context (Int.1, 6).

The water crisis also reached social spheres that were usually not engaged with water consumption. One interviewee reported that using the dating app Tinder, he recognised profiles stating their concerns about the water situation and the ambition to conserve water and thus only accepted Tinder-date-requests from like-minded people (Int. 2). Furthermore, in this description, we can observe how moral obligations in the context of water governance move into the public realm and contribute to greater awareness creation.

The perception of what is private and what belongs in the public sphere in terms of water governance are to be understood as part of the ideological (water) infrastructure. Due to the water crisis, water and water use shifted to the centre of public discussions and along with-it, topics that were hitherto usually assumed to be private business. This boundary of the public and private sphere became blurry and therefore affected the ideological water infrastructure. Saying this, I refer to Star (1999, p. 377) who points out that infrastructure often only becomes visible during a breakdown. The water crisis can be understood as such a breakdown. Water infrastructure – material and ideological – usually facilitates water flows while working

uninterruptedly. The interference of the infrastructure elucidated the importance and various functions of the system and its ability to facilitate (water) flows. Water infrastructure, moreover, hardly stops at facilitating water flows, but, in order for water to flow, streams of knowledge and ideas have to be mobilized as well. Especially during the water crisis, the sharing of knowledge in terms of saving strategies contributed to individual water flows. Not only at the level of civil society, but furthermore also at an academic level. The development and communication of scientific knowledge ensures sustainable and ecological water flows within the municipality.

Awareness Creation and the Visibility of Infrastructure

The announcement of Day Zero caused various different reactions across Cape Town but had in common that it increased visibility on an infrastructure that was mundane and boring while it was working uninterruptedly (Star 1999, p. 377). The interventions of the water infrastructure created an awareness of water and its use across Cape Town. Moreover, people related the crisis to a broader contention with ecologic sustainability as well as access to infrastructure and service delivery in a post-Apartheid city.

I didn't like it [the water crisis] because of the nature but I find it is good that we all of us woke up and I started to really appreciate everything. Not only water, but everything became so precious because suddenly we had no water anymore and it was dangerous. Now every bit every tiny thing is just super precious. You learn such things about composting and using your pee for the garden. Then don't drink any shit because that will end up in your garden then.

(Int. 5: Maria)

Maria herself connected the crisis to the system of infrastructure and the urban metabolism that facilitate movement and allow water to flow and therein contribute to greater awareness creation and circulation of water-wise practices. An anthropological understanding of infrastructure, moreover allows us to trace the different heterogeneous associations of the system and elucidates the interconnectedness of things, ideas and actors within it (Larkin 2013, p. 331).

While many interviewees described their fear of running out of water in the first place, they pointed out that with the political infighting, the tariff increase and scare tactics, they no longer trusted the CoCT to manage the crisis accurately (Int. 1,3,4,8-10). The flow of information was interrupted, and messages were misleading. Although most of my interview partners believed that Cape Town was in a severe drought, they accused the municipality of not informing and

addressing their residents appropriately (Int. 1,3,4,8-10,12,13,15-20). Interviewees reported about the inconsistency of messages and the lack of transparency attached to implementation strategies for avoiding Day Zero (Int. 12,13, 15-20). Within the city government, a political trail of strength developed and led to the dismissal of the mayor as pointed out in Chapter 5.3. Many citizens felt neglected and insufficiently informed by the municipality and their responsible ward (Int. 4,8-10, 18-20).

The infrastructure of water governance was thus not only lacking a constant water flow, but likewise persistent flows of trustworthy information. Not only the material infrastructure was affected by the crisis but also the ideological infrastructure. The mismanagement led to an inconsistency of messaging and hindered communication flows from being transferred through the system of infrastructure. Additionally, the passing on of information concerning the water and water (ab)use lead to the creation and circulation of what Robins calls 'water facts' (Robins 2019, p. 7). These *water facts* were often shaped by allegations hovering around and spread through dubious (social) media channels.

The mismanagement by the CoCT manifested in the implementation of inappropriate demand management and scare tactics. The plentiful induction of WMDs was one example of these poorly considered demand management techniques. The installation of the device was not communicated well and often conducted in the absence of the homeowners (Int. 4, 9). Sue and Shafia felt betrayed by the city government for the unsolicited installation of the WMD. Shafia elaborates, the meter was supposed to restrict her family's water consumption to 350 litres but the bill that she showed me nevertheless still charged her horrendously high rates for water that she could not possibly have used due to the restriction of the meter (Int. 9). She furthermore expressed her struggle to continue with her daily tasks due to being in debt with the CoCT. The family has a prepaid electricity meter installed that she cannot use properly since the municipality deducts her debt from the electricity units she is buying. Instead of getting the units that she pays for, the CoCT subtracts a certain amount to pay her arrears. After all that, her water bills are not going down and the CoCT sent her a disconnection warning if she did not make arrangements to pay her arrears. Meanwhile, Shafia felt helpless with her situation and consulted her ward councillor Charlotte Williams for help (Int. 9).

Looking at Shafia's situation during the water crisis, we can see the interconnectedness of different infrastructure systems within the urban metabolism and its connection to power relations and urban governance. While the entire urban water system was interrupted, Shafia's

high water use was conspicuous to the municipality. She was not able to provide the financial means to keep water flowing at a steady rate and the CoCT threatened to disconnect her from water service delivery. Having placed the WMD in order to avoid further disruptions of financial flows, the flow of information of Shafia's actual water use got lost somewhere along the way. The ward councillor's involvement is to be seen as an instrument for bridging the gap between civil society and municipality, and indeed even served as an enabling agent of the different forms of mobility.

While people felt insufficiently informed by the CoCT, they developed other strategies for obtaining access to the information they needed. During the crisis, people supported each other and provided information, water and help when neighbours or friends were in a tricky situation:

[I]t [the water crisis] has a huge impact, but I'm quite grateful because it did teach me a lot and taught my family a lot. It also made us work together. It really made us work together. [...] We wouldn't have worked together had we just gone on with the normal life. [...] Because it's a crisis and you all share that one thing and it's really basic. I mean you have to have water; you have to talk.

(Int. 4: Sue)

Narratives of Distinction – Struggle and Privilege

Charlotte Williams is one of the contacts I was able to make via social media. She is the ward councillor of sub-council 18 and a member of the conservative party ACDP. As exemplified in Shafia's narration, the water crisis interfered with the system of water infrastructure so that many residents actually had to change their lifestyles, while for others, dealing with the situation was easier. Many of my interviewees identified the water crisis as a crisis affecting the middle-class extensively, while the rich people 'could buy themselves out of the situation' (Int. 1,2).

If you're really rich, you can afford all those things that's out there now. When you get to your middle class, your middle class can maybe – some of us can afford it. Some of us can only afford half of it. Some of us can't afford any of it. We need to do a bit more physically. When you're poorer, there's just no way out for you.

(Int. 1: Naomi)

What Naomi said can be directly linked to the biopolitical effects of the crisis and the formation of different lifestyles in the context of water. While *rich* people are able to afford different technologies that make water saving easier or are simply able to pay for higher rates, *middle-class* and *poor* communities have to work physically hard(er) to save water. Another distinction

was made between poor communities that do not have individual access to water but receive their water through a communal standpipe: “[i]f you were to be very provocative, you could say it actually didn't affect poor people that much because they were so badly off already” (Int. 2). The saving strategies introduced by the CoCT addressed households with access to water. Those households with sufficient financial means often build up their own water infrastructure of JoJo-tanks and filter mechanisms to rely on.

During my research I observed the phenomenon that my interview partners distanced themselves from *others* in certain areas and from different backgrounds and their behaviour with the crisis and water in general. Often these narratives revealed a feeling of belonging and distinction along class and racial lines. *Water facts* circulated within Cape Town's communities and spread rapidly within different (social) media channels:

[T]here was a video that came up on YouTube of this guy who went – Okay, so my deal with YouTube videos, obviously, you don't know if it's real or not. But this guy was definitely in the township and there was an erected toilet where the water would just keep on running, fresh water. Who's monitoring? Why aren't people monitoring? Why is the government not monitoring stuff like that?

(Int. 6: Jaco)

While on the one hand, encouragement of active citizenship and the development of resilient and sustainable manners facilitated responsible conduct with water, it also eased the spreading of water allegations and often contributed to the reproduction of historically grown inequalities. Narratives of distinction about how certain groups of the population deal with water were told and people would pass them on often with a *misleading* intention of awareness creation. On the other hand, these narratives were used to emphasize one's own image of responsible and sustainable water users.

They [people in informal settlements] don't have access to running water [at home]. There's a tap in the centre of a few houses. Everybody fills up their bucket from that tap, and then they use it in their homes. They don't have toilets, they don't have taps in their home, nothing. So, they would fetch their water for washing, for drinking, for whatever they need in every home. My sister was saying that the lady who works with her was saying that the people would just leave their tap running.

Naomi continued a little later in the interview:

It's not their own [water]. They would wash cars; we're not allowed to wash our car. We haven't washed our car in months. They would wash cars; they would leave it running.

(Int. 1: Naomi)

Furthermore, Naomi's explanation refers to the dominant discourse of cost recovery. The value of water can only be measured in monetary means. The discourse goes on that people who do not pay for water cannot know its value and therefore use it in an irresponsible manner. Sizwe, who lives in Gugulethu, a township in the North of the Cape Flats describes a similar scenario:

I don't want to create anything between us [the community] about the situation of water. Although, I know the importance of water. Since, in my everyday life I'm using water. I know the value. But if you don't have water. So, you [don't] fight with someone about the issue of water. But, just to say a word, it's ok. If someone agrees or disagrees, it's none of my business. I do what I believe is right. Someone do[es] what they believe is right.

(Int. 7: Sizwe)

Sizwe is a gardener working for a gardening project that provides fruits and vegetables to restaurants and hotels in Cape Town and delivers boxes of 'homegrown' fruits and vegetables to households directly. I was able to visit Sizwe at the gardening project in Gugulethu through a contact I established with a local NPO. Sizwe told me about his work in context of the water crisis. He explained that he was very aware of the amounts of water he was using every day to irrigate the crops in the garden. Other than in the narratives of Maria and Josef who felt the need to address people directly, he was concerned about his own safety when accusing someone else of wasting water. Furthermore, he felt he was not entitled to make such accusations since he receives water for free. Sizwe explains that he who does not pay for water has no place educating someone else on the issue of water conservation. The value of water is therefore measured by its monetary means:

People, they don't save water. Especially in informal settlements, because the people who are staying in informal settlements, they don't pay for the water. So, which is why now they don't know about the importance of saving water, it's because they don't pay for it. That is the reason.

(Int. 7: Sizwe)

For Sizwe, the value of water is therefore directly linked to its economic value. The value of water and the ability to measure that value is linked to a concept of ownership promoted by the international community such as the World Bank and the United Nations. With the right to

water comes its responsibility to pay for it. A value can only be measured by its exchange rate – the financial responsibilities (McDonald 2003, p. 25). This incentive is furthermore linked to environmental arguments and sustainability. The price of water needs to reflect its value in terms of environmental issues. Pricing is used as a mechanism for shaping human's behaviour within the neoliberal paradigm.

That the value of water is to be measured by economic means reflects, moreover, on the enforcement of the neoliberal discourse on water use. Sizwe's understanding of water and himself in the context of water reflects on this discourse. He who cannot pay for water is not entitled to judge others. This understanding of water goes along with a distinction of different forms of life, those who pay for water and those who do not. Naomi elaborates on this when saying that people in the informal settlements do not have the capacity to think about water use since they have to ensure survival first and foremost. Different forms of access to water and the ability to pay for it therefore divided different forms of life or survival and created distinct forms of *hydraulic citizenship*.

In the same way, certain narratives existed about how people in the townships would not know how to use water responsibly. Stories likewise circulated about how wealthy people were dealing with the crisis. These narratives ranged from "rich don't really give a damn" (Int. 5) to the assumption that due to having the resources, *rich* people were more mindful as expressed by Naomi:

It's my opinion that people who are rich tend to be more mindful about how they live, because they've got the time to be more mindful of how they live, and they've got the money to do – I'm not saying everybody does it, but I think there's more of a consciousness there of how to look after your body, how to look after the planet, and they're more exposed to that. You cannot live a conscious life without being conscious.

What they do is, you'll see outside their homes, they've got those big Jojo-tanks. It's very expensive. When you're trying to put food on your table, spending like 4, 5,000, up to R10,000 on something that catches water, it doesn't seem so – You'd rather do, like for me, from my perspective, I'd rather do all the hard work because I'm home, but if I could, I would, at the drop of the heck, buy me one of those things.

(Int. 1: Naomi)

Many of my interview partners like Naomi identified themselves as middle-class and hardworking, especially in terms of the water crisis, where physical effort replaced innovative saving technologies such as Jojo-tanks and boreholes connected to the household's water

system. Simon who lives in the northern suburbs of Cape Town, invited me to his home to show me his ‘green living space’ that allowed him and his family to save water on a daily basis without implementing individual saving techniques. They were able instead to rely on the newest technologies. Being wealthy enough during the water crisis enabled people to live ‘off the grid’ and therefore independent from strategies and interventions from the CoCT. Simon built his own water infrastructure to guarantee a constant water flow at his home. He emphasized that he was very aware of a sustainable lifestyle but that he also did not want to forgo his privileges of ‘taking long showers’ and ‘having a blue pool’ (Int. 11).

Sabrina describes similar feelings in the context of the tariff raises:

[W]e are probably I would say a little bit more advanced and we worked our lives to get out of that. Now why do we have to be punished the same way in a way? Now because of that, they [people living in the townships] have got no restrictions. [...] Quite frankly in the way I was brought up, I don't want to live the rest of my life carrying a bucket to the toilet. Because then I will move into a shack. A nice one but I will move into a shack.

(Int. 10: Sabrina)

As addressed by Sabrina, people felt that the strategies implemented during the crisis would rip them of the privileges that they had worked hard for. Her line of argumentation reveals contentious issues of class along racial lines. Sabrina describes herself as being advanced due to hard work but does not reflect on the fact that there were many poor people in South Africa that had previously been disadvantaged due to the Apartheid regime. Pulido describes these ideologies and practices that reproduce white’s privileged statuses as *white privilege*:

[W]hites do not necessarily intend to hurt people of colour, but because they are unaware of their white skin privilege, and because they accrue social and economic benefits by maintaining the status quo, they inevitably do. [...] It is this ability to sever intent from outcome that allows whites to acknowledge that racism exists, yet seldom identify themselves as racists.

(Pulido in McDonald 2008, p. 286)

Lester September also describes this lack of sensitivity of people coming from different backgrounds:

This is what the water crisis is. People are being pushed to the edge. What is it going to take to push them over the edge? [...] Then the water crisis comes in and pushes them over the edge because people are already living on the edges. Struggling to survive, and life is a struggle in itself just things that you take for granted. You know, someone who's got a car, takes for granted to get from A to Z, or somebody who lives in the city takes for granted-- I know, I

sit on organizations, and I see people who don't understand because they don't identify the struggles of the people of the Cape Flats.

(Int. 17: Lester September)

The expounded narratives of struggle and privilege result from an aging infrastructure that in South Africa is largely defined by inequalities due to Apartheid. Narratives told by my interview partners reflect on personal experiences with discrimination and privilege in the past and present as Hellberg was able to show in her research in eThekweni (Hellberg 2018, p. 138). The narrations furthermore elaborate on people's self-perception in context of water use and the constitution of different forms of *hydraulic citizenship* in this context. In South Africa where the legacy of Apartheid is so deeply rooted in daily practices it is important to reflect on the historical circumstances while studying water infrastructure and reveal the reproduction of inequalities in context of water governance.

Narratives of Hygiene and Discomfort

At a very individual level, the water crisis affected people's lives and their daily routines. Tasks that worked smoothly and uninterrupted on a regular basis now became noticeable and, in many narratives, uncomfortable. Daniel connected the crisis to the interruptions he experienced during his rugby practice. Usually the club supplied the team with water bottles during rugby practice but stopped doing so during the water crisis. The same, he said, applied to the shower facilities. The players were no longer allowed to use the showers after practice but had to shower at home. Daniel explained that this interfered with the social interactions of the team who would usually socialise at the club after practice but was now forced to go home to wash themselves. Moreover, the field was not allowed to be watered anymore which often caused burns on the player's skin when falling (Int. 3).

Many of these stories of discomfort refer to narrations of struggle and privilege and reveal issues of inequality since they were also connected to privileged access to water in the first place.

Often discomfort was also linked to health issues:

There was a fear that obviously the water would be contaminated, because it's at such a low level. Obviously, you think that all bacteria or everything else would kind of sink to that level. I think this was something I wasn't quite sure, but I think one friend actually has abdominal illness. He actually had to go to a hospital.

(Int. 6: Jaco)

Most of my interview partners that had received their water through a household connection reported that they did no longer trust the tap water to be of drinking quality. Due to the low level, the colour of the water and pipes being corroded, people were afraid it was contaminated (Int. 1,3,4,6,19).

The debate about hygiene and health became an issue on various other levels as well. Public places typically stopped providing water and in public toilets, hand sanitizer was made available to clean one's hands. Another discussion that people engaged with was where to use the strategies which the CoCT had implemented. While Maria feels quite comfortable not flushing a public toilet, other interviewees expressed their discomfort and health concern doing that (Int. 1, 6).

6.2. Active Citizenship, Public Participation and Activism

During the water crisis, people became experts on water topics and many residents engaged intensively with particular *water realities* that affected their own life and often the lives of others around them. Social media provided the platform for exchange in many cases. *Water realities* arose from daily challenges Capetonians experienced and felt the need to address with vigour. The raising of water tariffs, the installation of WMD and the implementation of the pipe levy were topics discussed in different forums, events and discussion groups. Moreover, people mobilised in different civic organisations such as residents' and ratepayers' associations and other interest groups.

Through my active presence in social media forums and membership in various action groups online, I was able to reach out to key persons. These key persons were members of the groups and identified as contact persons who were highly involved in particular water realities, well-connected locally and able to represent the interests of an action group. In the following three paragraphs, I introduce three action groups that were active during the water crisis and involved with various water realities highlighting different focus areas. These groups had in common that they claim a right to the city and its infrastructure in the context of water governance. In this sense, they can be identified as resisting with governing logics in different dimensions. Although, as explained previously, this binary differentiation of compliance and resistance leads to normative implications as well as a simplified understanding of agency, it thus requires careful reflection.

6.2.1. DearCapeTown – Encouraging Participative Governance

Reaching out to people via social media, Sandra Dickson was one of the names that was dropped several times. People in several Facebook groups considered her an expert on water questions and tagged her in my posts. Via private messaging, Sandra and I arranged a meeting wherein she wanted to tell me why people considered her to be an expert and explained her involvement in the crisis. Sandra asked me to come visit her at home in the northern suburbs, a residential area with free-standing houses, since she was not mobile.

Sandra explained that she usually earns her money teaching high school kids, and had recently founded an online platform called *DearCapeTown*. She started to speak out on the electricity tariff increases in 2017. While the CoCT dismissed the raise in tariffs as being nominal, Sandra explained that for property owners whose houses valued more than R1 million, the electricity tariff increase stood at 74 %. She started speaking out about the tariff increase when she was affected herself due to an increase applicable to properties valued at R400,000 and above. She started networking and reaching out to people with similar problems. Finally, she established a group on Facebook called *Electricity tariffs must fall* as a platform for exchange. She was actively engaged with the topic until the end of the year 2017 when she decided to drop it since she felt she had not achieved any major changes (Int. 19). The proposed levy of the CoCT linking a drought charge to property value to make up for revenue losses during the water crisis used the same approach as during the electricity tariff raises. The levy caught Sandra's attention who immediately felt the need to get active again and mobilize people around her.

Well-connected as she was, she teamed up with an activist from Johannesburg, Rob Hutchinson who was previously involved in a group of activists called OUTA¹⁴ which took up the issue of tax abuse. Together, they established a website for people to participate in government decisions due to a legislative framework, the Promotion of Administrative Justice Act.

Out of the constitution comes a law called the PAJA. [...] The PAJA Act – that is the peoples' act. That gives us the right to question government decisions. Where it's at its strongest is when government makes a decision that influences a whole lot of people, they have to give out a public

¹⁴ Organisation Undoing Tax Abuse

participation process, which is 30 days minimum and they give 30 days minimum. During that, then, that department is supposed to supply an email address and then people can send in their comments.

(Int. 19: Sandra Dickson)

The PAJA was implemented in 2000 and gives people the right to “fair, lawful and reasonable administrative action” and “the right to written reasons for administrative action that affects them negatively” (Republic of South Africa 2000b). Administrative action is defined as all actions taken by the administration that affects citizens’ rights. The administration is made up of all government departments, police and army as well as parastatals that are often involved in service delivery. Citizens that feel mistreated can challenge administrative action based on the PAJA. Hence, the right permits a court to review administrative action to guarantee it is fair, lawful and reasonable (Republic of South Africa 2000b).

The administrations must act and proceed fairly when considering the options and must likewise allow people to discuss the matter before taking a decision that negatively affects their rights. Rights and decisions taken have to be explained clearly and comprehensibly. The PAJA therefore facilitates public participation on a local basis. Nevertheless, Sandra criticises that most people are not well informed about their rights nor about the opportunity of raising an objection (Int. 19).

The platform Sandra and Rob founded is based on that particular act and mainly works via an online forum and social media. The goal is to give people a chance to voice their concerns. Sandra avoids calling her engagements an organisation, since for her, an organisation has a structured body and money involved which her involvement does not have. Sandra explained that similar websites allowed people to submit a comment or concern on similar issues but that they are often not very transparent and lack a consistency of messaging. The website dearcapetown.co.za put the idea of giving people a voice into practice. With the issue of the drought levy connected to the property value, the first claim was established and open for comments.

We started with that [the website]. We got with a drought charge, and we promoted it heavily. It was 61,002 [submissions]. The drought charge was scrapped. Apparently, we caused mayhem in the city because never ever before did anybody ever got them to change a decision. Let alone from the politicians, but from the people. They got clever. Immediately, I can say they scrapped the drought charge, but they increased the tariffs. They brought these level 6B and they brought all these high tariffs in.

(Int. 19: Sandra Dickson)

On the website dearcapetown.co.za, Sandra and her co-founder provide so-called campaigns that are open for the public to discuss. Citizens can comment on the issue and the website will pass the comment on to the CoCT. In addition to the PAJA, public participation at the local level is legally mandated by the South African constitution (Republic of South Africa 1996, ss 152 (e)) as well as by the Municipal System Act (32 of 2000) (Republic of South Africa 2000a, ss 17). The website itself is very simple. A list of the campaigns is right at the front page, easily accessible. Furthermore, the website provides information in the PAJA and highlights the importance of public participation.

The oldest campaign concerns the proposed implementation of a drought water tariff to be added to the monthly bill of every household (exempted households with a property value less than R400.000). Sandra aimed to promote awareness about the mismanagement and the right of the drought to other citizens. She felt the drought charge was punishing Capetonians who were working hard on getting water consumption down instead of rewarding these efforts. She criticises the approach of the CoCT during the water crisis of using scare tactics instead of a “human approach” of encouraging collaboration and team-work on the matter:

[...] We've been saving ever since the city came up with their first call for us to save water. [...] I think that every citizen in Cape Town thinks that they've brought their bit, they did their bit. Then we get rewarded with this Day Zero. Day Zero was enforced on us in a punitive manner. [...] Instead of having a humane approach by saying, "Let's work together," getting water ambassadors and – because you can police in two ways: you can police with a gun or you could police by just being present. They chose the police, not with a gun, but the punitive policing strategy.

(Int. 19: Sandra Dickson)

Many citizens shared her point of view and sent a comment to support her request. 55,367 comments on the matter were sent to the CoCT by dearcapetown.co.za and the drought water tariff was not implemented. After success with the first request, DearCapeTown promoted other campaigns for public participation. The founders made it their mission to improve public participation processes, hold the local government accountable and promote equality (Int. 19). Sandra observes accurately what strategies, by-laws and policies the local government develops, what budget is available and how they plan on applying those by-laws and policies. She demands that taxpayers' money go toward the improvement of service delivery for Capetonians and not for personal enrichments and corruption (Int. 19).

By sending comments to the local municipality via the platform, participants made use of the legal framework they are entitled to. In so doing, they were acting within the governing logics of the constitution of South Africa. DearCapeTown made use of rightful participation procedures implemented by the RSA, including procedures to be executed by the local governments. The PAJA facilitates citizens involvement at a local level. DearCapeTown promotes citizens making use of their right to engage in local politics and improve one's own living standards. DearCapeTown also supports active citizenship and encourages the development of scrutiny and civic engagement. In order for people to become active citizens, DearCapeTown provides the channel for citizens to engage with the local government. Forms of resistance are various and include motivations for altering the existing form of governance in the context of e.g. water or the entire system. DearCapeTown can in this sense be viewed as a platform that aims to influence government decisions, making use of existing governing logics and codes of conducts as part of society.

DearCapeTown offers an online platform with information provided by the founders. Through this channel, DearCapeTown enables a flow of information and exchange that supports their convictions. Within the boundaries of the legal framework of the RSA, the platform allows citizens to contribute to local decision-making. The flow of information and the deployment of knowledge contributes to the overall decisions-making process. Knowledge therefore constitutes an important tool of opinion formation and enables the exertion of power. Due to Sandra and Rob hosting the website, they decide on the campaigns and the content provided on it. Although the platforms expanded and the founders established websites for other municipalities in South Africa, users cannot create content and campaigns themselves which, in turn, constrains the participation process.

Furthermore, due to it being an online-based participation platform, DearCapeTown excludes those citizens without an internet connection which Sandra admits during the interview (Int. 19). In that respect, the organisation largely addressed middle-class homeowners that were identified to be the main addressee of communication campaigns of the CoCT during the crisis.

6.2.2. The Water Crisis Coalition and the Anti-Privatisation Movement

While many of my interviewees rejected the water crisis as solely the result of a drought, others emphasised it rather as an outcome of mismanagement by the CoCT. The Water Crisis Coalition (WCC), a group of anti-privatisation activists went one step further and accused the CoCT of committing a social experiment with Cape Town's residents:

Cape Town is being used as an international social experiment. Yes there is a drought but 'day zero' is a deliberate lie to justify the rapid privatization of water. The City used a formula that assumed it would not rain; it assumed that it would be windy and hot every day; they failed to consider that large agriculture was abusing water; day zero was flawed from the beginning. Now the international banks are using Cape Town to threaten other cities in SA and the rest of the world, to privatize water. That is why we need to join hands to stop the privatization of water in Cape Town.

(Water Crisis Coalition 2018)

Through contacts of former research stays in Cape Town, I was able to establish contact with Shaheed Mahomed, who is one of the committee members of the WCC. The WCC was established on the 15th of January 2018 through a number of organisations and individuals intending to protest against the privatisation of water. The coalition addressed a petition for the rejection of the budget of the CoCT and the privatisation of water. The petition included 13 points concerning the implementation of the budget of the CoCT for the financial year 2018/19 and the water crisis management. Included amongst the claims was the objection to the building of desalination plants and the installation of WMDs, the reduction of the water tariffs, the opening of all 70 springs to the public, the improvement of the infrastructure including the repair of all leaks, the protection of the aquifers and the cessation of all privatisation approaches within water services.

Shaheed agreed to meet me and tell me about the drought, Day Zero and its implications with privatisation. He explained that he comes from a generation of activists from the 1980s who were and are still fighting the capitalist system (Int. 18). He is a member of the Workers International Vanguard Party that supports the development of communism through efforts to advance the struggle for socialism (Workers International Vanguard Party 2017). The water crisis conflict management is to be understood in this line of action, Shaheed clarified.

He describes exposures as one of the main tasks of the coalition. He emphasizes the importance of research and its contribution to mass mobilisation. If people are educated, informed and well-versed, they are able to question and challenge the ruling system accordingly. With this

observation, Shaheed directly touched on the relationship between power and knowledge: Foucault argued that this relationship is the foundation for knowledge, and as a result, power needs to be studied in the first place. Knowledge and science serve the reinforcement, preservation and dissolution of power relations (Strüver 2009, p. 64). Especially during the water crisis in Cape Town, the development and circulation of *water facts* was observed. *Water facts* spread due to an inconsistency of messaging from the CoCT to its citizens and resulted in the circulation of assumptions and claims of truth about water, its use and moral obligations.

The coalition's approach to claim water as a common good can furthermore be brought in line with concepts of the *Right to the City*. The ability to criticise the ruling system allows discovery of new possible alternatives (Brenner 2009, p. 200). Moreover, Harvey (2003, p. 940) identifies the dreaming about alternative urban scenarios as a productive source of city-creating-exercises. The dreaming itself encourages citizens to become active citizens. Social movements such as the WCC, pool this potential and encourage citizens to stand up for their rights, convictions and dreams.

The WCC accuses the CoCT of instrumentalising the drought to push for privatisation and commodification that would therein facilitate profit maximisation:

Out of that [the privatisation of service delivery], that's really the background to the so-called Day Zero scenario here in Cape Town, because it's an excuse to privatise the water in a rapid way and to build desalination plants which need power, they need huge amounts of power. They need billions of Rand every year as an ongoing cost, they need billions of Rand to pay off that amount of money. Then banking capital comes in, the whole question of, it's another field out of which profit can be made. That's really why they cooked up this Day Zero scenario.

(Int. 18: Shaheed Mahomed)

This argumentation reflects on the critique of the concept of the *Right to the City* that observed the reduction of state responsibility especially the context of service delivery, upon implementation of the neoliberal paradigm. Since the first free elections in 1994, the RSA has undertaken small steps towards the curtailment of the government's responsibilities in context of water provision. Water itself was not intended to be privatised, per se, but the provision of water. With the government's reduction of responsibilities, citizens were compelled to develop a proactive attitude towards water use. With the water crisis and especially with the rolling out of WMDs, Capetonians were more or less forced to develop a calculative and efficient outlook. Von Schnitzler made similar observations in Johannesburg when the city government decided

to install prepaid water meters in Soweto. Von Schnitzler describes this development of “‘aiding’ residents to calculate and economise their water consumption” as a result of the neoliberal paradigm shift after the end of Apartheid (Von Schnitzler 2008, p. 899).

Shaheed explained that with the *invention* of Day Zero, the CoCT went too far. Due to bribery and corruption, Capetonians had acquiesced to the many tariff raises within the electricity sector, but would not accept any more (financial) burdens (Int. 18). However, in order to keep the capitalist system running and the accumulation of wealth as an immanent feature of it, the transformation of public and common wealth into private property is required, argue neo-Marxist scholars such as Harvey (2003, p. 940) argue. In Cape Town, capitalist leaders had therefore instrumentalised the drought to artificially cause a scarcity:

There is a drought, of course. It's a drought, but capitalism is opportunistic. Where there's an opportunity they would seek to exacerbate it and take full advantage out of it. They want to restrict; they want to create an artificial scarcity. If people are using water and getting free access to water, why should the bottled water industry exist, why should it be making it super profits? That's enough. They're deliberately installing devices that don't work that are defective and so on because a lot of people they need water for their basic functions. What they do then is that when the water runs out or gets interrupted, they go to a shop and they buy water.

(Int. 18: Shaheed Mahomed)

Shaheed's line of argumentation goes along with Harvey's elucidation on the construction of (individual) rights and freedoms that facilitate unlimited capital accumulation. The freedom of the market produces monopoly powers and enlarges social inequalities (Harvey 2003, p. 940). In the urban realm in a South African context, this results in deepening social polarisation along racial lines. Day Zero therefore conveyed class and racial inequalities and reproduced historical injustice.

Shaheed contributes to this understanding by elaborating on the early developments of what he calls slave capitalism from the colonial period up until today. He emphasizes that the ending of Apartheid brought certain kinds of freedom with it but kept exploitative relations in place reflected in low wage levels and capital flight (Int. 18).

The WCC coalition therefore aimed at exposing these exploitive relations in terms of water distribution and at alerting people to the problem. The desire for a better and more inclusive urban future is to be understood as a contribution to the reclaiming of the city. The right to the city is not solely the right to access but “an active right to make the city different, to shape it

more in accord with our heart's desire, and to re-make ourselves thereby in a different image” (Harvey 2003, p. 941).

6.2.3. Justice4CapeTown – Representing Cape Town’s Vulnerable Groups

Ghalema Easton was the administrator of one of the groups on Facebook that I had reached out to for interview partners and for gathering information on the water crisis. She was one of the first respondents to my post in her group. She explained that she had created the group to express her concerns about the developments of the water situation and to influence factors and create a platform for exchange for people. In the information section, she points out:

The Average person has become poorer as a result of High Rates and Taxes, Low Economic Growth and Political Arrogance. Our basic principle is for everyone to participate in debate and change in our city. We particularly welcome frank and realistic liberal values. We trust it to be an important contribution to the current debate on the future of our troubled city.

(ZERO WATER ZERO RATES has evolved BACK TO BASICS - CAPE TOWN 2018)

Ghalema explained in a private message that she had gotten together with some other individuals to establish a community group called Justice4Cape Town to express their outrage and grievances about the water crisis management. Justice4Cape Town mainly focused on the engagement with the CoCT in order to ease the burden on previously disadvantaged and senior citizens during the water crisis who they revealed were the most vulnerable in the context of the water crisis. Ghalema was very eager to support my research by giving me insights into the work of Justice4CapTown. Together with her, we organised a group meeting with members of Justice4CapeTown. Ghalema also offered to host the meeting at her home in the southern suburbs.

On Saturday the 8th of September 2018, I arrived at 10 o’clock at Ghalema’s home. Slowly all other participants arrived and after some casual small talk, we all sat down to start the meeting. Excluding me, seven people had come to the meeting. As I learned later, all the participants were members of Justice4CapeTown, with three of them representing the core team of the group. Moreover, the participants were members of resident’s and ratepayer’s associations in their particular neighbourhoods and represented their community’s interests. All eyes were on me to open the discussion and explain my interest in the water crisis and the group’s work. I introduced myself and explained my background and the idea for my research. The group

explained that their engagement within the water crisis largely resulted out of the unfair treatment of the residents of Cape Town by the CoCT during the crisis such as the tariff increases, the installation of WMD, and scare tactics designed to push for the enforcement of their measure. They elaborated that the reward for tremendous savings was financial burdens resulting from tariff rates and that this was hardly a good way to thank residents for their efforts. The motivation for representing the interest of pensioners resulted out of the feeling that this group of society was the most vulnerable in terms of the enforcement of saving strategies:

[W]e decided to fight firstly for the pensioners, because every week or every other day in the Daily Voice and in the newspapers, pensioners' bills were being highlighted. We felt that pensioners are becoming soft targets for the city to take advantage of and nobody is standing up for the pensioners. Nobody is helping and supporting the pensioners and that is why we focus – not only for the pensioners, but that is why we started, and we focused on them because they are the vulnerable. They are soft targets.

(Int. 20 h): Shireen Nordien-Ismail)

Another aspect that came to discussion was that the group did not feel well represented by the local government. The group felt the need to remind the city government that they were representing *all* residents of Cape Town. Like DearCapeTown and the WCC, Justice4CapeTown elaborated on the necessity of holding their representatives accountable for what they do. The policies and strategies implemented during the water crisis, they claimed, were not well thought out. Policies were based on numbers of the Cape Town census of 2011 which was, by that time over seven years old. The group furthermore complained that these figures were averaged values that did not mirror the reality for most Capetonians. The census states that the average household size in Cape Town was 3.5 people in 2011. As members of coloured communities, one participant stated they felt marginalised under the present local government:

It's mostly white people sitting there. Normally, they don't have more than two children or three children or whatever. Our communities are very different. Because of Apartheid and because we were thrown out of our areas that we were staying, we were forced to move in on property, two families, three families per property. We still have that where there's maybe eight to ten people living on a property. That's in every basically coloured community that you go to, no matter where you go. To assume that there's only four people per household is ridiculous and to assume that you only need 350 litres of water per day doesn't make sense for a family of eight or ten.

(Int. 20 h): Shireen Nordien-Ismail)

Having said that, the members of the group also emphasised that they represented the interest of the coloured communities in Cape Town. Black communities were understood to be “previously disadvantaged” and would therefore benefit from policies addressing these conditions, whereas coloured communities would not benefit from them, even though they were disadvantaged and forcibly removed from their homes during Apartheid (Int. 20 c)). Cassiem called for the group to stand together as the coloured community and fight for their rights: “[w]e need to get that straight. What I'm saying is, our so-called coloured people must start gathering together and solidify yourself together” (Int. Cassiem Nordien). Shireen picked up on Cassiem’s statement and elaborated:

Even our own Coloured people, we have been marginalized, we've been ignored by our government for so long and I think a part of it is the way we were brought up or grew up in Apartheid time. I find that that legacy still remains now, even though it is 24 years later, we still have this thing where, if the white man says this then we just say okay, we accept it. It's very difficult to change that.

(Int. 20 h): Shireen Nodien-Ismail)

Shireen’s reference to the legacy of Apartheid with its persistent effects on society can be understood in terms of the concept of infrastructure as an “accretion of non/human relations” (Anand 2015). Anand adds that infrastructures are brought into being by various historical arrangements and technopolitical relations. Apartheid was not created de novo by the NP in 1948, but relies on ideas of racial segregation that go back to the colonial period and before. Additionally, infrastructures accumulates over time and are shaped by and constitutive of political logics (Anand 2015). Hence, the legacy of Apartheid still shapes and reproduces historically grown inequalities along racial lines and also affects the water provision in an exceptional and overt way.

This phenomenon was also observed regarding the strategies that the CoCT implemented during the water crisis by the group. The members discussed that the city government did not contrive their communication campaigns with tailored messages addressed to people and communities in different socio-spatial and socio-economic backgrounds in Cape Town:

Especially on the Cape Flats, when Helen Zille tried to tell people to shower with a skottel and a waslappie¹⁵, it was such an insult to poor people because poor people have been washing like that for years, for decades, especially

¹⁵ Afrikaans: bowl and washcloth

people in informal settlements, they don't have showers. All they have is a bucket and a lappie.

(Int. 20 h): Shireen Nordien-Ismail)

Having said this, Shireen lays out how communities felt that they were not being taken seriously by their local government, who seemed rather uninformed about their living conditions and water realities. The way they were addressed in terms of saving techniques does not match the realities they experience on a daily basis. This lack of information about citizens' lives conveys issues of marginalisation in terms of overall service delivery and the crisis management in particular. Although people have access to water, they are excluded from the system of infrastructure in a sense that their individual needs are not addressed, and public participation is limited.

6.3. The Right to the City – Dreaming different Dreams

During the water crisis the CoCT encouraged its citizens to become responsible and calculating citizens who could equally participate in civic engagements on commonly identified problems of water conservation. Citizens largely followed that goal-setting process, but furthermore reflected the municipalities' approaches and through being responsible calculating citizens, lastly called the crisis management approach into question. This distrust in the crisis management resulted in the formation of several forms of civic engagement from a grass-root perspective.

Having illustrated three examples of public involvement in the context of the water crisis, I would like to elaborate on their similarities and differences. All three examples show mobilisation surrounding the dissatisfaction with the crisis management but addressed different issues. They have in common that their engagement grew out of frustrations and grievances about urban governance in terms of service delivery and claim in one way or the other a right to non-exclusion and public participation. Hence, they can be discussed in the context of the concept of the *Right to the City*. Harvey (2003, p. 940) emphasizes the need to imagine an alternative urban world in order to facilitate changes. The idea of a better urban future is often driving factor behind civic engagement. Nevertheless, these alternatives need to be reflected on carefully since they also contain assumptions about the social order and transmit conceptions of rights (Harvey 2003, p. 940).

Civic engagement often grows out of personal interest and dissatisfaction with the prevalent urban realities. During the water crisis, people were largely upset about the tariff increase and the inappropriate implementation of scare tactics and saving strategies. The CoCT was from all civic initiatives identified as *bogeyman*. While DearCapeTown primarily addresses middle-class homeowners, Justice4CapeTown actively supports elderly people who they identified as most vulnerable during the crisis. The WCC seeks to mobilise like-minded people to fight against the privatisation of water and the instrumentalization of the drought in order to gain profit. The development of different forms of agency of the civic activists is to be understood in the context of the encountered environment and socio-political circumstances of the water crisis. The civic engagement and collective actions are result of (individual) consternation of the water crisis and its effects on their lived realities.

Shaheed notes that knowledge and education are the keys for active citizens to exposing the unequal power relations within urban metabolism. Likewise, the two other groups use knowledge and its distribution as mean to an end. Citizens need to be informed and have to be able to hold their representatives accountable to get involved within the political sphere. Sandra elaborates that the legal framework in South Africa guarantees many of these features and thus provides a simple online platform where citizens can raise their concerns. All investigated civic initiatives make use of prevalent forms of participative government and claim to strengthen these political structures.

Civic engagement in terms of service delivery looks back on a long history of mobilisation as explained in Chapter 4. Civic engagement and collective action can be seen as immaterial infrastructure nurtured by the Apartheid struggle. Facilitating urban flows such as knowledge, ideas and people and thus contributing to social mobilisation, they aim to achieve better urban futures for citizens and through their efforts, hold the promise of a right to the city. In various ways, the civil initiatives provided platforms for interaction and exchange. In the case of DearCapeTown, a website was created for citizens to send their comments directly to the CoCT. Although Justice4CapeTown also communicated their frustration with urban governance to the CoCT via various channels such as protests and the ensuing handover of a memorandum to the mayor, their focus was on relieving burdens from vulnerable groups through the distribution and provision of knowledge and information.

Furthermore, as identified by Larner and Moreton (2016, p. 35), civic organisations play a vital role within the provision of security in times of increasing privatisation and the promotion of

neoliberalism. Instead of directly facilitating control over its citizens, the state exerts control via the promotion of self-initiative. Yet as we could see, organisations do not always adhere to the existing approach on a specific matter. For its part, the CoCT did largely promote active citizenship with the *#ThinkWater* campaign, and supported citizens involvement on water related issues. The local government, however, nevertheless encouraged its citizens to stick to developed strategies during the water crisis. Despite the governmental reticence towards civic engagement, grass-root organisations were successful in challenging prevalent political and socio-economic norms in pursuit of achieving collective well-being for the community. It follows, then, the solution approaches do not always align with existing governing frameworks. Civic organisations thus bear responsibilities that were previously defined as the government's business: "[t]he political imperatives of resilience thinking privileges modes of experimental governance in which policy makers, researchers, businesses, and communities are collectively charged with finding new paths to sustainability" (Larner and Moreton 2016, p. 36).

As previously discussed in Chapter 5.5., resilient urban governance facilitates public participation processes and encourages individuals to get involved. Nevertheless, the role of the state should not be reduced such as in prevalent neoliberal paradigms but should provide the necessary environment for engagement and grant every citizen a right to be heard.

7. Conclusion

7.1. Summary of the Results

The water crisis in Cape Town interrupted the urban metabolism in various ways. It affected urban flows of water, people, their ideas and information. While water was flowing slower and sometimes not at all, people circulated *water facts* and shared information and saving strategies in a veritable stream. The CoCT attempted to manage the water demand of the city but was challenged by political infighting, a trail of strength and financial bottlenecks. Eventually, citizens identified the strategies for overcoming the crisis implemented by the city government as amounting to mismanagement and expressed their lack of faith that the treatment process was either fair or sustainable.

In order to deal with the crisis and its (mis)management, citizens developed different forms of *hydraulic citizenship*. People became experts on water-related topics and many residents got extensively involved in particular water realities that affected their own life and often the lives of others around them. Social media provided the platform for exchange in many cases. Water realities arose from daily challenges which Capetonians experienced. They felt the need to address these challenges with vigour which led to social mobilisation and public participation processes. This thesis investigated the different forms of *hydraulic citizenship* and discussed them in the context of governance and governmentality. In the following paragraph I will expound the findings of my research.

Cape Town's water infrastructure is an accretion shaped by past and present.

Studying infrastructure ethnographically allows us to trace associations of heterogeneous networks including material and ideological perspectives which offers a valuable understanding of urban flows (Larkin 2013, p. 331). Infrastructures are “flaky accretions of discourses, materials, practices, and technologies that actively need to be bound together through technopolitical projects” (Anand 2015). Looking at Cape Town's water crisis, we could explore how memories of the past are inscribed in the urban water infrastructure. As the place where the first settlers arrived to stay more than 350 years ago, Cape Town developed as a vibrant city that – prior to the Apartheid segregation – was known for its cosmopolitan and liberal atmosphere. Meanwhile, Camissa – the place of sweet waters – offered its various inhabitants fertile land due to the countless rivers and streams in the area. Nevertheless, the Cape has always

been shaped by seasonal rains and, as a result, demands that its residents adjust to these circumstances.

The spatial segregation that was implemented at the beginning of the 20th century largely influenced (and still influences) various kinds of urban flows. Although the Apartheid was abolished 25 years ago, the city is still marked by entrenched racial patterns. Due to these circumstances, water flows are diverted, interrupted or even rescinded. Understanding water infrastructure as established by material and ideological components, flows of information and knowledge that facilitate the continuous flow of water were also interrupted by the crisis. While the flow of information from the CoCT was hampered by political infighting, the circulation of *water facts* within civil society remained a vibrant stream. During the water crisis, people became experts on various water topics and got heavily involved in the specifics of equal water distribution approaches.

After the Apartheid the CoCT developed policies and frameworks for regulating water flows and for ensuring the right to water for every South African as pledged by the constitution. These policies draw largely on the neoliberal turn that the country took in the 1990s. On the one hand, water was promoted to be a common social good that everyone is entitled to, but on the other hand necessitates an obligation to pay for it.

The remnants of the past, the ideological understanding of water and its use shaped by neoliberal policies, the material state of the dams, the pipes and the tabs, all collectively constitute the water infrastructure of Cape Town. The announcement of Day Zero generally caused different reactions across Cape Town but it made clear that the infrastructure was mundane and boring while it was working uninterruptedly (Star 1999, p. 377). The interventions of the water infrastructure created an awareness of water and its flow rates across Cape Town. Water infrastructure became a contested terrain in several ways and people invoked their rights, entitlements and limitations accordingly. Moreover, people connected the crisis to a broader contention with ecologic sustainability as well as access to infrastructure and service delivery in a post-Apartheid city. This awareness of cities as urban metabolisms, a space for exchange, communication and interaction again mobilises people, ideas and things and thus negotiation processes. The urban realm is therefore a productive space that is constantly being reworked (Holm 2011, p. 94).

The water crisis revealed issues of class and race and reproduces historically grown inequalities.

Having explained the accretion of infrastructure from past and present, the assumption that the provision of water in general and even more during the water crisis, uncovers issues of class and race, is hardly unjustified. Apartheid, which was officially introduced in 1948 with the election of the NP, has its roots deep in the colonial period. With the arrival of the first settlers of the VOC at the Cape, a separate development of different groups of population took place. Although Cape Town was well-known for its liberalism and cosmopolitanism developing during the British rule in the middle of the 19th century, racial segregation progressed steadily as of the beginning of the 20th century. In the name of securing hygiene and health, the native population was forced to move to the outskirts of Cape Town.

To this day, spatial segregation in Cape Town is still exceedingly visible and affects people's access to service delivery. Infrastructure that usually provides urban flows, ultimately jeopardised and policed movement during Apartheid. Undoing these inequalities has been on the agenda of Cape Town's IDP since the abolishment of Apartheid but remains a thorny major problem for South African cities.

Water provision generally conveys issues of class, which in South Africa often equals racial lines. Communities receive water through different techno-political objects such as conventional water meters, WMDs or standpipes. Each of these objects safeguards water provision in different ways and contributes to the constitution of what amounts to different forms of *hydraulic citizenship* (Von Schnitzler 2008; Hellberg 2018).

In South Africa, water policies were reformed and implemented after the first free election in 1994. The policies and frameworks aimed at making services available to the entire South African population and at addressing social inequalities largely produced by the Apartheid regime. The policies thus focused essentially on the provision of basic water but also clarified the misconception that it comes free of charge. The 1992 Dublin Principles on water were of fundamental influence on the policies of South Africa. The understanding that water is to be treated as an economic good involving incentivising of reasonable and sustainable use. Moreover, cost-recovery was identified as a measure for making sure municipalities are able to achieve financial sustainability to provide safe water and maintain the water infrastructure. Instead of implementing policies of cost-recovery through communication campaigns, education and trainings, the government (here the CoCT) believed that the focus on the monetary value would replace education campaigns on the value of water.

During the crisis, policies and strategies therefore also addressed communities in different ways. Due to the policies' feature of largely implementing saving strategies that require a household connection to the municipalities water infrastructure, the middle class was identified as being in the focus of the strategies. Due to these circumstances, other communities felt that the strategies did not mirror their water realities.

The water crisis governance distinguished different forms of life.

Furthermore, the (re)production and circulation of *water facts* supported identification of those who save water and others who do not among Capetonians, and was supported by mechanisms such as the identification of water *abusers* by the CoCT. Often these *water facts* generalized communities and (re)produced stigmatisation. Against this backdrop, people habitually felt the need to identify themselves as intense water savers. Often these identifications took place through the distinction from other individuals and communities who do *not* save.

Yet not only the distribution of *water facts* was responsible for the constitution of highly varied forms of life in the city, but moreover, of the different forms of access to water in general. Depending on the access to water, people see themselves as dignified citizens. Not being able to pay for water was identified as a means of distinction. The implementation of neoliberal principals in terms of water use generally shaped people's self-perception and what it means to live a good life in contrast to barely surviving. How people make sense of themselves in the context of water governance was also linked to racial segregation during the Apartheid period and people's own experiences with domination, discrimination and privilege, as also previously investigated by Hellberg in the municipality of eThekweni (Hellberg 2018, p. 138).

The water crisis thus affected Capetonians in various ways and people developed daily strategies for coping with the situation. These strategies interfered with their daily tasks, impacted personal relationships and revealed narrations of struggle and privilege. Moreover, boundaries of what was commonly understood to be private or public shifted during the water crisis due to awareness-creation and a public understanding of moral obligations. The blurry boundary between the public and private sphere is to be seen in the context with the visibility of infrastructure and its mode of operation.

The water crisis created and exposed new vulnerabilities and discomfort.

During the water crisis, Capetonians had to face several changes that impacted individual comfort zones in various ways. Often these new vulnerabilities can be identified in the context

of having to give up personal privileges. Due to the little pressure and the corrosions of the pipes, fear of contaminated water was identified by many Capetonians, on the one hand. On the other hand, in pursuit health and hygiene, other inconveniences and discomfort resulted out of personal circumstances and interests that were affected by the crisis management. These concerns also have to be linked to different forms of hydraulic citizenship. While Daniel was frustrated about the circumstances that affected his sports activities, Simon elaborates on the importance of having a long shower and being able to swim in a blue pool. These narrations reveal that vulnerabilities are often identified in the context of having a privileged access to water.

While the water provision generally separates different forms of life due to different technopolitical objects installed in different communities, the strategies implemented during the crisis followed a one-size-fits-all approach and were thus criticised in several ways.

The water crisis mobilised Capetonians and facilitated the engagement of civic organisations in various contexts.

During the water crisis, people became experts on water-related topics and many residents spoke out extensively on particular water realities that affected their own lives and often the lives of those around them. Social media provided the platform for interacting in many cases. Water realities arose from daily challenges that Capetonians experienced. They felt the need to address these challenges with vigour which led to social mobilisation and public participation processes.

The South African law provides a progressive legal framework for public participation but lacks the capacity to put them into practice at the local level. The CoCT aligned local policies with national frameworks and states in the IDP to be an inclusive city supporting public participation processes. In practice, many citizens bemoaned their exclusion from local decision-making and authorities' failure to address citizens' specific circumstances regarding policy-making behind service delivery. Especially in lower income areas and townships, residents did not know who to turn to with their service delivery complaints.

Furthermore, Capetonians complained about an overall lack of transparency in terms of responsibility for their particular concern or request. In turn, the responsible local councils often lacked the capacity to get involved. The councillors are directly elected by the residents in order to represent their interests. To that extent, the ward committees should ideally be the mouthpiece for the needs and concerns of their residents. In practice, however, many residents

lack the information about how to make use of their right of involvement in local public participation processes.

Nevertheless, during the crisis, the establishment and mobilisation of various civic organisations and action groups increased and took over the function of bridging civil society and local government. The groups attempted to create a space for public participation and to (re)claim their right to the city. As shown in Chapter 6.2., this right to the city involves a range of connotations and refers to different dreams about the ideal urban future. Civil initiatives during the crisis met citizens' personal dissatisfaction with the crisis management head-on and mobilised people with similar problems and concerns. The civil initiatives largely contributed to the circulation of knowledge flows during the crisis and provided different platforms for exchange online and offline. As previously elaborated, civic engagements play a vital role in the context of a *new* understanding of urban governance. As an interface between civil society and local government, they are able to contribute to a *better* urban future. Resilience-thinking enables this approach and empowers citizens to get involved and enter spaces for public participation.

7.2. Outlook

This thesis has argued that the interference of water infrastructure and water governance during the water crisis in Cape Town contributed to the constitution of citizenship along the lines of access to water. I was able to show that historical and political aspects and events shaped the system of water infrastructure in Cape Town. An anthropological understanding of infrastructure in reference to Anand (2011) and Larkin (2013), coupled with an ethnographic approach throughout my investigation allowed me to discover the various links of the diverse water infrastructure in Cape Town (material and ideological). Moreover, Capetonians developed different strategies for coping with the crisis on an individual basis as well as at community level. Water governance affected people's self-perception and their understanding of what it means to live a decent life. During the crisis, this decent life was endangered for several communities and created new vulnerabilities. The crisis revealed issues of class in the context of unequal water distribution that often translated into racial lines.

What's more, it was not only the water flow that got interrupted during the crisis, but also the flow of information from the CoCT to its citizens. To make amends, citizens developed alternative channels for circulating information. This sharing resulted in the creation of *water*

facts and contributed to greater awareness creation on water use. Nevertheless, not all *water facts* were elucidated, and on account of the distribution of misleading information and prejudices, this situation often contributed to the reproduction of inequalities and stigmatisation.

The development of civil engagement on water governance topics nevertheless contributes to the imagination of a better urban future and mobilises people, their ideas and knowledge. Zuern (2001, p. 6) argues that civil initiatives had often been investigated as either large social movements or as actors within civil society. Although these approaches offered great insights into the understanding of local actions (Zuern 2001, p. 6), they fail(ed) to explain the fluid nature of the associations and their ability to adapt to changes and therefore influence local transformations. Further research is thus needed to investigate how grass-root civil initiatives in terms of service delivery attempt to fill the gap where state and municipal provisioning is inadequate, and therein create a space for grass-root public participation. An understanding of what environment is required to facilitate fruitful collaborations between civil society and local government in pursuit of paving the way for a more resilient city is thus essential.

In many countries of the global South, infrastructure provision and service delivery are unreliable, lack essential maintenance and (re)produce inequalities. Frustration about the insufficient provision of public services are therefore more often addressed by civic organisations that mobilise based on their dissatisfaction with urban governance. Mobilisation in this context can be seen as a reaction to low flow rates of water, electricity and other public services. While service delivery flows are interrupted by a crisis, flows of people, their ideas and knowledge are moving with higher pressure through the urban metabolism. Furthermore, civic organisations are fluid in their very nature due to their ability to adapt to a changing environment.

Having just recovered from the water crisis, the CoCT is implementing load-shedding schedules to regulate scarce electricity loads. Moreover, the public transport system has been disrupted by repeated arson attacks. Capetonians raise their voices ever more loudly, but the municipality struggles to meet the claims for a more inclusive city. Despite the fact that the South African Constitution provides a progressive legal framework for public participation, large parts of the society remain excluded from formal spaces of public participation. It is therefore very important to address these nuisances and further investigate how civil initiatives attempt to fill the gap where state and municipal provisioning is insufficient and create a space for grass-roots public participation.

References

- AMIN, A., & THRIFT, N. J. (2017): *Seeing like a city*. Cambridge, England, Malden, Massachusetts: Polity.
- ANAND, N. (2011): PRESSURE: The PoliTechnics of Water Supply in Mumbai. *Cultural Anthropology*, Vol. 26, pp. 542–564. doi: 10.1111/j.1548-1360.2011.01111.x
- APPEL, H., ANAND, N., & GUPTA, A. (2018): Introduction: Temporality, Politics, and the Promise of Infrastructure. In: N. Anand, A. Gupta, & H. Appel (Eds.), *The promise of infrastructure: A School for Advanced Research advanced seminar* (pp. 1–38). Durham, London: Duke University Press.
- BAKKER, K. (2012): Water: Political, biopolitical, material. *Social Studies of Science*, Vol. 42, pp. 616–623. doi: 10.1177/0306312712441396
- BICKFORD-SMITH, V. (1995): South African Urban History, Racial Segregation and the Unique Case of Cape Town? *Journal of Southern African Studies*, Vol. 21 (1), pp. 63–78.
- BÖHM, A. (2017): Theoretisches Codieren: Textanalyse in der Grounded Theory. In: U. Flick, E. von Kardorff, & I. Steinke (Eds.), *Qualitative Forschung: Ein Handbuch* (pp. 475–485). Reinbek bei Hamburg: Rowohlt Taschenbuch.
- BOOYSEN, M. J., VISSER, M., & BURGER, R. (2019): Temporal case study of household behavioural response to Cape Town's "Day Zero" using smart meter data. *Water research*, Vol. 149, pp. 414–420. doi: 10.1016/j.watres.2018.11.035
- BOURBLANC, M. (2012): Transforming Water Resources Management in South Africa. Management Agencies' and the ideal od democratic development.: 'Catchment Management Agencies' and the idealdemocratic development. *Journal of International Development*, Vol. 24, pp. 637–648. doi: 10.1002/jid.2854
- BRENNER, N. (2009): What is critical urban theory? *City*, Vol. 13, pp. 198–207. doi: 10.1080/13604810902996466
- CHALFIN, B. (2014): Public things, excremental politics, and the infrastructure of bare life in Ghana's city of Tema. *American Ethnologist*, Vol. 41, pp. 92–109. doi: 10.1111/amet.12062

- CHALFIN, B. (2016): 'Wastelandia': Infrastructure and the Commonwealth of Waste in Urban Ghana. *Ethnos*, pp. 1–24. doi: 10.1080/00141844.2015.1119174
- CHASE, S. E. (2011): Narrative Inquiry: Still a field in the making. In: N. K. Denzin & Y. S. Lincoln (Eds.), *The Sage handbook of qualitative research* (4th ed., pp. 415–434). Los Angeles, Calif.: Sage.
- CHASKALSON, M., JOCHELSON, K., & SEEKINGS, J. (1987): Rent Boycotts, the State, and the Transformation of the Urban Political Economy in South Africa, Southern Africa: The Crisis Continous. *Review of African Political Economy*, Vol. 40, pp. 47–64.
- CORBIN, J. M., & STRAUSS, A. L. (2009): *Basics of qualitative research: Techniques and procedures for developing grounded theory* (3rd ed.). Los Angeles: Sage Publ.
- CURRIE, P. K., MUSANGO, J. K., & MAY, N. D. (2017): Urban metabolism: A review with reference to Cape Town. *Cities*, Vol. 70, pp. 91–110. doi: 10.1016/j.cities.2017.06.005
- DANNECKER, P., & VOSSEMER, C. (2014): Qualitative Interviews in der Entwicklungsforschung: Typen und Herausforderungen. In: P. Dannecker & B. Englert (Eds.), *Qualitative Methoden in der Entwicklungsforschung* (1st ed., pp. 153–175, Gesellschaft, Entwicklung, Politik, Bd. 15). [Wien]: Mandelbaum Verlag.
- DENZIN, N. K., & LINCOLN, Y. S. (2005): Introduction: The Disciplin and Practice of Qualitative Research. In: N. K. Denzin & Y. S. Lincoln (Eds.), *The SAGE handbook of qualitative research* (3rd ed., pp. 1–41). Thousand Oaks: Sage Publications.
- DREYFUS, H. L., & RABINOW, P. (2006): *Michel Foucault: Beyond structuralism and hermeneutics* (2nd ed.). Chicago: Univ. of Chicago Press.
- EARLE, A., GOLDIN, J., & KGOMOTSO, P. (2005): Domestic Water Provision in the Democratic South Africa – changes and challenges. *Nordic AfricaInstitute's Conflicting Forms of Citizenship Programme*.
- FLICK, U. (1991): *Handbuch qualitative Sozialforschung: Grundlagen, Konzepte, Methoden und Anwendungen*. München: Psychologie-Verl.-Union.
- FLICK, U. (2017): Triangulation in der qualitativen Forschung. In: U. Flick, E. von Kardorff, & I. Steinke (Eds.), *Qualitative Forschung: Ein Handbuch* (pp. 309–318). Reinbek bei Hamburg: Rowohlt Taschenbuch.

- FLICK, U., VON KARDORFF, E., & STEINKE, I. (Eds.) (2017): *Qualitative Forschung: Ein Handbuch*. Reinbek bei Hamburg: Rowohlt Taschenbuch.
- FOLEY, D., & VALENZUELA, A. (2005): Critical Ethnography: The Politics of Collaboration. In: N. K. Denzin & Y. S. Lincoln (Eds.), *The SAGE handbook of qualitative research* (3rd ed., pp. 217–234). Thousand Oaks: Sage Publications.
- FOUCAULT, M. (1985): *The history of sexuality* (1st ed.). New York: Pantheon Books.
- FOUCAULT, M. (2009): *Security, territory, population: Lectures at the Collège de France, 1977-78*. Basingstoke [u.a.]: Palgrave.
- FOUCAULT, M. (2010): *The birth of biopolitics: Lectures at the Collège de France, 1978-79* (Michel Foucault's lectures at the Collège de France). New York, NY: Palgrave Macmillan.
- FOUCAULT, M. (2015): *Sicherheit, Territorium, Bevölkerung: Vorlesung am Collège de France, 1977 - 1978* (4th ed., Suhrkamp-Taschenbuch Wissenschaft, Vol. 1808). Frankfurt am Main: Suhrkamp.
- FÜLLER, H., & MARQUARDT, N. (2009): Gouvernementalität in der humangeographischen Diskursforschung. In: G. Glasze & A. Mattissek (Eds.), *Handbuch Diskurs und Raum: Theorien und Methoden für die Humangeographie sowie die sozial- und kulturwissenschaftliche Raumforschung* (pp. 83–106, Sozial- und Kulturgeographie).
- GOWLLAND-GUALTIERI, A. (2007): *South Africa's Water Law and Policy Framework: Implications for the Right to Water*. Geneva.
- HANSSON, S., & HELLBERG, S. (2015): Power, freedom and the agency of being governed. In: S. Hansson (Ed.), *Studying the agency of being governed: Methodological reflections* (pp. 21–33, Interventions). London: Routledge.
- HARVEY, D. (2003): The right to the city. *International Journal of Urban and Regional Research* (27.4), pp. 939–941.
- HELLBERG, S. (2014): Water, life and politics: Exploring the contested case of eThekweni municipality through a governmentality lens. *Geoforum*, Vol. 56, pp. 226–236. doi: 10.1016/j.geoforum.2014.02.004

- HELLBERG, S. (2018): *The biopolitics of water: Governance, scarcity and populations* (Earthscan studies in water resource management). London, New York: Routledge Taylor & Francis Group.
- HOLM, A. (2011): Das Recht auf die Stadt. *Blätter für deutsche und internationale Politik*, Vol. 8, pp. 89–97.
- INTERNATIONAL CONFERENCE ON WATER AND THE ENVIRONMENT (1992): The Dublin Statement and Report of the Conference: Dublin Statement on Water and Sustainable Development.
- KELLER, R. (2011a): *Diskursforschung: Eine Einführung für SozialwissenschaftlerInnen* (4th ed., Qualitative Sozialforschung, Bd. 14). Wiesbaden: VS-Verl.
- KELLER, R. (2011b): The Sociology of Knowledge Approach to Discourse (SKAD). *Human Studies*, Vol. 34, pp. 43–65. doi: 10.1007/s10746-011-9175-z
- KOTZE, P. (2010): Cape Town - water for a thirsty city (part 1): urban water supply. *Water Wheel*, Vol. 9, pp. 27–29.
- KOTZE, P. (2011): Cape Town - Water for a thirsty city (part 2). *Water Wheel*, Vol. 10, pp. 25–27.
- LAMNEK, S. (2016): *Qualitative Sozialforschung* (6th ed., Ciando library). Weinheim: Beltz.
- LARKIN, B. (2013): The Politics and Poetics of Infrastructure. *Annual Review of Anthropology*, Vol. 42, pp. 327–343. doi: 10.1146/annurev-anthro-092412-155522
- LARNER, W., & MORETON, S. (2016): Creating Resilient Subjects: The Coexist Project. In: M. Brady & R. K. Lippert (Eds.), *Governing practices: Neoliberalism, governmentality, and the ethnographic imaginary* (pp. 35–56). Toronto, Buffalo, London: University of Toronto Press.
- LEMANSKI, C. (2004): A new apartheid? The spatial implications of fear of crime in Cape Town, South Africa. *Environment & Urbanization*, Vol. 16 (2), pp. 101–111.
- LEMANSKI, C. (2007): Global Cities in the South: Deepening social and spatial polarisation in Cape Town. *Cities*, Vol. 24, pp. 448–461. doi: 10.1016/j.cities.2007.01.011

- LEMANSKI, C. (2017): Unequal citizenship in unequal cities: participatory urban governance in contemporary South Africa. *International Development Planning Review*, Vol. 39, 15-35. doi: 10.3828/idpr.2017.2
- LEMKE, T. (2000): Neoliberalismus, Staat und Selbsttechnologien. Ein kritischer Überblick über die governmentality studies. *Politische Vierteljahresschrift*, Vol. 41, pp. 31–47. doi: 10.1007/s11615-000-0003-8
- LEMKE, T. (2001): Gouvernmentalität. In: M. S. Kleiner (Ed.), *Michel Foucault: Eine Einführung in sein Denken* (pp. 108–122, Campus Studium). Frankfurt/Main: Campus-Verlag.
- LINDÓN, A. (2013): Urbane Geographien des alltäglichen Lebens. In: A. Huffschild & K. Wildner (Eds.), *Stadtforschung aus Lateinamerika* (pp. 59–79). Bielefeld: transcript Verlag.
- LÜDERS, C. (2017): Beobachten im Feld und Ethnographie. In: U. Flick, E. von Kardorff, & I. Steinke (Eds.), *Qualitative Forschung: Ein Handbuch* (pp. 384–401). Reinbek bei Hamburg: Rowohlt Taschenbuch.
- MAHLANZA, L., ZIERVOGEL, G., & SCOTT, D. (2016): Water, Rights and Poverty: an Environmental Justice Approach to Analysing Water Management Devices in Cape Town. *Urban Forum*, Vol. 27, pp. 363–382. doi: 10.1007/s12132-016-9296-6
- MARX, C. (2012): *Südafrika: Geschichte und Gegenwart*. Stuttgart: Kohlhammer.
- MCDONALD, D. A. (2003): The Theory and Practice of Cost Recovery in South Africa. In: D. A. McDonald & J. Pape (Eds.), *Cost recovery and the crisis of service delivery in South Africa* (pp. 17–37). London: Zed.
- MCDONALD, D. A. (2008): *World City Syndrome: Neoliberalism and Inequality in Cape Town* (Routledge Studies in Human Geography). Hoboken: Taylor and Francis.
- MULLER, K., & UYS, F. M. (2004): *Amanzi ayimpilo (water is life!): Regulatory governance of the water sector in South Africa* (Working paper series / Centre on Regulation and Competition, paper no. 77). Manchester: Centre on Regulation and Competition.
- MULLER, M., & LANE, J. (2002): *The National Water and Sanitation Programme in South Africa : turning the "right to water" into reality*. Washington DC.

- NARSIAN, S., & AHMED, W. (2012): The Neoliberalization of the Water and Energy Sectors in South Africa and India. *Journal of Asian and African Studies*, Vol. 47, pp. 679–694. doi: 10.1177/0021909611429922
- NHAMO, G., & AGYEPONG, A. O. (2019): Climate change adaptation and local government: Institutional complexities surrounding Cape Town's Day Zero. *Jamba (Potchefstroom, South Africa)*, Vol. 11, pp. 1–9. doi: 10.4102/jamba.v11i3.717
- OLIVER, D. G., SEROVICHE, J. M., & MASON, T. L. (2005): Constraints and Opportunities with Interview Transcription: Towards Reflection in Qualitative Research. *Social Forces*, Dec., 2005 (Vol. 84, No. 2), pp. 1273–1289.
- PARKS, R., MCLARENS, M., TOUMI, R., & RIVETT, U. (2019): Experiences and lessons in managing water from Cape Town: Briefing paper. *Grantham Institute*.
- REID, J. (2012): The Disastrous and Politically Debased Subject of Resilience. *Development Dialogue* (58), pp. 67–79.
- ROBINS, S. (2019): ‘Day Zero’, Hydraulic Citizenship and the Defence of the Commons in Cape Town: A Case Study of the Politics of Water and its Infrastructures (2017–2018). *Journal of Southern African Studies*, Vol. 45, pp. 5–29. doi: 10.1080/03057070.2019.1552424
- SAVENIJE, H. H.G., & VAN DER ZAAG, P. (2002): Water as an Economic Good and Demand Management Paradigms with Pitfalls. *Water International*, Vol. 27, pp. 98–104. doi: 10.1080/02508060208686982
- SMITH, L. T. (2008): *Decolonizing methodologies: Research and indigenous peoples* (12th ed.). London, New York, Dunedin, N.Z.: Zed Books; University of Otago Press.
- SOMMER, V. (2018): Methodentriangulation von Grounded Theory und Diskursanalyse.: Eine Rekonstruktion des Online-Diskurses zum Fall Demjanjuk. In: C. Pentzold, A. Bischof, & N. Heise (Eds.), *Praxis Grounded Theory: Theoriegenerierendes empirisches Forschen in medienbezogenen Lebenswelten. Ein Lehr- und Arbeitsbuch* (pp. 105–130). Wiesbaden: Springer VS.
- SORENSEN, P. (2017): The chronic water shortage in Cape Town and survival strategies. *International Journal of Environmental Studies*, Vol. 74, pp. 515–527. doi: 10.1080/00207233.2017.1335019

- SOUTH AFRICAN CITIES NETWORK (2016): *State of South African cities report*, '16. Braamfontein: South African Cities Network.
- STAR, S. L. (1999): The Ethnography of Infrastructure. *American Behavioral Scientist*, Vol. 43, pp. 377–391. doi: 10.1177/00027649921955326
- STERN, M., HELLBERG, S., & HANSSON, S. (2015): Studying the agency of being governed? An Introduction. In: S. Hansson (Ed.), *Studying the agency of being governed: Methodological reflections* (pp. 1–18, Interventions). London: Routledge.
- STRÜVER, A. (2009): Grundlagen und zentrale Begriffe der Foucault'schen Diskurstheorie. In: G. Glasze & A. Matissek (Eds.), *Handbuch Diskurs und Raum: Theorien und Methoden für die Humangeographie sowie die sozial- und kulturwissenschaftliche Raumforschung* (pp. 61–81, Sozial- und Kulturgeographie).
- SWILLING, M. (2014): Contesting inclusive urbanism in a divided city: The limits to the neoliberalisation of Cape Town's energy system. *Urban Studies*, Vol. 51, pp. 3180–3197. doi: 10.1177/0042098013505160
- THE WORLD BANK (2010): Cost Recovery, Equity, and Efficiency in Water Tariffs: Evidence from African Utilities. doi: 10.1596/1813-9450-5384
- TURTON, A., & HENWOOD, R. (Eds.) (2002): *Hydropolitics in the developing world: A southern African perspective*. Pretoria: Univ., African Water Issues Research Unit.
- UNEP (2004): *Exploring the links: The United Nations environment programme 2004 : human well-being, poverty & ecosystem services*. Nairobi, Kenya, Winnipeg: United Nations Environment Programme; International Institute for Sustainable Development.
- VISSER, W. P. (2018): A perfect storm: The ramifications of Cape Town's drought crisis. *The journal for Transdisciplinary Research in Southern Africa*, Vol. 14 (1), pp. 1–10.
- VON SCHNITZLER, A. (2008): Citizenship Prepaid: Water, Calculability, and Techno-Politics in South Africa*. *Journal of Southern African Studies*, Vol. 34, pp. 899–917. doi: 10.1080/03057070802456821
- VON SCHNITZLER, A. (2018): Infrastructure, Apartheid Technopolitics, and Temporalities of "Transition". In: N. Anand, A. Gupta, & H. Appel (Eds.), *The promise of infrastructure: A School for Advanced Research advanced seminar* (pp. 133–154). Durham, London: Duke University Press.

- WATER RESEARCH COMMISSION (2015): Molteno – ‘Old boy’ of Cape Town still in service despite chequered start. *Water Wheel*, Vol. 14 (6), pp. 18–21.
- WESTERN, J., & COLES, R. (1997): *Outcast Cape Town*. Berkeley: University of California Press.
- WILKINSON, P. (2000): City profile Cape Town. *Cities*, Vol. 17 (3), pp. 195–205.
- WILLIAMS, J. J. (2000): South Africa: Urban transformation. *Cities*, Vol. 17 (3), pp. 167–183.
- WILLIAMS, P., & TAYLOR, I. (2000): Neoliberalism and the Political Economy of the 'New' South Africa. *New Political Economy*, Vol. 5, pp. 21–40. doi: 10.1080/13563460050001961
- WORLD HEALTH ORGANISATION (2017): *Guidelines for drinking-water quality*. Geneva: World Health Organization.
- ZUERN, E. K. (2001): South Africa's civics in transition: Agents of change or structures of constraint? *Politikon*, Vol. 28, pp. 5–20. doi: 10.1080/02589340120058076

Internet Sources

- ANAND, N. (2015): Accretion, Theorizing the Contemporary.
<https://culanth.org/fieldsights/accretion>. [Accessed 8 April 2019].
- CITY OF CAPE TOWN (2018a): Water map.
<http://www.capetown.gov.za/Family%20and%20home/residential-utility-services/residential-water-and-sanitation-services/cape-town-water-map>. [Accessed 6 October 2019].
- CITY OF CAPE TOWN (2019): Indigent benefits. City of Cape Town.
<http://www.capetown.gov.za/Local%20and%20communities/Financial-relief-and-rebates/Financial-support-services/indigent-benefits>. [Accessed 23 October 2019].
- CITY OF CAPE TOWN TROUBLED WATERS (2017): Group Info.
https://www.facebook.com/groups/331448887316028/about/#_=_. [Accessed 23 October 2019].
- HICKS, J. (2008): NGO influence on government policy on citizen participation. Institute of Development Studies.

<http://archive.ids.ac.uk/drcitizen/system/assets/1052734723/original/1052734723-hicks.2008-ngos4414.pdf?1398410658>. [Accessed 3 June 2019].

STATS SA (1996): The people of South Africa: Population Census 1996. Statistics South Africa. <https://apps.statssa.gov.za/census01/Census96/HTML/default.htm>. [Accessed 2 October 2019].

UN-HABITAT: Resilience. UN-Habitat. <https://new.unhabitat.org/resilience>. [Accessed 23 October 2019].

UNITED NATIONS (2016): Sustainable Development Goals. <https://www.un.org/sustainabledevelopment/sustainable-development-goals/>. [Accessed 23 October 2019].

WATER CRISIS COALITION (2018): Tell the City of Cape Town that we reject the budget and privatization of water. <https://awethu.amandla.mobi/petitions/down-with-the-budget-2018-19-we-reject-privatization-of-water>. [Accessed 10 October 2018].

WATER SHEDDING WESTERN CAPE (2016): Group Info. <https://www.facebook.com/groups/watersheddingsa/about/#>. [Accessed 22 September 2019].

WESTERN CAPE ECONOMIC DEVELOPMENT PARTNERSHIP (2018): Cape Town Drought Timeline 2014-2018. https://cdn.knightlab.com/libs/timeline3/latest/embed/index.html?source=1WAVNeLOMvctf3CgipLmCxXF_E7tl15jgTmG7XCefYMI&font=Default&lang=en&initial_zoom=2&height=650. [Accessed 23 October 2019].

WORKERS INTERNATIONAL VANGUARD PARTY (2017): About us. <http://www.workersinternational.org.za/index.php/about-us>. [Accessed 10 October 2019].

ZERO WATER ZERO RATES HAS EVOLVED BACK TO BASICS - CAPE TOWN (2018): About us. https://www.facebook.com/groups/395612524195568/about/#_=_. [Accessed 16 October 2019].

Media Sources

CAPE ARGUS (11 Dec 2015): Council votes for stricter water restrictions.

<https://www.pressreader.com/south-africa/cape-argus/20151211/page/1>. [Accessed 5 October 2019].

CAPE TIMES (24 Feb 2017): Cape Town fines 36 'rotten apples' for defying water restrictions.

<https://www.iol.co.za/news/south-africa/western-cape/cape-town-fines-36-rotten-apples-for-defying-water-restrictions-7907872>. [Accessed 5 October 2019].

NEWS24 (10 Dec 2015): Level 2 water restrictions for Mother City.

<https://www.news24.com/SouthAfrica/News/level-2-water-restrictions-for-mother-city-20151210>. [Accessed 23 October 2019].

NEWS24 (27 Feb 2017): Cape Town's top 100 water consumers.

<https://www.news24.com/SouthAfrica/News/cape-towns-top-100-water-consumers-revealed-20170227>. [Accessed 23 October 2019].

NEWS24 (17 Jan 2018): Why the proposed Cape Town drought levy is unfair.

<https://www.news24.com/Columnists/GuestColumn/why-the-proposed-cape-town-drought-levy-mayor-is-unfair-20180117>. [Accessed 23 October 2019].

NEWS24 (31 Jan 2018): Newlands Spring water to be rerouted following physical altercation, traffic congestion. <https://www.news24.com/SouthAfrica/News/newlands-spring-water-to-be-rerouted-following-physical-altercation-traffic-congestion-20180131>. [Accessed 23 October 2019].

NEWS24 (13 Mar 2018): Drought declared a national disaster.

<https://www.news24.com/SouthAfrica/News/breaking-drought-declared-a-national-disaster-20180313>. [Accessed 23 October 2019].

NEWS24 (20 Jul 2018): Cape Town's stringent water restrictions to remain in place... at least for now. <https://www.news24.com/SouthAfrica/News/cape-towns-stringent-water-restrictions-to-remain-in-place-at-least-for-now-20180720>. [Accessed 23 October 2019].

WEEKEND ARGUS (5 Mar 2017): Cape drought officially a disaster.

<https://www.iol.co.za/news/south-africa/western-cape/cape-drought-officially-a-disaster-8051301>. [Accessed 23 October 2019].

WESTERN CAPE GOVERNMENT (5 Nov 2015): Use Water Wisely.

<https://www.westerncape.gov.za/news/use-water-wisely>. [Accessed 23 October 2019].

Government Documents

CITY OF CAPE TOWN (2012): *2011 Census -Cape Town*.

CITY OF CAPE TOWN (2017a): *2017/2018 Tariffs, Fees and Charges*.

CITY OF CAPE TOWN (2017b): *Critical Water Shortages Disaster Plan – Public Summary*.

CITY OF CAPE TOWN (2017c): *Five-year Integrated Development Plan*.

CITY OF CAPE TOWN (2018b): *2018/19 Tariffs, Fees and Charges*.

CITY OF CAPE TOWN (2018): *Statement by the City's Deputy Executive Mayor, Alderman Ian Neilson*.

DEPARTMENT OF WATER AFFAIRS AND FORESTRY (1994): *Water Supply and Sanitation Policy - White Paper*.

DEPARTMENT OF WATER AFFAIRS AND FORESTRY (2002): *Free Basic Water Implementation Strategy*.

DEPARTMENT OF WATER AND SANITATION (2017): *National Norms and Standards for domestic Water and Sanitation Services*.

DEPARTMENT OF WATER AND SANITATION CITY OF CAPE TOWN (2017a): *Critical Water Shortages Disaster Plan – Public Summary*.

DEPARTMENT OF WATER AND SANITATION CITY OF CAPE TOWN (2017b): *Installation of a water management device (WMD)*.

DEPARTMENT OF WATER AND SANITATION CITY OF CAPE TOWN (2018a): *Water Outlook 2018 Report*.

DEPARTMENT OF WATER AND SANITATION CITY OF CAPE TOWN (2018b): *Water Service Development Plan - IDP Water Sector Input Report*.

REPUBLIC OF SOUTH AFRICA (1996): *The Constitution of the Republic of South Africa*.

REPUBLIC OF SOUTH AFRICA (1997): *Water Service Act No. 108*.

REPUBLIC OF SOUTH AFRICA (1998): *National Water Act*.

REPUBLIC OF SOUTH AFRICA (2000a): *Local Government: Municipal Systems Act 32 of 2000*.

REPUBLIC OF SOUTH AFRICA (2000b): *Promotion of Administrative Justice Act: PAJA*.

REPUBLIC OF SOUTH AFRICA (2002): *Disaster Management Act (57 of 2002)*.

WESTERN CAPE GOVERNMENT (2013): *Regional Development Profile - City of Cape Town*.

WESTERN CAPE GOVERNMENT (2017): *Socio-Economic Profile: City of Cape Town 2017*.

Appendix

Appendix A: Abstract

Looking at Cape Town's water infrastructure and *hydropolitics* in the context of the water crisis and using Foucault's concepts of governmentality and biopolitics, I address the biopolitical effects of water governance in Cape Town during the water crisis peaking at the beginning of the year 2018. I conducted semi-structured narrative interviews and participant observation during my ethnographic field research, to investigate how water and water infrastructure is involved within the constitution of '*hydraulic citizenships*' and how different political, technical and techno-political forms of water services contribute to the distinction of different forms of life and lifestyle.

The announcement of *Day Zero* caused different reactions across Cape Town but made clear that the water infrastructure was quotidian and unremarkable while it was working uninterruptedly. The interference of the water infrastructure created an awareness of water and its use across Cape Town. Capetonians developed daily strategies to cope with the situation. These strategies interfered their daily tasks, impacted personal relationships and revealed narrations of struggle and privilege. During the water crisis people became experts on water-related topics and many residents engaged extensively with particular water realities that affected their own life and often the life of others around them. Water realities arose from daily challenges Capetonians experienced and felt the need to address with vigour which lead to social mobilisation, civic activism and public participation processes.

Appendix B: Kurzfassung

Zu Beginn des Jahres 2018 erreichte die Wasserkrise in Kapstadt ihren Höhepunkt. Zur Überwindung dieser Notlage implementierte die städtische Regierung Strategien und Interventionen, um den Wasserverbrauch der Stadt zu reduzieren. Anhand von Foucaults Konzepten der Gouvernementalität und Biopolitik untersuche ich in dieser Arbeit den Zusammenhang zwischen Regierungsweisen und deren biopolitischen Auswirkungen auf die Konstitution von ‚citizenship‘ im Kontext der Wasserkrise in Kapstadt. Als Teil einer ethnographischen Feldforschung führte ich teilstrukturierte narrative Interviews und teilnehmende Beobachtungen durch, um zu untersuchen wie Wasser und Wasserinfrastruktur eingebunden sind in die Konstitution von ‚hydraulic citizenship‘. Politische, technische und techno-politische Formen der Wasserversorgung beeinflussen Wasserverbraucher_innen und dessen/ deren Lebenswelten und Selbstwahrnehmungen.

Die Ankündigung von *Day Zero* verursachte unterschiedliche Reaktionen in Kapstadt und verdeutlichte das Wasserinfrastruktur alltäglich und nebensächlich ist solange sie ununterbrochen funktioniert. Die Beeinträchtigung der Wasserinfrastruktur schaffte ein größeres Bewusstsein für Wasser, dessen Verbrauch und Infrastruktur in Kapstadt. Kapstadts Einwohner entwickelten Strategien, um die Krise zu bewältigen. Diese Strategien beeinflussten ihr alltägliches Leben, persönliche Beziehungen und enthüllten Narrationen über Privilegien, Probleme und Erschwernisse. Während der Wasserkrise wurden Laien zu Experten in Wasserbelangen und viele Einwohner beschäftigten sich intensiv mit den Auswirkungen der Wasserkrise auf ihr alltägliches Leben und das der Menschen um sie herum. Alltägliche Herausforderungen und städtische Regierungsweisen rückten außerdem in den Mittelpunkt von sozialen Initiativen und Aktivistengruppen in unterschiedlichen Kontexten.

Appendix C: List of Dialogue Partners

All interviews have been conducted between the 22nd of July and the 27th of September 2018. The table has been divided into two since the different actor groups require the listing of different information.

Not all dialogue partners were cited in this thesis, but their mention is important to understand the network of relationships and my research proceedings. The interview no. 20 and the interviewees listed below were part of a group discussion with the civic organisation Justice4CapeTown.

Interviews – Civil Society

Interview No.	Name ¹⁶	Age	Area	Household Size	Access to water	Date	Duration
1	Naomi	46	Southfield	2-4	Municipality Connection Borehole	01.08.2018	01:04:06
2	Josef	26	Sea Point	1	Municipality Connection	16.08.2018	00:47:47
3	Daniel	27	Retreat	3	Municipality Connection	15.08.2018	00:34:32
4	Sue	45	Fairways	5	WMD	20.08.2018	00:48:44
5	Maria	45	Zeekoevlei	2	Municipality Connection	21.08.2018	00:43:38
6	Jaco	34	Durbanville	3	Municipality Connection	20.08.2018	00:49:05
7	Sizwe	39	Gugulethu	4	Standpipe	23.08.2018	00:18:41
8	Shamseddin	70	Mitchells Plain	2	Municipality Connection	05.09.2018	00:28:02
9	Shafia	57	Tafelsig	6	WMD	05.09.2018	00:15:15
10	Sabrina	61	Brakenfell	1	Municipality Connection	14.09.2018	01:06:32
11	Simon	51	Belleville	6	Municipality Connection Borehole Rainwater Tanks + System	05.08.2018	00:31:58

¹⁶ All names have been changed to anonymise the interview partners

Interviews – Civic Activists and Politicians¹⁷

Interview No.	Name	Institution/ Organisation	Role/ Position	Date	Actor Group	Duration
12	Grant Haskin	ACDP	Ward Councillor Sub-council 6	28.08.2018	Politician	01:10:45
13	Charlotte Williams*	ACDP	Ward Councillor Sub-Council 18	05.09.2018	Politician	00:33:34
14	Mark Kleinschmidt*	DA	Ward Councillor Sub-Council 17	11.09.2018	Politician	00:42:39
15	Andrew Boraine	WCEDP	CEO	06.08.2018	NPO	01:02:52
16	Paulette van Heerden	Water 4 Cape Town	Chairperson	22.08.2018	NPO	00:48:45
17	Lester September	Forum of the Cape Flats Civics	Chairperson	04.09.2018	Civic Activist	02:05:45
18	Shaheed Mahomed	WCC	Committee member	29.08.2018	Civic Activist	01:46:11
19	Sandra Dickson	DearCapeTown	Founder	14.09.2018	Civic Activist	01:07:33
20 a)	Ghalema Easton	Justice4CapeTown	Co-ordinator	08.09.2018	Civic Activist	02:20:37
20 b)	Ebrahim Thomas	Justice4CapeTown Ruyterwacht Tenants Forum	Member		Civic Activist	
20 c)	Mogamat Cassim Nordien	Justice4CapeTown Belhar Ratepayers Association	Member		Civic Activist	
20 d)	Gabeba Moos	Justice4CapeTown	Member		Civic Activist	
20 e)	Salie Moos	Justice4CapeTown	Member		Civic Activist	
20 f)	Ilhaam Thomas	Justice4CapeTown Ruyterwacht Tenants Forum	Member		Civic Activist	
20 g)	Aziza Davids	Justice4CapeTown	Member		Civic Activist	
20 h)	Shireen Nordien-Ismail	Justice4CapeTown	Member		Civic Activist	

¹⁷ Dialogue partners with a * were not cited

Appendix D: Network of Relationships

