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A case study of resource consumption in the
sharing economy: Airbnb as tourist
accommodation in Cape Town, South Africa.

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A dissertation submitted to the Faculty of Science, in fulfilment of the
requirements for the degree of Master of Science.

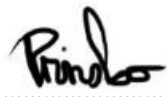
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DECLARATION

I Ariel Sarah Prinsloo (679845) declare that this thesis is my own unaided work. It is being submitted for the Degree of Master of Science to the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination to any other University.



..... (Ariel Sarah Prinsloo)

Date: 25/03/2019

ABSTRACT

Present day South Africa is faced with climatic uncertainty, financial instability and growing water and electricity crises. The introduction of a growing sharing economy, which boasts ideals of reduced consumption and sustainability has become a new niche within the economy of South Africa. As part of the sharing economy, Airbnb is increasingly being used as tourism accommodation. In addition, Airbnb has recently been introduced in Cape Town as alternative tourism accommodation and is growing exponentially in this tourism hub. In the midst of this, Cape Town has been affected by a severe three-year drought from 2015-2017, restricting water usage for all residents and tourists. Through Airbnb, this research aimed to understand the relationship of the sharing economy to sustainable resource use when water resources are limited. A triangulated mixed method approach using User Profile Analysis (UPA), questionnaires and semi-structured interviews was undertaken to explore the practices and perceptions around resource consumption of Airbnb hosts and guests in Cape Town within a particular moment of the drought. Findings revealed that Airbnb hosts embody water-saving practices as Capetonians committed to the future of water use in the city, rather than simply tourist accommodation providers. Particular archetypes of the roles undertaken during the water crisis were also identified. Additionally, guests utilising the platform during the water crisis were found not to be deterred but rather assist water reduction within listings. The growing relationship and potential regulatory mechanisms around greening practices as a result of the partnership between the City of Cape Town and Airbnb were highlighted. Most importantly this research highlights the potential of Airbnb hosts to contribute to a transition towards sustainable resource use through innovative and intimate practices of water saving within Airbnb listings. It is hoped that this research will contribute to the growing literature surrounding the sustainability of the sharing economy as well as identify adaptive mechanisms that can be implemented with the reoccurrence of drought through climate change.

Key words: sharing economy, Airbnb, drought, tourism, Cape Town.

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GLOSSARY OF ACRONYMS, ABBREVIATIONS AND KEYWORDS

Airbnb: “An online platform through which ordinary people rent out their spaces as accommodation for tourists” (Guttentag, 2015: 1193)

BnB: Bed and Breakfast accommodation

CBD: Central Business District

CCID: Central City Improvement Districts (CCID)

Commodification: “The process whereby an object (in the widest sense of the term, meaning a thing, an idea, a creature etc.) comes to be provided through and/or represented in terms of a market transaction” (Carvalho and Rodrigues, 2008: 268)

CTICC: Cape Town International Conference Centre – a conferencing centre in the City Bowl

‘Day Zero’: The projected day in which taps were expected to run dry and residents would then have to queue in appointed areas for water (Fisher, 2017; Bernardo, 2018; Sousa *et al.*, 2018)

Disruptive innovation theory: Posits that “Products that lack in traditionally favoured attributes but offer alternative benefits can, over time, transform a market and capture mainstream consumers” (Guttentag, 2015: 1192)

Drought: “A deficiency of precipitation relative to what is expected (i.e. ‘normal’) that, when extended over a season or longer period, results in the inability to meet the demands of human activities and the environment” (Hayes *et al.*, 2011: 485)

DSTV: Digital Satellite Television, a satellite television operation found in Southern Africa

ENSO: El Niño-Southern Oscillation

EPRU: Environmental Policy Research Unit- a research group within the School of Economics at the University of Cape Town, seeking to improve sustainable

development and poverty reduction through the enhancement and research of environmental policy-making (University of Cape Town, 2014)

'Greenhushing': Purposely withholding information regarding sustainability practices and adaptations employed in order to deter potential conflict between the environmental values held by operator and guest (Font *et al.*, 2017)

GVA: Gross Value Added

ITCZ: Inter-Tropical Convergence Zone

ℓ: Litres (particularly referring to available potable water for consumption within the drought period)

ℓ.m⁻¹: Litres per minute

LED: Light Emitting Diode, an energy saving light fixture

Listing: A particular space (for example: house, apartment, villa) advertising the price, location, amenities and availability of the space for rent on the Airbnb website

m a.s.l.: Metres above sea level

Personality: "The distinctive patterns of behavior (including thoughts and emotions) that characterize each individual's adaptation to situations of his or her life" (Mischel in Moser, 2008: 387)

Political-temporal contingency: Accessibility and positionality are influenced by the time a researcher enters the research context (Ward and Jones, 1999).

Positionality: "The notion that personal values, views and location in time and space influence how one understands the world" where these positions "act on the knowledge a person has about things, both material and abstract. Consequently, knowledge is the product of a specific position that reflects particular places and spaces" (Sánchez, 2010: 2257)

Rapport: Establishing a connection of mutual understanding between researcher and a potential participant (Corbetta, 2003)

Sharing economy: “An economic system in which assets/services are shared between private individuals, either for free or for a fee, typically by means of the Internet” (Wang and Jeong, 2018: 162)

SRZ: South African Summer Rainfall Zone

UPA: User Profile Analysis- content analysis performed on the listings advertised on the Airbnb website

USA: United States of America

V&A Waterfront: Victoria and Alfred Waterfront, a popular shopping and lifestyle destination in the Cape Town City Bowl

WMO: World Meteorological Organization

WRZ: South African Winter Rainfall Zone

YRZ: South African Yearly Rainfall Zone

CHAPTER 1 INTRODUCTION

The sharing economy is becoming a significant aspect to consider both through its impacts on the economy as well as the tourism sector. Within the growing sharing economy, Airbnb is increasingly being used as alternative tourism accommodation (Martin, 2016). As a result of this increase, the consumption of resources and sustainable use of this new phenomenon is questioned. In particular, the responsible consumption of resources has been highlighted as the 12th goal in the 2015 updated *United Nations Sustainable Development Goals* (United Nations, 2016).

The sharing economy partly stemmed from a need to address hyper-consumption in a world undergoing changing climate (Botsman and Rogers, 2010; Hamari *et al.*, 2016). Besides excessive consumption, the availability of resources, particularly water, are also under threat due to climate change events such as drought (Ziervogel *et al.*, 2014). Such events threaten the functionality of cities and tourism activities and accommodation (Ziervogel *et al.*, 2014; Hoogendoorn and Fitchett, 2018a). Furthermore, in the context of Cape Town in the Western Cape, a tourism hub of South Africa that experienced a three-year drought from 2015 to 2017, the manner in which this phenomenon is addressing the need to become more sustainable is questioned (Baigrie, 2017; Government of South Africa, 2017).

1.1 Background

The Airbnb platform is one of many recent platforms that have developed as part of the sharing economy. The sharing economy is defined by Wang and Jeong (2018: 162) as “An economic system in which assets/services are shared between private individuals, either for free or for a fee, typically by means of the Internet”. The ideals surrounding consumption have not only altered since the increased use and emergence of the Internet but have also been affected by changing ideals surrounding consumer power, finite ecological status and financial instability ensuing from the 2008 economic crisis (Botsman and Rogers, 2010; Belk, 2014; Schor and Fitzmaurice, 2015). These transformed ideals have included an increase in sharing and collaborative consumption. This phenomenon has been termed ‘collaborative consumption’ with variations such as the sharing economy, ‘connected consumption’, ‘gig economy’, ‘access-based economy’, ‘peer-to-peer economy’, the ‘enabling economy’, ‘hippieconomics’ and the ‘people economy’ (Botsman and Rogers, 2010; Dredge and Gyimóthy, 2015; Richardson, 2015; Schor and Fitzmaurice, 2015; O’Regan and Choe, 2017). This research engages with the concept of the sharing economy in particular as it epitomises the ideal around Airbnb regarding the shared use of space.

The sharing economy is realised through the tourism market whereby Airbnb is used as an alternative to traditional tourism accommodation such as hotels (Karlsson and Dolnicar, 2016). Airbnb is defined as “An online platform through which ordinary people rent out their spaces as

accommodation for tourists” (Guttentag, 2015: 1193). The tourist accommodation phenomenon was introduced in San Francisco in the United States of America (USA) in August 2008 (Airbnb, 2016). The three co-founders of the website aimed to provide cheaper alternative accommodation than relatively more expensive traditional accommodations, such as hotels, whilst creating a platform that enabled entrepreneurship and the production of a trustworthy community (Botsman and Rogers, 2010). The online platform has, to date, expanded to include over five million listings worldwide (Airbnb, 2018a). The designers of Airbnb identified a primary problem of trustworthiness in the expansion of the product and therefore allow users of the platform to provide feedback in the form of reviews, creating trust and credibility amongst users. Airbnb also creates a virtual space whereby guests can communicate with potential hosts, allowing each party to build rapport prior to booking a space (Botsman and Rogers, 2010).

Airbnb was officially launched in Cape Town in 2015 (Visser *et al.*, 2017), and has grown to include 17,600 listings as of 2017 (Kretzmann, 2017). Besides accommodation, Airbnb has also included ‘Trips’ or ‘Experiences’ booking features to its website as well as ‘Restaurants’ (Chibelushi, 2016; Airbnb, 2018c). This has increased the tourist experience exposure available in Cape Town.

The South African government has called the region of Cape Town, in the Western Cape, “The most developed tourism region” whereby the tourism

sector has provided more jobs than other industries operating in the province (Government of South Africa, 2017, n.p.). Within this province, Cape Town is the hub where “The number of jobs in the tourism sector increased by 11,292 from 2016 to 217,514 in 2017” (Western Cape Government, 2018a: 52). In addition, tourism attributed 7.5% Gross Value Added (GVA) from 2016 to 2017, generated in part through a 10.2% increase in international arrivals and foreign spending in 2017 (Western Cape Government, 2018a). Cape Town has also been labelled by *Brand South Africa* as “The greenest city in Africa” (Philip, 2014, n.p.; Economist Intelligence Unit, 2011). According to the *Africa Green City Index*, Cape Town has earned this title due to its prominent environmental policies and initiatives (Economist Intelligence Unit, 2011).

The City of Cape Town has also signed the *Responsible Tourism Charter*, which upholds the principles of sustainable development and responsible tourism management (Cape Town Tourism, 2017a). The *Responsible Tourism* partnership was created following the 2002 World Summit of Sustainable Development, in which the City of Cape Town vowed to eliminate negative economic, social and environmental impacts in tourism in addition to creating greater opportunity for local Capetonians and a unique experience for all travellers (Responsible Tourism, 2017). The urgency of these impacts has been exacerbated by an extreme water crisis since the 2015 drought, whereby the level of dams that supply Cape Town water were at 36% in February 2017 (Baigrie, 2017). As a result, the City

has put in place water restrictions to decrease water demand (Baigrie, 2017).

As of March 2017, Airbnb reported its drive to greener travel as a response to the concerns of millennials around climate change, urban population growth and a global increase in travel (Airbnb, 2017a). In their recent May 2018 report, *Airbnb Makes Travel Greener*, a case study of Airbnb China concluded that Chinese travellers are making conscious environmental decisions aided through Airbnb and various partnerships aimed at encouraging green practices within listings (Airbnb, 2018b). The report also researched and claimed that compared to traditional accommodation, home sharing proactively reduces negative tourism activity impacts on the environment and provides additional accommodation during city events such as the Winter Olympics in PyeongChang (Airbnb, 2018b). In addition, the report identified the partnership between Airbnb with the City of Cape Town and other water and management consulting agencies during the drought to assist in educating hosts and guests in water saving (Airbnb, 2018b).

1.2 Problem Statement

This research speaks to two problems. The first is the paradoxical nature of the relationship of the sharing economy to sustainable consumption and the second is the ambiguous relationship between Airbnb and sustainability. Firstly, many scholars, including Botsman and Rogers (2010) and Hamari *et al.* (2016), believe that sharing and collaboration occurred due to concern

over rising prices, lack of time, the need for social belonging and community in addition to concerns around climate change. The sharing economy has the potential to address increasing environmental concerns through its ability to reduce the amount of resources required by a consumer (Botsman and Rogers, 2010; Schor and Fitzmaurice, 2015). However, Palgan *et al.* (2017) have identified that the main motivation behind the use of sharing economy platforms is for economic purposes.

Richardson (2015) and Martin (2016) have further identified a paradox within the sharing economy, whereby the alternative shared use of resources has the potential to promote sustainable consumption as fewer resources are required to be manufactured for use. However, as the sharing economy becomes more popular, it may reinforce capitalist economic behaviour, converting use values to exchange values (commodification; Carvalho and Rodrigues, 2008) with platforms becoming large businesses that are purely profit-driven (Richardson, 2015). This is in opposition to the perspective that the sharing economy offers not only a free non-competitive market to generate income from unused goods and services but also its reframed ideals of community, environmental concern and cost consciousness (Botsman and Rogers, 2010). The sharing economy is considered an alternative economy (Richardson, 2015) and has been conceptualised as a niche innovation by Martin (2016: 150) because it offers a space “Within which innovations emerge and develop”. Therefore, this study interrogates whether the sharing economy can aid in the pursuit of

sustainability or, through increased interest and use, creates new markets where an increase in resources are required.

A second problem is the vague nature of the greening of Airbnbs and its limited attention in the literature (Palgan *et al.*, 2017). Airbnb has been celebrated for creating cheaper available accommodation, a source of income and a means of meeting new people (Botsman and Rogers, 2010). However, Airbnb has also been critiqued for having a negative impact on the hotel industry by decreasing profitability and diverting the number of rooms booked in high tourism periods, noticed particularly in New York and Barcelona (Fox, 2016; Aznar *et al.*, 2017). Not only is its impact felt in the hotel industry, but it has been considered disruptive in the housing market as it limits the availability of housing for rent or ownership (Haden, 2017a). This is all the more disruptive in a context such as Cape Town, with its high housing costs, and unequal access to housing that have been the main drive of activist groups, *Reclaim the City* and *Ndifuna Ukwazi* (Zinn, 2014; Andersen, 2017).

The environmental impacts of this new niche phenomenon however have yet to be investigated, despite the claims of Airbnb to assist greening through its *Helping Travel Grow Greener* report in 2017 (Airbnb, 2017a) and re-emphasized in the more recent 2018 report (Airbnb, 2018b). The City of Cape Town has been experiencing a water crisis, and in the context of climate change and its resulting vulnerabilities there is uncertainty regarding water availability for the future. Cape Town encompassed 13,437 active

Airbnb listings in 2016 and is increasingly growing (Visser *et al.*, 2017). Therefore, detailed understanding of resource use that can inform long-term sustainability strategies in a highly unequal tourist city, are urgent (Baigrie, 2017).

1.3 Research Aims

Conceptually, this research aims to contribute to the nascent literature on the relationship of the sharing economy to sustainable resource use, particularly within an area experiencing resource scarcity and high inequality. In addition, the case study of resource consumption of Cape Town Airbnbs provides theoretical and methodological insight through the lens of household metabolism analysis. Strategically, data collected from this research aims to contribute to the recent greening aim of Airbnb with the provision of additional information regarding resource practices and perceptions that have not yet been collected in Cape Town Airbnbs (Airbnb, 2017a; Airbnb, 2018b). This can contribute to the regulatory mechanisms that facilitate a sustainable transition in Cape Town through the platform.

1.4 Research Question and Sub-Questions

The specific question this research aims to address is: How are Airbnb spaces shaping perceptions and practices of resource consumption in Cape Town?

To adequately address this question, the following sub-questions are explored:

- What are the perceptions of resource use by hosts of Airbnb households?
- How do hosts practice resource use within Airbnb households?
- How have the above perceptions and practices shifted due to the drought?

1.5 Structure of Thesis Chapters

Chapter 2: Literature Review

This project is situated within the literature on the sharing economy, sustainability, drought and tourism geographies. Key themes that are explored in this chapter include, in order, the sharing economy, sustainability and tourism, drought and water access and tourism accommodation research in South Africa. This is followed by sections in which the analytic framework is constructed and an outline of the contribution to the literature is provided.

Chapter 3: Study Site

The study area in which the research took place is outlined in this chapter. The location and geography of Cape Town, the climatic setting and a background of drought in Cape Town are outlined. This is followed by a brief overview of the historical and contemporary urban and socio-economic dynamics of Cape Town. Finally, the evolution of tourism within the City

Bowl and introduction of Airbnb in the Cape Town tourism landscape are delineated.

Chapter 4: Methodology

Quantitative and qualitative mixed methods pursued in the study with the purpose of a triangulation of data are discussed in this chapter. The logic and application of the three methods of User Profile Analysis (UPA), questionnaires and semi-structured interviews is outlined. The method of media analysis for the creation of a timeline of the drought is identified. Non-probability purposive and snowball sampling methods used to obtain data are then outlined followed by quantitative univariate descriptive analysis and qualitative thematic analysis utilised. Finally, a discussion of ethical considerations required for the study is provided.

Chapter 5: Results

The results obtained from the methods of UPA, questionnaires, semi-structured interviews and media analysis are provided in this chapter. A timeline of the 2015-2017 drought based on media analysis is provided. UPA, questionnaire and semi-structured interview data is unpacked to demonstrate key findings around water and electrical amenities marketed, estimations of water use, practices and perceptions around the water crisis and greening adaptations implemented within listings to reduce resource consumption. The changing relations within and outside of the Airbnb platform are also addressed.

Chapter 6: Discussion

An evaluation and interpretation of the main findings in the research are discussed in this chapter. Methodological reflections around triangulation, online and virtual-material positionality as well as personality are discussed. Historical and contemporary practices adapted and built by Airbnb hosts followed by a conversation around greening adaptations implemented within listings are interpreted. The perceptions and misperceptions of resources including the value of water and 'other' amenities and the perception of climate change are discussed. The changing identity of Airbnb with the use of managers followed by an evaluation of the extent of sharing in the sharing economy is discussed. Finally, a future outlook for Airbnb in Cape Town and the limitations acknowledged in the study are examined.

Chapter 7: Conclusion

A synthesis of the study, through an analysis of the main findings, the implications of the research and recommendations for future research is provided in this chapter.

CHAPTER 2 LITERATURE REVIEW

2.1 Introduction

To understand the manner in which Cape Town Airbnb spaces have shaped perceptions and practices of resource consumption and therefore its sustainability, the study must be situated in larger literature. The following section outlines literature surrounding the concept of the sharing economy, varied forms of sharing, motivations for its use and the paradoxical nature of the sharing economy. The manner in which tourism is situated in this economy is also examined. As the sharing economy paradox questions the sustainable nature of this economy, literature relating to sustainability in terms of how it is defined and its connection to tourism through sustainable tourism, responsible tourism and sustainable consumption is explored.

The concept of sustainability arose due to, amongst other concerns, changing climate and thus insight into the impact of climate change on tourism is outlined. Subsequently, drought, a major climate event under climate change is addressed in terms of how it is defined and situated in Cape Town. With water supply in a drought in question, general water access in the City of Cape Town is provided. A layout of tourism accommodation literature in South Africa is also outlined followed by highlighting the introduction of Airbnb in this space. Finally, the analytical framework of household metabolism is outlined followed by this study's contribution to the literature.

2.2 The Sharing Economy

Although there is nothing new about sharing¹, the sharing economy is the name prescribed to a recent phenomenon gaining momentum in global markets (Shor and Fitzmaurice, 2015). The internet and temporary non-ownership access (referring to goods and services that can be utilised on a short-term basis without ownership) has aided this transition with an increase in profit and non-profit sharing businesses (Belk, 2014). This economy may take the shape of, amongst others, car sharing, bike sharing, file sharing, tool exchange, land share and as will be seen in this research, accommodation sharing (Botsman and Rogers, 2010). Rachel Botsman, an initial thinker around the concept has described it as, “An economic system of decentralised networks and marketplaces that unlocks the value of underused assets by matching needs and haves in ways that bypass traditional middlemen” (in O’Regan and Choe, 2017: 154). The impact of the sharing economy is argued to aid in alleviating societal challenges of hyper-consumption, pollution and poverty due to decreasing the cost of economic coordination in communities (Hamari *et al.*, 2016)

However, authors have identified the concept as challenging to define due to the complexity of its practice in reality and its novelty (Richardson, 2015; Shor and Fitzmaurice, 2015; Martin, 2016; Frenken and Schor, 2017). In attempting to define this phenomenon, Stephany (2015: 205), defines the

¹ Belk (2010) discusses the varied forms of sharing experienced including gift giving, arguing that sharing has always been present and is the oldest form of consumption where this phenomenon has been adjusted, by innovation such as technology, to a new means of sharing.

sharing economy as, “The value in taking underutilised assets and making them accessible online to a community, leading to a reduced need for ownership of those assets”. Davidson and Infranca (2016: 222) argue the sharing economy is “An entirely new type of information network, one that remains place-based”. This comes from their argument that geographers and sociologists have claimed that these online communities have altered “The relationship between space and time” but the sharing economy is rooted in urban geography because the information flows it produces, depends on “The spatial dimensions of the market relationships it facilitates.” (Davidson and Infranca, 2016: 222). However, Wang and Jeong (2018: 162) define the sharing economy, identified as being formally accepted into the Oxford Dictionary as, “An economic system in which assets/services are shared between private individuals, either for free or for a fee, typically by means of the Internet”.

Sociologists Schor and Fitzmaurice (2015) posit three motivations for the rise in the sharing economy, namely: economic value; ecological impact and a need for social connection. In studying the motivations behind the use of online accommodation platforms of American and Finnish travellers, Tussyadiah and Pesonen (2018) identify the main drivers of social and economic appeal in the use of this type of accommodation whilst travelling. Travellers were also dissuaded by trust issues, lack of familiarity with the technology and cost value (Tussyadiah and Pesonen, 2018). Sustainability is considered, by Tussyadiah and Pesonen (2018), to be an aspect of social appeal. However, depending on the type of business model, livelihood and

community rather than the environment may be of greater importance (Tussyadiah and Pesonen, 2018).

Hamari *et al.* (2016) identify that people are motivated to use 'collaborative consumption' because of economic gains, its sustainability and pleasure of being part of the various activities available. However, an attitude-behaviour gap is reported in that positive attitudes towards its use and motivation did not necessarily transpire in to action (Hamari *et al.*, 2016). For example, sustainability ideals are a motivation but might not actually result in participation (Hamari *et al.*, 2016). Böcker and Meelan (2017) identify diverse motivations amongst users of sharing economy platforms where they argue the sharing economy cannot be seen as a uniform phenomenon. The use of the sharing economy was found to differ according to goods provided, demographic group and whether individuals are users or providers. For example, accommodation sharing within young and low-income groups are more economically motivated while more environmentally motivated for women participants (Böcker and Meelan, 2017).

Möhlmann (2015) studies satisfaction determinants in reuse of sharing economy applications (car2go and Airbnb), identifying trust, cost-savings, familiarity and utility appeal as key determinants for reuse while environmental impacts were not included. Similarly, Wang and Jeong (2018) identify satisfaction determinants resulting in repeat business and

customer loyalty where they identified satisfaction in Airbnb is influenced by amenity availability and host-guest relationships.

Shor and Fitzmaurice (2015) identify that despite multiple motivations, there is a risk that growing profit-driven sharing platforms will fall into established capitalist modes of business behaviour. This behaviour in turn creates an increased need for resources (Shor and Fitzmaurice, 2015). Similarly, Richardson (2015) identifies the sharing economy as having the profit-seeking identity of a capitalist initiative and one that deviates from it because it creates new opportunity for economic activities whilst deconstructing the dominant practices of profit-driven markets. However, more agnostically, the sharing economy comprises of the performances of community, access and collaboration rather than a set of economic practices (Richardson, 2015). Through these performances the building or break up of capital's practices may occur (Richardson, 2015).

Martin (2016) similarly highlights the paradox of the sharing economy. As a niche innovation, the sharing economy has been framed in several ways and as a result has been reframed as an economic opportunity. Thus, if this discourse is pursued, the transition toward sustainability may not transpire (Martin, 2016). Frenken and Schor (2017) who discuss the complex nature of the environmental effects of the sharing economy, argue that although common belief among participants is that this economy is less resource intensive they highlight that remuneration made from selling of unused goods can be used to acquire 'new goods' in a 'rebound effect'. In addition,

income is shifted across classes through sharing where the environmental impact varies by income class (Frenken and Schor, 2017). By contrast, Ganapati and Reddick (2018) argue that digital government agencies have the paradoxical role to retain innovation and address the challenges of regulation in the sharing economy for the purpose of increasing its role in the public sector.

2.2.1 Sharing Economy and the Tourism Sector

Airbnb accommodation, as part of the sharing economy, is discussed in the tourism sectors of the USA and Europe (Guttentag, 2015; Chibelushi, 2016; Tussyadiah and Pesonen, 2018; Aznar *et al.*, 2017; Zervas *et al.*, 2017). However, previous forms of shared travel accommodation exist, such as renting a space on Craigslist, youth hostels or non-profit travel space sharing such as CouchSurfing (Botsman and Rogers, 2010). Guttentag (2015: 1192) considers the business model of Airbnb a 'disruptive innovation' as regarded through the lens 'disruptive innovation theory' that posits "Products that lack in traditionally favoured attributes but offer alternative benefits can, over time, transform a market and capture mainstream consumers". Through this conceptual framework, Airbnb is reported as having initially attracted a small group of users and large hotel companies dismissed its small success (Guttentag, 2015). Airbnb then began to gain momentum and it became perpetually larger, creating a new competing market that has the potential to take over traditional accommodation sectors such as hotels (Guttentag, 2015).

Conversely, as part of 'disruptive innovation theory' analysis, Schmidt and Druehl (2008) suggest a 'disruptive innovation' may never fully overthrow a traditional market. Sigala (2017) claims that this collaborative commerce is growing exponentially where it will inevitably disrupt traditional value chains and companies as customers connect and retain goods from each other. These direct transactions influence travel experiences as travellers are able to pursue a more authentic destination experience (Sigala, 2017). With reference to Airbnb, Yannopoulou *et al.* (2013) argue that its brand identity stems from the value of authenticity it offers in promoting a local lived experience compared to other traditional accommodations. By contrast, Visser *et al.* (2017) identify that this ideal is problematic in Cape Town, South Africa, where due to the absent nature of Airbnb hosts, the true immersion of guests into an authentic local experience is lost.

Zervas *et al.* (2017) consider the presence of the sharing economy in tourism through Airbnb with regards to Texas hotel accommodation in the USA. The sharing economy has been valuable in addressing increased accommodation needs in this context through its flexible supply as compared to traditional accommodation that is rigid in supplying accommodation on demand (Zervas *et al.*, 2017). The pricing power of hotels in peak demand, especially for business travellers, was found to be strongly influenced. Thus, as compared to competing against other hotels, competition with the online platform is more difficult to address (Zervas *et al.*, 2017). This differs from the findings of Guttentag (2015) which suggest that business travellers will remain loyal to hotel brands.

Airbnb is not considered legal and part of the informal tourism accommodation sector in the USA as it is, in most cases, unregulated by government authorities (Guttentag, 2015). McNamara (2015) argues that Airbnb cannot remain unregulated as consumers face the risks of lawsuits, fines and evictions as a result of unlawful rentals. In addition, trust is essential in the workings of the sharing economy where mistrust caused as a result of the risks posed in being unregulated may result in the failure of the sharing economy (McNamara, 2015). Conversely, Dredge and Gyimóthy (2015) identify that the sharing economy has thrived because the traditional tourism market may be so overregulated that it was preventing innovation and access to the market where modern tourism requires an adaption and greater flexibility. However, there are concerns regarding whether the sharing economy benefits the public or a select few in these communities and whether regulation is preventing or promoting this behaviour is debated (Dredge and Gyimóthy, 2015).

2.3 Sustainability and Tourism

The study also draws on a larger tourism geography literature that has interrogated the relationship of the tourism sector to sustainability, climate change and environmental perceptions over time. First, the concept of sustainability must be unpacked as it has become a widely used term with varied meanings and therefore prompts certain responses (Hopwood *et al.*, 2005). Originally identified in the 1987 Brundtland Report *Our Common Future*, the concept of sustainable development has been defined as

“Meeting the needs of the present without compromising the ability of future generations to meet their needs” (Giddings *et al.*, 2002: 188) and has since been widely used and contested (Brooks, 1990; Kemp *et al.*, 2005; Toman, 2006; Vos, 2007). The concept of sustainability and sustainable development are often used interchangeably, although sustainability refers to the ability of a process or use of natural resources to be used in the long-term where sustainable development refers to the processes within economic and social development that need to be addressed to promote the re-emergence of environmental capacity and protection (Benson and Craig, 2014).

As this research is more interested in the current and future resource use of Airbnb within the tourism sphere of Cape Town rather than its economic and social development, the concept of sustainability is utilised. Within sustainability, society, economy and environment are standard components to address². Driven by sustainability, Goel (2010) examined the triple bottom line of “People, planet, profit” coined by John Elkington, as a means of measuring business performance for incorporating good business practice. Alhaddi (2015) distinguishes between the aspects of the triple bottom line highlighting that the economic aspect of sustainability is associated with contribution of business practices to the economy to promote its capability

² Social, economic and environmental aspects of sustainability are common however, as noted by Scoones (2007) the term is flexible as everything can be attached to the concept of sustainable such as cities, livelihoods, business, resource management and development. Mihalic (2016) also identifies other dimensions of sustainability including cultural and political aspects.

for people in the future. The social aspect of sustainability is associated with ethical and fair business practices to benefit the future of society and communities. The environmental aspect of sustainability relates to business practices that do not compromise natural resources for future use (Alhaddi, 2015). This research focuses primarily on the environmental aspect of sustainability through the understanding of resource use by Airbnb.

Giddings *et al.* (2002) however argue the environment, economy and society do not hold equal focus in achieving sustainability as they can be viewed at multiple levels and in varied spatial contexts. Due to this unequal focus, social challenges are neglected, and a fully integrated and principle-based outcome cannot be achieved (Giddings *et al.*, 2002). Toman (2006) argues the concept of sustainability is ambiguous and contextualised differently by multiple disciplines where it is essential to understand how sustainability is defined and what needs to be sustained. Vos (2007) claims the unclear nature of sustainability can be beneficial as the systems it comprises of are dynamic; in varied scales and contexts, where only certain aspects of the definition are applicable.

As one of the few studies investigating the sustainability of the sharing economy through accommodation sharing, Palgan *et al.* (2017) explore the manner in which sustainability has been framed through literature reviews, qualitative online surveys and non-context specific interviews. The economic, social and environmental framings of sustainability were identified in three forms of accommodation sharing platforms namely, free,

rental and reciprocal (Palgan *et al.*, 2017). The environment was found to be only considered in free accommodation sharing while rental accommodation sharing merely used sustainability as a tool to attract users (Palgan *et al.*, 2017). However, user motivations were not for environmental purposes but economic (Palgan *et al.*, 2017).

2.3.1 Sustainable and Responsible Tourism

The development of tourism and its impact on environmental management has been investigated through the lens of sustainable tourism (cf. Clarke, 1997; Pigram and Wahab, 1997; Butler, 1999; Bramwell and Sharman, 2000; Plummer and Fennell, 2009). Similar to the definitions around sustainability, sustainable tourism has numerous interpretations and definitions where Butler (1999) questions how it can be monitored and measured if there is no consensus on the definition. Nonetheless, Butler (1999: 12) aims to define sustainable tourism as:

“Tourism which is developed and maintained in an area (community, environment) in such a manner and at such a scale that it remains viable over an infinite period and does not degrade or alter the environment (human and physical) in which it exists to such a degree that it prohibits the successful development and well-being of other activities and processes”.

Environmental resource auditing and management have been identified as key tools in identifying the environmental impact of tourism firms. Goodall (1995) argues that environmental auditing will allow reduced impact by tourism firms on the environment, however not necessarily towards sustainable tourism as global travel increases. Butler (1999) argues that

sustainable development in the tourism sector needs to be operationalised and then evaluated to improve. The management of resources and perceptions of moving towards sustainable tourism has also been identified in countries such as Australia (Hardy and Beeton, 2001) in addition to the challenges of adjusting to more sustainable resource use in developing countries (Gössling, 2000). In reviewing the implementation of sustainability within the global tourism sector through five identified categories of sustainability including population, peace, prosperity, pollution and protection, Buckley (2012) claims the drive to sustainability is through regulation rather than market measures. Looking towards the future of tourism, Higgins-Desbiolles (2018) argues the constant promotion of tourism growth has not and does not align with sustainability goals where greater strategic approaches should be considered to realign with such goals.

Within the context of sustainable tourism, sustainable urban tourism also termed urban ecotourism has been investigated as cities receive the greatest quantity of tourists (Miller *et al.*, 2015). Weaver (2005) argues that, unlike formal terms of ecotourism pointing to tourism in undisturbed natural and protected sites, ecotourism may be more beneficial in modified urban settings through mass tourism. This is due to economies of scale and confined spaces creating favourable environmental management opportunities (Weaver, 2005). Scott and Cooper (2010) argue, through their case study of Queensland, Australia, that sustainable urban tourism requires a common definition to improve urban operations and suggest

marketing and policy development can aid in the attraction of tourists to these sustainable urban areas. Miller *et al.* (2015) have looked toward sustainable urban tourism and environmental behaviour of tourists in an urban context. The concept of tourist social responsibility is discussed and reveals that tourist pro-environmental behaviour is less dependent on attitude and more reliant on domestic habits and the availability of greening infrastructure to prompt green behaviour (Miller *et al.*, 2015).

A number of scholars have sought normative alternatives to sustainability, through notions of the ambiguous term 'responsible tourism' but outline the difficulties of implementing this without government support (Wheeller, 1991; Budeanu, 2005; Frey and George, 2010). In conjunction with increased use, responsible tourism has emerged as a response to mass tourism (Wheeller, 1991). Responsible tourism is described as a more caring, small-scale form of tourism that aims to control fast-paced tourism development that is community led and promotes education of travellers. Wheeler (1991) argues that a central problem of tourism is the volume of tourists. This is as a result of responsible tourism that enables excessive tourism through greenwashing whilst concealing the negative issues produced as a result. In addition, Budeanu (2005) notes that the global efforts to achieve sustainable development may be unsuccessful if one of the key sectors, tourism, does not incorporate responsible practices in its policies and future strategies.

The need to achieve responsible tourism in tourism-dependant countries is imperative with the effects of socio-economic inequalities and climate change impacting tourism potential (Frey and George, 2010). Responsible tourism has been investigated with regards to businesses in Cape Town. There is in general, a lack of resources to address tourism management practices. The costs related to implementing responsible tourism strategies are also linked to a lack of government support and a highly competitive tourism market (Frey and George, 2010).

Mihalic (2016) argues sustainable tourism is still a challenge and explores tourism practices of a responsible destination and their implementation of sustainability through constructing the term 'responsustable'. Through this lens, it is identified that although social and environmental objectives are leading to responsible tourism, economic interests are at the forefront of guiding the transition to a responsible state (Mihalic, 2016). Gill and Saarinen (2018) argue that sustainability is an important consideration facing the tourism sector and that transitioning towards sustainability in tourism requires resilience³ through good governance as it is necessary in the process of sustainability planning and management.

³ According to Saarinen and Gill (2018, n.p.) resilience is defined as "The capacity of a (socio-ecological) system, such as a local ecosystem or community to absorb disturbance and reorganise its functionality while undergoing a change".

2.3.1.1 Sustainable Consumption

Another ambiguous term that this research explores is 'sustainable consumption', at times used interchangeably with 'responsible consumption' within the literature (Prothero *et al.*, 2011). 'Sustainable consumption' has simply been described as containing "Sustainable products as well as sustainable industrial processes" (Clark, 2007: 492). This definition, along with other works, follows the Brundtland Report definition but is inadequately elaborated as a new concept (Clark, 2007; Lorek and Spangenberg, 2014; Vergragt *et al.*, 2016). The relationship between sustainable consumption and the sharing economy is debated amongst scholars (Schor and Fitzmaurice, 2015; Parguel *et al.*, 2017; Prothero *et al.*, 2011)

As identified by Schor and Fitzmaurice (2015), the increased use of sharing economy platforms will likely result in increased resource requirements and thus, overconsumption may become a problem. By contrast, Prothero *et al.* (2011) highlight the very nature of the sharing economy reveals a global value shift away from overconsumption towards living more sparsely. Conversely, Parguel *et al.* (2017) argue second-hand sharing economy platforms (such as eBay and Craigslist) validate materialistic and environmentally-conscious consumers allowing overindulgent behaviour with second-hand products. In addition, change within the sharing economy may only occur if ambitions and attitudes towards consumption change (Parguel *et al.*, 2017).

2.3.2 Climate Change and Tourism

The concept of sustainability emerged as a result of environmental issues due to a growing global economy fraught with increased population and pollution, together contributing to a changing climate (Vos, 2007). The relationship between climate change and tourism has been described as complex, interconnected and location specific (Scott and Lemieux, 2010; Hoogendoorn and Fitchett, 2018a). Besides socio-economic factors such as income and disposable wealth, climate and its impact on an environment of a destination contribute to tourist travelling decision processes (Gössling *et al.*, 2012a). Simpson *et al.* (2008) identified four categories of climate change impact on tourism; Marshall *et al.* (2011) contributed one additional category of impact that is particularly prevalent for this research. The five categories include:

- 1) Direct climatic impacts- relating to destination appeal and input costs due direct weather and climatic events.
- 2) Indirect environmental change impacts- related to degradation to the environment due to climate change such as coral bleaching resulting in loss of aesthetic appeal.
- 3) Impacts of mitigation policies and mobility- impacts of restricting travel or access to tourism attractions to mitigate negative impacts to the environment.
- 4) Indirect societal change impacts- due to the impacts of climate change future economic growth and political instability may cause social unrest which will deter tourism to a country.

- 5) Awareness and attitudinal impacts- new attitudes and behaviours toward climate change are being adopted due to changing social morals and laws around the environment. As a result, this will impact tourist travelling decisions as they will look for destinations that align with their new environmental attitude.

The adaptive capacity of tourism destinations to climate change has also been identified as an urgent research focus (Kaján and Saarinen, 2013). Marshall *et al.* (2011: 508) define adaptive capacity as, “The ability to respond to challenges through learning, managing risks and impacts, developing new knowledge and devising effective approaches”. Njoroge (2015) identifies six themes around tourism adaptation including: consumer adaptation (Perry, 2006; Marshall *et al.*, 2011), business adaptation (Becken, 2005; Bicknell and McManus, 2006; Buzinde *et al.*, 2010; Dawson and Scott, 2010; Weaver, 2011), destination adaptation (Narain *et al.*, 2011; Tervo-Kankare, 2011), policy and framework adaptation (Njoroge, 2014; Ziervogel *et al.*, 2014) and sustainable adaptation (Valdivia and Barbieri, 2014).

Developing countries of the global south have been identified to face greater threats of climate change impacts due to under-developed infrastructure and less effective warning systems (Hoogendoorn and Fitchett, 2018a). This results in the developing nation having a lower capacity to adjust to the effects of climate change compared to that of developed nations (Hoogendoorn and Fitchett, 2018a). This research aims to contribute to the

knowledge of adaptive capacity of alternative tourism accommodation, Airbnb, in South Africa. This would provide insight into the capacity for climate change adaptation allotted through other avenues in the sharing economy.

Tourism flows have been identified as highly dependent on the climate of regions (Fitchett and Hoogendoorn, 2018a). In cold climates, snowmaking processes in winter tourism destinations with particular impact on the skiing industry have been identified to be under threat by climate change where adaptation in the form of snowmaking systems need to be considered (Scott *et al.*, 2003; Stockigt *et al.*, 2018). Perry (2006) examines the impact of climate change, in particular drought and heat stress in the Mediterranean and its impact on the sustainability of future tourism. Similarly, Amelung *et al.* (2007) identify that certain regions may experience appealing weather conditions, while other areas such as parts of the Mediterranean may become uncomfortable for tourists due to increased temperatures. Sagoe-Addy and Addo (2013) project tourism accommodation facilities are at risk along the Ghana Accra coastline as a result of climate change-induced sea level rise.

The relationship between tourist perceptions, behaviour and climate has also been explored across various contexts. Gössling *et al.* (2006) investigate how climate change has influenced perceptions and behaviour of tourists in Zanzibar. In this instance, travel decisions are made regardless of climate; local weather experiences shape tourist perceptions of local

climate and tourists are, to a large extent, unaware of their environmental impact or contribution to climate change (Gössling *et al.*, 2006). Saarinen and Tervo (2006) examined the perceptions of climate change from the perspectives of Finnish entrepreneurs, whose income is reliant on nature tourism. The study found that while some are aware of the effects of climate change on the nature they make their income from, others were climate change sceptics and therefore no adaptation strategies were implemented (Saarinen and Tervo, 2006). The perceptions of the adverse effects of climate change on tourism accommodation in the Eastern Cape of South Africa have been investigated by Hoogendoorn *et al.* (2016), from which a misalignment in ideals towards climate change severity and adaptation between tourists and tourist accommodation owners were found. Hoogendoorn and Fitchett (2018b) explore the perspectives of climate change impacts on second homes in South Africa, arguing these complex tourist spaces are particularly vulnerable to climate change. Within the online space of TripAdvisor, Fitchett and Hoogendoorn (2018b) examine the frequency and distribution of climate mentions in reviews, confirming the perception of South Africa as a destination with ideal climate conditions for tourism.

2.4 Drought and Water Access

2.4.1 Defining Drought

One impact of climate change is drought and can be seen to impact the tourism sector. First, it is important to distinguish the varied meanings

associated with drought. Wilhite and Glantz (1985) argue that a universal definition of drought cannot be made but has been investigated from multidisciplinary approaches. The use of the term is understood by citizens, policymakers and others both conceptually and operationally where there is a lack of consensus on a precise definition and therefore, depending on the manner it is understood, can determine the inaction or potential management of water resources (Wilhite and Glantz, 1985). In pursuit of a uniform definition, the World Meteorological Organization (WMO) gathered 54 participants from 22 countries to discuss the development of drought indices standards and to create guidelines for early warning systems, resulting in the Lincoln Declaration on Drought Indices (Hayes *et al.*, 2011). Through this process an internationally agreed definition of drought was produced, where it is, “A deficiency of precipitation relative to what is expected (i.e., ‘normal’) that, when extended over a season or longer period, results in the inability to meet the demands of human activities and the environment” (Hayes *et al.*, 2011: 485). The WMO (World Meteorological Organisation) has adopted the Lincoln Declaration (WMO, 2012) and therefore drought requires official classifications based on quantitative measures (Mishra and Singh, 2010; Hayes *et al.*, 2011).

Drought is classified into four types (Duan and Mei, 2014), which are defined by Mishra and Singh (2010: 206) as:

- 1) Meteorological drought: “Lack of precipitation over a region for a period of time.”

- 2) Hydrological drought: “A period of inadequate surface or subsurface water resources for established water uses of a given water resources management system.”
- 3) Agricultural drought: “A period with declining soil moisture and consequent crop failure without any reference to surface water resources.”
- 4) Socio-economic drought: “Failure of water resources systems to meet water demands and thus associating droughts with supply of and demand for economic good (water).”

Based on media and recently published articles, the Cape Town drought fits the criteria for all four classifications of drought. The commentary mentions an absence of rain (meteorological drought) (Richman and Leslie, 2018), the reduction in dam levels (hydrological drought) (Muller, 2018), adverse impacts on agriculture (agricultural drought) (Richman and Leslie, 2018) and therefore impacts on pricing as well as water supply rationing (socio-economic drought) (Ngcukana, 2017; Richman and Leslie, 2018).

Severe droughts with many similarities to the one experienced in Cape Town are being experienced globally. In 2008, Barcelona, Spain, was required to ship water from France to supply water to citizens (March *et al.*, 2013). In 2014-2015, citizens in Sao Paulo, Brazil received water for only two days a week with the worst drought experienced in 80 years (Muller, 2018; Cathala *et al.*, 2018). Muller (2018) argues the droughts in Sao Paulo and Barcelona were exacerbated by political decisions. Australia

experienced the 'millennium drought' from 1997 to 2012 (Cathala *et al.*, 2018). California has also suffered a five-year drought with a drought emergency declared in 2014. Drought in Bolivia caused their government to declare a national emergency in 2016 (Cathala *et al.*, 2018). Cathala *et al.* (2018) argues that Mediterranean climates, as experienced in Australia, California and the Western Cape of South Africa, are drought-prone regions and are particularly vulnerable to climate change as they are situated in the subsidence belt at the meeting of the Hadley and Ferrel cells (Qian, 2017; Lennard, 2019).

Tourism is severely influenced by drought, as water supply for consumption and water-based outdoor activities may be affected. Martinez-Ibarra (2015) examined the threat of the drought in Spain, where the tourism destination water supply was affected. Within the South African literature, Preston-Whyte and Watson (2005) have discussed the impact of regional climate change on nature tourism where they argue the aridification associated with increasing climate change will negatively impact biodiversity as part of nature tourism. In addition, the impact on fishing tourism by climate change, particularly drought in St Lucia has also been investigated (Steyn and Spencer, 2012). Similarly, St Lucia received a high frequency of drought mentions in TripAdvisor reviews (Fitchett and Hoogendoorn, 2018b). In addition, drought events have been identified to influence other areas of South Africa operating second homes (Hoogendoorn and Fitchett, 2018b).

2.4.2 Drought in Cape Town

The drought in Cape Town that forms the focus of this study began in 2015 and has only recently concluded. Literature on factors influencing the drought, such as impacts of land use changes and increasing temperature, are limited but likely to soon be published. Botai *et al.* (2017) identified the recurrence of mild drought conditions experienced by the Western Cape Province from 1985 to 2016 with particular focus on the effects on agriculture as a large economic contributor in the province as well as determining significant additional socio-economic impacts. Wolski (2018) identified the 2015-2017 drought in Cape Town as rare, severe and resultant from low rainfall, and that this period of drought was the driest since 1933. Cape Town residents were reported to blame government for its mismanagement during this time, although the drought would have been a challenge to address regardless of planning (Wolski, 2018). By contrast, Muller (2018) argues climate change is not the cause of water shortages during the drought in Cape Town but rather due to insufficient planning and mismanagement of citizens' perceptions regarding water use and systems.

In researching the effect of climate change on the lack of rainfall in the Cape Town drought, Otto *et al.* (2018) found that this event was rare where there is a return period of 100 years. However, climate change has increased the potential of this occurrence by a factor of 3.3 (Otto *et al.*, 2018). Sousa *et al.* (2018) claims low rainfall within the three dry consecutive years was due to a poleward shift in jet stream and cyclone tracks that impact cold fronts and midlatitude cyclones which aid in providing moisture to the south west

of Cape Town. Richman and Leslie (2018) have also studied the recent drought, exploring predictive capacity of climate projections for the region using machine learning techniques.

The Cape Town drought has been recently investigated in terms of strategies to reduce water and their impact on households. The emerging literature on the Cape Town drought has been predominately in the form of newspaper articles and working papers. In working with the City of Cape Town and the Environmental Policy Research Unit (EPRU), Visser and Brühl (2018) and Köhlin *et al.* (2018) highlight the sending of 'behavioural nudges' in the form of targeted messages comparing household consumption to average neighbourhood consumption. As a consequence of these messages, average water use has reduced by nearly half in three years (Brühl, 2018; Köhlin *et al.*, 2018). Visser and Brühl (2018) identify that higher income households have reduced their water usage to that of lower income households (who have always maintained low water consumption). Affluent households, however, are able to use less municipal water due to private boreholes and green investment like rain water collection tanks (Visser and Brühl, 2018).

Brick *et al.* (2018) reveal the 'behavioural nudges' used, particularly messages surrounding saving water for public interest, were most beneficial with water being reduced from 0.6% to 1.3%. In addition, Brick and Visser (2018) examine the impact of warning letters sent to households consuming more than 50 kilolitres in February and March 2017 and found this 'green

nudge' effective in reducing water usage by 3% in households receiving the letter. In researching household behavioural response during the drought using smart water metres, Booysen *et al.* (2018) examine the impact of official announcements and public engagement with social media on water consumption in middle to high income households. Level 5 water restriction introductions were found to have contradictory impacts on consumption due to confused public messages where reduced consumption was promoted by panic due to media publications surrounding disaster plans in October 2017 (Booyesen *et al.*, 2018).

2.4.2.1 Cape Town and Water Access

Water supply in Cape Town is at risk due to climate change having projected direct impacts on its water resources (Ziervogel *et al.*, 2010; Richman and Leslie, 2018). The City of Cape Town has struggled with its water supply for years due to increased demand from a growing population and unequal access to water (Mahlanza *et al.*, 2016). Sixty years of apartheid had resulted in the fragmentation of service delivery and urban planning policies (Smith and Hanson, 2003). Smith and Hanson (2003) investigate water access in Cape Town five years following the fall of apartheid, where corporatisation of water resulted in cost-recovery methods to achieve equity in water service delivery. Historical malpractice of service delivery is recreated as there is little attention paid to the process of distribution and the understanding of poor urban household functionality and needs (Smith and Hanson, 2003). Jansen and Schultz (2006) explore water demand patterns in relation to income level of urban individuals. During price shifts,

low-income groups were found to not change their water consumption behaviour where high income groups alter their behaviour as they are more price sensitive (Jansen and Schultz, 2006). A decade later, Mahlanza *et al.* (2016) investigate a strategy by the City to conserve water, through water management devices implemented in low-income households. Injustice was found in the implementation process as poor households are forced to utilise the devices, requiring payment for additional water needs as the devices enforce limited water allocation (Mahlanza *et al.*, 2016). As much of the Cape Town water access literature looks towards the poor, this research may provide insight into water use by middle and elite class households within Cape Town.

2.5 Tourism Accommodation Research in South Africa

The South African tourism accommodation literature is characterised by research seeking to understand the progression and contemporary issues surrounding varied accommodation types (Rogerson and Rogerson, 2014). Research ranges from hotels, guest houses and more recently Airbnb (Table 2.1).

Table 2.1: Summary of literature on tourism accommodation in South Africa.

Publication Year	Author	Accommodation type	Description
1999	Visser & Van Huyssteen	Guest houses	Identify a new niche of guest houses in the Western Cape as a result of the altered tourist preferences and local dynamics.
2003	Visser	Second homes	Argues that although second homes, mostly concentrated around coastlines, are not new to South Africa, limited academic researched has been pursued.
2004a	Visser	Second homes	Explores the impact of second homes on local development, finding these properties create flexible tourist accommodation, employment and promoting building conservation whilst propagating increase property prices. Properties are also seen to be used for private and other rentals and as leisure production with the use of property managers.
2004	Hoogendoorn & Visser	Second homes	Investigate a case study of second homes in Clarens, Free State. Local development is argued to have created positive impacts through property price appreciation and creation of employment but negatively impacts property mobility through increased property costs and racially segregated division of labour.
2004	CM Rogerson	Bed and Breakfasts (BnBs)	Identifies emerging black-owned bed and breakfast tourism accommodations as a result of post-apartheid transformation for black-owned small tourism enterprises.
2004b	Visser	Backpacker hostels	Identifies that this form of accommodation has the potential to contribute to local economic development as it initially contributed to employment creation though the establishment and management by South African entrepreneurs.
2007	CM Rogerson	Backpacker hostels	Identifies six key issues in the intervention of backpacker tourism such as limited marketing as an international backpacker destination and limited backpacker products.
2009	Hoogendoorn, Visser & Marais	Second homes	Argue that second home development in Rhodes, Eastern Cape contributes to a post-productivist countryside linked to employment creation and expenditure through leisure activities.

Publication Year	Author	Accommodation type	Description
2010	Hoogendoorn & Visser	Second homes	Investigate the impact of second homes on local economic development in five small towns in South Africa. These properties have the ability to contribute to the local economy through capital flows, enterprise development and employment creation.
2010	JM Rogerson	Boutique hotels	Investigates the rise of the boutique hotel industry as a form of dissection in the hotel industry with particular focus in Cape Town.
2011a	JM Rogerson	Limited service or budget hotels	Identifies the limited service or budget hotels in the development of business tourism economy through the exploration of City Lodge.
2011b	JM Rogerson	All-suite hotels	Identifies the increasing growth of all-suite hotels or self-catering suites in South Africa, particularly Cape Town and Johannesburg.
2011	JM Rogerson & Kotze	Hotels	Identify the market segmentation and post-apartheid restructuring within the hotel sector.
2011	Hoogendoorn & Visser	Second homes	Identify that with the end of apartheid, economic opportunities were sought in urban centres whereby commercial farmers moved from rural agriculture to urban employment in which their rural homes were retained for leisure purposes. In addition, the use of these homes as second homes enhance post-productivism where it is linked to the growth of rural tourism.
2012a	JM Rogerson	Hotels	Explore the spatial patterns and locational changes of coastal hotels within urban tourism between 1990 and 2010, particularly in Cape Town, Durban and Port Elizabeth.
2012b	JM Rogerson	Hotels	Investigate the hotel as a form of property investment and sector as a particular property asset class.
2012	JM Rogerson & Sims	Urban hotels	Investigate the greening of hotels in Gauteng where the greening of hotels is driven by profit and corporate social responsibility (in a period with limited interest in these forms of hotels as tourism products by local consumers).

Publication Year	Author	Accommodation type	Description
2013	Pandy & CM Rogerson	Time share	Time share is reliant on domestic rather than international tourism. Identify time share accommodations as predominantly developed near casino resorts (Sun City complex) as well as coastal beach areas and mountain locations. This industry is also part of accommodation including hotels, guest houses, second homes, safari lodges, backpacker lodges and bed and breakfasts.
2013a	JM Rogerson	Hotels	Explores, as a result of the shifting hotel industry between 1990 and 2010, the changing size, distribution and altered spatial patterns of these varied size hotels in South Africa. Majority of large hotels are found in the CBD of Cape Town.
2013b	JM Rogerson	Limited service or budget hotels	Explores the reduced role of budget hotels from 1990. These hotels grow for business and leisure tourism in large cities and secondary centres where former liquor focused budget hotel have been replaced by BnBs and guesthouses in small towns.
2013c	JM Rogerson	Hotels	Identifies the drive towards market segmentation from 1990 to 2010 with the restructuring of the hotel industry through improved quality standards and increased investment in new hotel products.
2013d	JM Rogerson	Hotels	Identifies the extent to which the hotel industry has changed where hotels available in 1990 are no longer in existence in 2010, as a result of required changes to increase the image as an international leisure and business tourism destination, growing domestic business destination and shifted domestic leisure market in post-apartheid South Africa.
2014	Pandy & CM Rogerson	Time share	Explore an analysis of the spatial organisation and historical evolution of timeshare development in South Africa. Coastal areas were found to be the foundation of the timeshare industry in South Africa.
2014a	JM Rogerson	Hotels	Explores the changing landscape of hotels in Johannesburg and found disinvestment in particular city spaces, with reinvestment and revitalisation of those spaces.
2014b	JM Rogerson	Hotels	Investigates the transformation of the local hotel economy in Ekurhuleni, a metropolitan area in Gauteng, where business tourism has developed in the industrial area mainly due to the presence of the OR Tambo International Airport.

Publication Year	Author	Accommodation type	Description
2015	Greenberg & JM Rogerson	Serviced apartments	Identify the niche of serviced apartments as a result of required accommodation by business individuals working abroad for an extended period of time. These apartments are generally located in upmarket residential areas.
2015	Hoogendoorn, Grant & Fitchett	Guest Houses	Explores the potential of green guest houses in KwaZulu Natal and Gauteng. Identified that majority of guest house owners in these locations are aware of their environmental impact and due to lowered cost incentives aim to mitigate these.
2015	Hoogendoorn & Visser	Second homes	Reflect on a decade of second home tourism research highlighting methodological challenges, mobility, town and regional planning impacts and post-positivist countryside positionality.
2016a	Fitchett, Hoogendoorn & Swemmer	Varied accommodation types	Investigate tropical cyclone Dando on the Mopani District Municipality where it was found that the ability of tourism accommodation establishments to recover from flooding events was dependent on the type and value of insurance sourced.
2016b	Fitchett, Grant & Hoogendoorn	Varied accommodation types	Identify climate change threats and impacts for the coastal towns of St Francis Bay and Cape St Francis in the Eastern Cape of South Africa. A disjuncture in perceptions was revealed as tourism accommodation establishments were aware of climate change threats where little adaptation had been or will be implemented.
2017	Visser, Erasmus & Miller	Airbnb	Explore the emergence of Airbnb in Cape Town highlighting its characteristics, spatial distribution and temporal development in the city.
2018b	Hoogendoorn & Fitchett	Second homes	Identifies the vulnerability of second homes to climate change impacts across South Africa.
2018a	JM Rogerson	Hotels	Explores the historical development of hotels in Johannesburg from the late 1920s to 1936 to provide a greater understanding of the developing local hotel industry and contribute to hotel literature.

As reflected in the above table, little literature has spoken to Airbnb as tourism accommodation in South Africa. Visser (2016a) argues that the impact of Airbnb as a developing niche product in the tourism space requires further attention. This research sought to contribute to this endeavour through the investigation of resource consumption in Airbnb accommodation in the City of Cape Town.

2.6 Building an Analytical Framework Through Household Metabolism

Urban metabolism is identified as a means by which resource flows are understood and investigated to evaluate the sustainable use of resources (Conke and Ferreira, 2015). Urban metabolism, first identified by Abel Wolman in 1965, is defined as “The sum total of the technical and socio-economic processes that occur in cities, resulting in the growth, production of energy and the elimination of waste” or the effective use of resources within the complex interactions of input, throughput and output of energy associated with an urban area (Kennedy *et al.*, 2007: 44; Conke and Ferreira, 2015). The management of quantities that are input, throughput and output of the system, is directly linked to the environment (Conke and Ferreira, 2015).

On a smaller scale, Moll *et al.* (2005) and Harder *et al.* (2017) investigate the analysis and flow of resources within the household, termed household metabolism. This concept is related to the consumption of the household in which exploitation of resources and waste produced are linked to environmental impact (Harder *et al.*, 2017). Moll *et al.* (2005) explore the

consumption patterns of households in terms of household metabolism analysis to determine sustainable consumption patterns within the household. This is investigated in European countries in terms of energy usage. Household income is argued to determine the amount of energy utilised (Moll *et al.*, 2005). Similarly, Harder *et al.* (2017) argue that the concept of household metabolism is useful in identifying the difficulty faced by individuals or households wanting to make impactful change, such as reducing power consumption, within the complex socio-economic systems they are in; such as the price of electricity. These authors usefully identify that besides indirect circumstance, decision making in the household is a large factor in influencing the sustainable metabolism of the household (Moll *et al.*, 2005; Harder *et al.*, 2017).

The goal of sustainability requires further elaboration. Kemp *et al.* (2005) argue sustainable development may be achieved through innovative and adaptive social processes and goals. It is these processes which may be led by individuals of a household (Harder *et al.*, 2017) that create change whereby, Parguel *et al.* (2017) further state change may only occur if ambitions and attitudes towards consumption change. Therefore, taking seriously the perception and practices of resource use in addition to accounting for household flows is critical. The research combines the interrogation of household metabolism resource inputs, throughput and to a lesser extent, outputs (Conke and Ferreira, 2015) with approaches that foreground perceptions and practices of resource consumption within a socially produced space- that of the Airbnb listing in a context of water crisis.

2.7 Contribution to the Literature

The literature surrounding the sharing economy and the use of Airbnb accommodation in tourism usefully identifies the main motivations behind Airbnb use and the uncertainty regarding its regulation (Guttentag, 2015; McNamara, 2015; Schor and Fitzmaurice, 2015; Hamari *et al.*, 2016; Böker and Meelan, 2017). Economic factors, and to a smaller extent community appeal, are the main factors contributing to its use (Schor and Fitzmaurice, 2015). In addition, the threat that Airbnb poses to the traditional tourism accommodation sector has been identified (Zervas *et al.*, 2017). The concept of sustainability, a core purpose of the sharing economy, is questioned through the paradox identified by Richardson (2015) and Martin (2016). Through the sustainability literature, the challenge of addressing the social, economic and environmental pathways towards sustainability has been identified (Giddings *et al.*, 2002). This research, however, will only focus on the environmental sustainability of Airbnb in terms of water resource consumption.

Furthermore, the perspectives around sustainable consumption and responsible tourism, and therefore their implementation in the sharing economy and tourism policies, and strategies are contested (Wheeller, 1991; Prothero *et al.*, 2011; Parguel *et al.*, 2017; Higgins-Desbiolles, 2018). The often-ambiguous concepts of responsible tourism and sustainable consumption are seen as two goals to achieve the sustainability of the tourism sector (Butler, 1999; Prothero *et al.*, 2011). In addition, the concept of sustainable urban tourism reveals the potential of city spaces to promote

greening and increase sustainable management (Weaver, 2005). As Airbnb has only recently been included in this sector, this research identifies the practices and policies planned or presently being implemented to achieve sustainability in the context of Cape Town.

Sustainable transitions and household metabolism literature are beneficial in providing insight into the particular manner in which sustainability may be achieved as well as on a smaller scale, the measurement and management of resources to aid in this process (Harder *et al.*, 2017). This is of particular relevance due to water scarcity within Cape Town (Baigrie, 2017). In addition, household water consumption during the drought in the City of Cape Town has partially been investigated (Booyesen *et al.*, 2018; Brick and Visser, 2018; Brick *et al.*, 2018; Köhlin *et al.*, 2018; Visser and Brühl, 2018). This research contributes to the above literature by investigating the resource uses and perceptions of the environmental impacts and water consumption by Airbnbs with regards to Cape Town tourism in a water scarce area.

This study aims to address the gap identified by Visser (2016a) and provide greater insight into the resource use of Airbnbs in Cape Town (Visser *et al.*, 2017). The research contributes to the new niche tourism literature by addressing Airbnb in Cape Town, with an additional focus on its relationship to the transition towards sustainability through resource consumption. In addition, the regulation regarding the environmental status of Airbnb in

Cape Town is clarified and questioned, adding potential regulation knowledge surrounding the phenomenon in South Africa.

2.8 Conclusion

This study is situated in literature from a number of varied subdisciplines. The review therefore covers the sharing economy and its connection to tourism, and the paradoxical nature of the sharing economy and sustainability aspects of the economy are identified. Varied concepts around sustainability including sustainable and responsible tourism, sustainable urban tourism and sustainable consumption are explored. The concern over climate change and tourism are also identified. The particular climatic event of drought is defined with focus drawn to the 2015-2017 drought in Cape Town. In addition, water access in Cape Town is examined. The spatial distribution of tourism accommodation in South Africa and the emergence of Airbnb is described. Finally, the analytical lens of household metabolism used in the study is outlined followed by the contribution of the study to the literature. The review situates the key contribution of this research in bringing together these threads and documenting the recent event of the drought in Cape Town.

CHAPTER 3 STUDY SITE

3.1 Introduction

This chapter provides an outline of the study site used for the research. The study area was primarily located but not exclusively in the City Bowl in Cape Town, South Africa. This section outlines the study site in terms of its location and geography. This is followed by an outline of the climate of Cape Town and an overview of previous drought events experienced. The historical and contemporary socio-economic urban landscape is also described. Finally, tourism development within the City Bowl area is highlighted with particular insight into the expansion of Airbnb as tourist accommodation.

3.2 Location and Geography

The City of Cape Town is situated at 33° 55' 33"S, 18° 25' 23.6"E, at the southwest point of the Western Cape in Southern Africa (Figure 3.1; Wilkinson, 2000; Richman and Leslie, 2018; GeoDatos, 2019). The city spans an area of 2,461km² (Statistics South Africa, 2011). A famous landform found in Cape Town is Table Mountain, with a peak of 1,080ma.s.l., comprising quartzitic sandstone and shale (Wilkinson, 2000). Vegetation in the region comprises of indigenous fynbos⁴ (an important tourist attraction) and European-introduced oak, planes and stone pine tree species (Wilkinson, 2000).

⁴ Fynbos is directly translated to fine-leaved (Wilkinson, 2000) and is a biome specific to this part of the Western Cape (Rebelo *et al.*, 2006).

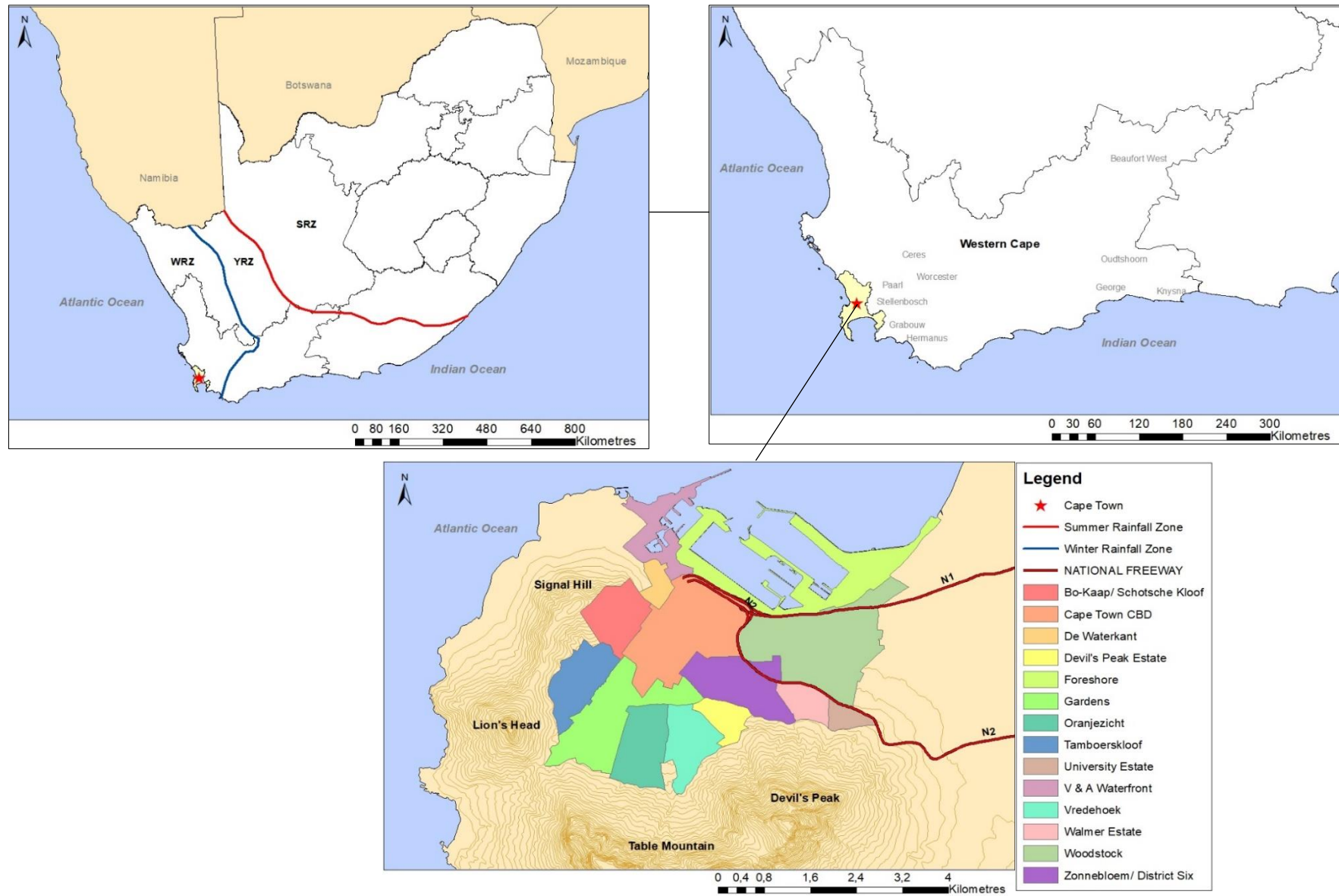


Figure 3.1: Study site of the City Bowl located in Cape Town, Western Cape South Africa.

Water supply to the City of Cape Town predominantly comprises 14 surface reservoirs where six of these are major dams in and around Cape Town. The major six reservoirs comprise of the following dams (Cathala *et al.*, 2018; City of Cape Town, 2018b):

- Berg River
- Steenbras Lower
- Steenbras Upper
- Theewaterskloof
- Voëlvlei
- Wemmershoek

Theewaterskloof is the largest reservoir in the water supply system with the second largest being Voëlvlei (Chambers, 2018).

The primary area of interest to the study is the City Bowl, located in the natural amphitheatre between the Atlantic Ocean and Table Mountain with Lion's Head and Signal Hill located to the West and Devil's Peak to the East (Figure 3.1; Sorensen, 2014; Cape Town Tourism, 2017b). The delineation of suburbs included in this area vary according to different sources. For the purpose of this study, suburbs were identified according to the Cape Town tourism website, Cape Town Tourism (2017b)⁵ and included the following areas:

- Bo-Kaap
- Cape Town Central Business District (CBD),
- Devil's Peak

⁵ Delineation of suburbs used in the process of User Profile Analysis (UPA) may differ to those identified by Cape Town Tourism (2017b). This will be explained in Chapter 4: Methodology. Suburbs identified in Figure 3.1 stem from a census database of South Africa and are used merely to highlight the suburbs found in the City Bowl area.

- Foreshore
- Gardens
- Higgovale,
- Oranjezicht,
- Tamboerskloof,
- Vredehoek,
- Walmer Estate
- Woodstock
- Zonnebloem/ District Six

3.3 Climate of Cape Town

Cape Town is characterised by a temperate Mediterranean climate with warm dry summers and mild wet winters (Sousa *et al.*, 2018). The city receives the majority of its rainfall in the seven-month period between April and October and is located in the Winter Rainfall Zone (WRZ) of South Africa, where more than 66% of its precipitation is received (Figure 3.1; Carr *et al.*, 2006; Richman and Leslie, 2018; Roffe *et al.*, 2019). Winter rain originates from temperate westerly low-pressure systems in the form of cold fronts, whilst non-winter months may occasionally receive convective precipitation from air sourced over the warm Agulhas Current (Midgley *et al.*, 2005; Carr *et al.*, 2006). Precipitation is encouraged orographically due to the mountain ranges in the area (Midgley *et al.*, 2005). Average temperatures in summer range from a $T_{\min}$ of 15°C to a $T_{\max}$ of 27°C whilst in winter range from a $T_{\min}$ of 5°C to a $T_{\max}$ of 22°C (Botai *et al.*, 2017). October to March is the dry and hot season for the city, a feature of subsidence at the meeting of the Hadley and Ferrel Cells, locally termed the

South Atlantic High-Pressure Cell, due to the poleward displacement of the Inter-Tropical Convergence Zone (ITCZ; Tyson and Preston-Whyte, 2005; Jansen and Schulz, 2006).

3.3.1 History of Drought in the Western Cape

Drought is not a new phenomenon to the Western Cape. The last drought of equivalent severity was experienced in 1904 (Booyesen *et al.*, 2018). Less severe drought events have occurred in the years 1926, 1973, 1978, 1994, 2003-2005 and 2010-2011 (Midgley *et al.*, 2005; Richman and Leslie, 2018). The drought of 2003-2005 was attributed to climate variability (Midgley *et al.*, 2005). The supplying dam levels were the lowest in five years, at an average of 29.6%, and grape yields in the winelands were reduced threatening wine and agricultural employment (Midgley *et al.*, 2005; Araujo *et al.*, 2016). Similar to the 2015-2017 drought, the use of increased tariffs, water restrictions and awareness campaigns were implemented (Midgley *et al.*, 2005). The drought event of 2003-2005 resulted in reportedly reduced water use (Ziervogel *et al.*, 2010).

As a result of water restrictions in 2017, water use decreased by 25% compared to previous years (Cathala *et al.*, 2018). The current drought received the lowest rainfall in 2017 since 1933 and the period of 2015 to 2017 was considered the driest since 1933 (Wolski, 2018). During the current drought, rainfall decreased within 50% to 75% of the long-term average (Cathala *et al.*, 2018). It is notable that following the drought, pre-

season rainfall occurred in the summer month of February and early wet-season April and May (Richman and Leslie, 2018).

3.4 Historical and Contemporary Cape Town

The City of Cape Town was established in 1652 through colonization by the Dutch East India Company and thereafter colonised by the British Empire in 1814-1815 (Wilkinson, 2000; Western, 2002). In subsequent years, populations had mixed, although still not equally, until the implementation of apartheid in 1948 where the Group Areas Act resulted in Black and Coloured demographic groups being forcibly removed to the outer city – called the ‘Cape Flats’. With the repeal of apartheid’s infamous Pass Laws in 1986, thousands of individuals from the Eastern Cape entered Cape Town seeking to improve their livelihood resulting in an influx of informal settlement development. Following the end of apartheid, the City remains relatively segregated with Western (2002: 714) describing the City as “The rich minority hugging Table Mountain and the impoverished majority occupying the miserable sandy expanses of the Cape Flats”.

Cape Town is currently the legislative capital of South Africa and the administrative and economic centre of the Western Cape Province (Statistics South Africa, 2011). Sectors of importance to the economy of Cape Town include wholesale and retail trade; catering and accommodation; finance, insurance, real estate and business services; along with agriculture, forestry and fishing (Western Cape Government, 2017). The urban layout of Cape Town ranges from colonial to conservative

neighbourhood unit designs (Wilkinson, 2000). The City of Cape Town has also promoted its tourism landscape with the revitalisation of the CBD during the 1990s as a result of the redevelopment of the historic Victoria and Alfred (V&A) Waterfront (Wilkinson, 2000; Ferreira and Boshoff, 2014; Visser, 2016b). In the outer city, informal settlements have remained since the 1980s and are considered a large component of the built environment (Wilkinson, 2000).

The population of Cape Town is estimated to comprise of 4,232,276 people, growing 2.6% between 2001 and 2011, mostly due to rural-urban migration (Western Cape Government, 2017; Cathala *et al.*, 2018). The City maintains an 11.9% unemployment rate with a Gini coefficient of 0.61 in terms of income inequality (Western Cape Government, 2017). The total number of households grew 63.6% from 1996 to 2011. As of 2011, 41.6% of households in the city are populated by Black African residents, 33.6% by Coloured residents and 21.8% by White residents (City of Cape Town, 2016a). Residents that earn a monthly household income of less than R3,200.00 include: Black Africans (69%), Coloured (41%) and White (15%). Census 2011 revealed the highest category of household monthly income, R102,401.00, as maintained by White (4.4%), Coloured (0.6%) and Black African residents (0.4%; City of Cape Town, 2012). The City of Cape Town contains 231,793 poor households as of 2015 (City of Cape Town, 2016a). Poor households are classified as earning less than R3,500.00 per month. Within all city households, 98.4% in the City of Cape Town have access to

water and 90.1% have access to electricity (Western Cape Government, 2017).

3.5 Tourism in Cape Town

In the last 20 years, the central City of Cape Town has been transformed in large part by leisure and tourism led initiatives (Visser, 2016b). The 1970s saw the decay of the central city through urban blight and institutional capital flight. The V&A Waterfront development in the late 1980s was the first of the redevelopment strategies to increase interest in the city, with the CBD in continued decay (Ferreira and Boshoff, 2014; Visser, 2016b). In the 1990s two leisure and tourism interventions namely: De Waterkant as a 'gay village' for leisure and Cape Town International Conference Centre (CTICC) to increase conference tourism were created (Rink, 2008; Visser, 2016b). An annual event held in the CTICC that welcomes 32,000 visitors to Cape Town is the Cape Town International Jazz Festival and is argued to be a large economic contributor to Western Cape Province (Saayman and Rossouw, 2010). During the 1990s, second home tourism accommodation had developed in De Waterkant as a result of its close proximity to the V&A Waterfront, an increasing tourism hotspot for local, national and international tourists. In the mid-2000s the 'gay village' had gained popularity and started to spread creative business ventures to other areas of the city.

The tourism nodes of the V&A Waterfront, De Waterkant and CTICC began to merge in 2010 (Visser, 2016b). Ferreira and Boshoff (2014) identified a

50% increase in five-star hotel rooms and 20% increase in four-star hotel rooms in preparation for the 2010 FIFA Soccer World Cup that resulted in 9,700 additional hotel rooms for the city. Hotels are primarily found in the V&A Waterfront, CBD near the CTICC and along the Atlantic Seaboard (Ferreira and Boshoff, 2014). In the midst of these redevelopment ventures, the Cape Town Partnership implemented 17 Central City Improvement Districts (CCID) a program designed to clean the city and aid its connection to surrounding areas, had spread to other parts of the city including Gardens, Green Point and Woodstock amongst others (Visser, 2016b). In addition, the introduction of backpacker hostels and hotels began to increase in the city as leisure consumption areas (such as Long Street, Loop Street and Bree Street) which provided connections to the CBD, De Waterkant and Bo-Kaap (Visser, 2016b).

Cape Town has been labelled by the South African Government as being “The most developed tourism region” in the country (Government of South Africa, 2017, n.p.). The City of Cape Town welcomes approximately two million tourists annually (Cathala *et al.*, 2018). Cape Town Tourism (2019) promote seven attractions to be visited by tourists including: Table Mountain (listed as one of the seven Wonders of Nature as of 11 November 2011; Table Mountain Aerial Cableway, 2019), Kirstenbosch Botanical gardens, Cape Point, V&A Waterfront, Robben Island, Groot Constantia Wine estate and a City Walk in Cape Town CBD. Cape Town offers a broad range of tourism accommodations with approximately 1,000 accommodation establishments and 30 conference venues available (City of Cape Town,

2013). Varied accommodation offerings include motels, hotels, self-catering apartments or houses, resorts, campsites, lodges, guesthouses, bed and breakfasts (BnBs), backpacker hostels and lodges. According to the City of Cape Town (2013), the most frequent accommodation types booked include guesthouses, BnBs and self-catering units. In looking towards this study, according to Visser *et al.* (2017), Airbnb was formally introduced into South Africa as of July 2015 with 17,600 listings in existence in Cape Town in 2017 (Kretzmann, 2017).

3.6 Conclusion

Cape Town boasts of natural beauty and an appealing climate during summer seasons to attract tourists. Previous drought events have been experienced in the city with similar experiences to the 2015-2017 drought. Cape Town was and is currently an unequal city in terms of its income and racial distribution within the inner and outer city. In addition, tourism within central Cape Town resulted due to the redevelopment of the V&A Waterfront extending to De Waterkant and the CTICC. It has since expanded to include tourism development within other areas of the City Bowl.

CHAPTER 4 METHODOLOGY

4.1 Introduction

To contribute to the paucity of literature on Airbnb in Cape Town and address the proposed research questions surrounding the shifting practices and perceptions around resource use within Airbnb spaces, a triangulation of data through a mixed method approach has been adopted. According to Clough and Nutbrown (2012), the validity of methods used to obtain particular data is created through the effective explanation for the use of a particular method. This research sought to identify a case study of consumption within the sharing economy. In this instance, a snapshot of the water crisis in Cape Town has been investigated, particularly aimed at providing a description of resource consumption during this period (Babbie, 2013). Thus, the approach enabled meaningful themes and patterns to be developed rather than a generalisation of the larger population of Airbnb hosts in Cape Town (Gobo, 2008; Babbie, 2013; Taylor *et al.*, 2016).

The following section outlines the process of developing a timeline of the drought through media analysis. This is followed by a description of the triangulation approach used in the study followed by an explanation of the mixed qualitative and quantitative methods pursued. The methods of User Profile Analysis (UPA), questionnaires and semi-structured interviews are then described. The process of approximating water estimations for City Bowl Airbnbs from UPA data is also described. Purposive and snowball sampling methods used to obtain data are outlined. Quantitative and

qualitative data analysis techniques of univariate descriptive analysis and thematic analysis are described. Finally, ethical considerations for the study are outlined.

4.2 Timeline of Water Crisis

Media analysis was consulted to create a timeline of the drought events in Cape Town. Online newspaper articles were tracked from June 2017 to October 2018 as a means of understanding the reported nature of the drought in Cape Town before implied crisis and after the drought ended. Articles from the beginning of the drought in 2015 and 2016 were also explored to identify the various levels of water status in the city. Online newspaper articles were analysed for information regarding the initial announcement of the drought and official state of the water crisis. Articles including information surrounding changing dam levels and water restriction levels were also identified.

Information pertaining to the 2015-2017 drought in Cape Town was also collected from varied newspaper sources (for example, News24, eNCA, CapeTalk, the South African, Daily Maverick, IOL) that were followed online (some with requests for daily news notifications). Each site was filtered for 'fake news' and republished information through 1) Verifying the publisher by checking domain name, 'About Us' information, the author and accurate name (such as ILO instead of IOL) 2) Checking quality such as spelling or dramatic grammar 3) Checking sources within the article and 4) Determining professional mentions (Harvard University, 2018).

The City of Cape Town announced the projected ‘Day Zero’⁶ in November 2017 (Fisher, 2017), where additional information regarding the official date and expected procedures was sought. Data collected was tabulated, thematically organised according to annual dam levels, water restriction levels and official announcements such as the anticipated ‘Day Zero’ event and ordered chronologically.

4.3 Triangulation of Data

The methodological approach of triangulation was used to research the aforementioned research questions (Chapter 1). Denzin (1978, cited in Flick, 2004) identified four different forms of triangulation, namely: triangulation of data, triangulation of theories, investigator triangulation and methodological triangulation. This study utilised triangulation of data which “Combines data drawn from different sources and at different times, in different places or from different people” (Flick, 2004: 178). Data is formulated from at least two sources, where in this study, three were utilised (Flick, 2018). This type of data collection was pursued due to what Creswell and Miller (2000: 127) term as a ‘validity procedure’ because triangulation allows for common themes to be extracted through the elimination of repetitive and overlapping data. Mouton (1996) claims that this process also increases the reliability of data collection. In addition, it allows the collection of varied and potentially diverse perspectives in a single study thereby

⁶ The projected day where taps were expected to run dry and residents would then have to queue in appointed areas for water (Fisher, 2017; Bernardo, 2018; Sousa *et al.*, 2018)

improving accuracy and a greater understanding of the context of study may be obtained (Jick, 1979; Flick, 2018). This was particularly useful in obtaining varied yet similar perspectives and practices by hosts within the water crisis.

4.4 Mixed Methods Design

Data were collected and analysed through quantitative and qualitative methods. According to Creswell *et al.* (2003: 212), mixed method research design is defined as:

“The collection or analysis of both quantitative and/or qualitative data in a single study in which data are collected concurrently or sequentially, are given priority and involve the integration of the data at one or more stages in the process of research”.

A concurrent triangulation design was utilised in which both quantitative and qualitative data were collected simultaneously. With particular preference given to both types of methods, data was integrated during the interpretation phase of the research (Creswell *et al.*, 2003). Priority was given to both quantitative and qualitative data to understand the frequency of water discussions attributed to each method and to understand particular perceptions and practices around the drought in Airbnb listings.

Qualitative data was obtained through content analysis within UPA and semi-structured interviews. Qualitative data are described as data occurring in word format and remain as such during analysis (Blaikie, 2003). Qualitative methods are described by Taylor *et al.* (2016) as being best suited for developing understandings of a particular group within a particular

period of time. Therefore, this form of method was used to gain insight into the perspectives and understandings of Airbnb hosts during a particular period of the drought. As this method implies a specific research context, generalisations regarding a larger portion of the Airbnb community cannot be made (Taylor *et al.*, 2016). Quantitative data were obtained through questionnaires and UPA. Quantitative methods are used when data is collected in or converted to numerical format (Blaikie, 2003). In addition, both methods were utilised as:

“Most quantitative data techniques are data condensers. They condense data in order to see the big picture.... Qualitative methods, by contrast, are best understood as data enhancers. When data are enhanced, it is possible to see key aspects of cases more clearly.” (Ragin, 1994 in Neuman, 2014 :17)

4.4.1 User Profile Analysis (UPA)

What I term User Profile Analysis (UPA) involved content analysis of Airbnb listing profiles advertised on the Airbnb website. According to Vaismoradi *et al.* (2013: 400) content analysis is described as:

“A systematic coding and categorising approach used for exploring large amounts of textual information unobtrusively to determine trends and patterns of words used, their frequency, their relationships and the structures and discourses of communication.”

Babbie (2013: 296) claims content analysis is an effective tool used to understand communication particularly, “Who says what, to whom, why, how, and with what effect”. Content analysis of Airbnb listing profiles was utilised to determine available amenities and facilities advertised for guest

use and the extent to which greening adaptations and drought forewarnings are mentioned. In addition, reviews by guests on the platform were also examined to determine their potential experience with the drought. Through the analysis of these aspects, a sense of the perceived image Airbnb hosts aimed to portray to guests about the space, accepted practice in that space, the personality of hosts themselves and any perceptions around the water crisis could be obtained.

Content analysis has been critiqued by Margolis and Zunjarwed (2018) for being unreliable as a single method of investigation, as latent meaning is lost because meaning is exclusively based on information presented, absent information and frequency. Margolis and Zunjarwed (2018) argue that it would be an effective addition to a well-designed triangulation strategy to address this challenge and therefore information identified through content analysis was supplemented by questionnaire and semi-structured interview data.

The profiles and reviews of 500 City Bowl Airbnb listings were analysed during the period of August 2017 to November 2017. No specific parameters such as number of guests or dates of rental were input into the search bar to allow all potential listings to be presented. The researcher was not logged into the Airbnb website to avoid potential recommendations presented by the site based on known demographic information. Suburban delineations were used as a guide to identify and exhaust Airbnb listings in the City Bowl area. The exact suburbs located within this area vary according to source,

as has been outlined in Chapter 3: Study Site. Suburbs listed under the Cape Town Tourism website were used to find listings in the City Bowl, as it was thought that it would reveal areas most frequented by tourists to the area (Cape Town Tourism, 2017b).

During UPA, particular suburbs identified through the Cape Town Tourism website did not coincide with suburb delineation on the Airbnb website; as certain suburbs entered into the search bar yielded no results or additional areas were suggested. For example, upon entering the Bo-Kaap suburb, Schotsche Kloof and De Waterkant properties were suggested. The aforementioned suburbs were not described as part of the City Bowl by Cape Town Tourism (2017b). The researcher was then required to use her own judgment to determine the most prevalent suburbs available. Thirteen suburbs containing a diverse number of listings were identified including: Bo-Kaap, Central Cape Town, Devils Peak, De Waterkant, District Six, Gardens, Oranjezicht, Tamboerskloof, Vredehoek, Walmer Estate, Woodstock, Zonnebloem and Undisclosed City Bowl. Undisclosed City Bowl suburbs refer to several listings not clearly situated in a designated City Bowl suburb. In addition, listings identified in each area were exhausted using the total results found as well as a map located on the left of the website outlining available listings in the area (Appendix A).

Once a listing was found and opened, the following information was added to an Excel spreadsheet for all 500 listings:

- Location of the suburb

- Name of the host
- Title and URL address of the listing
- Type of accommodation (For example private apartment)
- Number of beds
- Number of guests
- Minimum night stay
- Price of accommodation per night
- Number of bathrooms
- General amenities and facilities available for guest use
- Green installations
- Drought warnings
- Additional comments by hosts or guests regarding the drought

During the data collection process, the Airbnb website had changed multiple times. The majority of listing profile information had remained unchanged; however, descriptions of the space had been moved and minimum night stay had been removed for most Airbnb listings. Although the Airbnb application is relatively new since its inception in 2008, the researcher did not consider that the format of website features would shift or alter.

4.4.1.1 Water Usage Estimations in City Bowl Airbnbs

Water estimations were approximated for City Bowl Airbnb listings using UPA data. This was pursued to approximate water usage by the platform in the City Bowl area. Amenities considered as the highest water consumers in households' including showers, baths, washing machines and dishwashers were evaluated. Firstly, potential water estimations with no water restrictions were calculated for one, two and four-person households.

Total litres (ℓ) or flow rates were determined for showers ($22\ell.m^{-1}$), baths ($150-200\ell$), washing machines (150ℓ) and dishwashers ($40-75\ell$) (Cape Town Green Map, 2009). Total values for amenities including ranges such as $40-75\ell$ were averaged; for example, a dishwasher uses 57.5ℓ per load. An average duration of usage was then determined per amenity including showers (8 minutes), baths (no duration specified), washing machines (three to six loads per week for a family of four) and dishwashers (daily use) (Unknown, 2016; Tiyou, 2017). The average use of a washing machine for a four-person household was averaged and divided by two to estimate 2.25 loads of washing for a two-person household. Washing machines run for an average duration of 0.75 hours per use, however are not applicable to these water use estimations (Fripp, 2018).

Additional estimations for City Bowl Airbnb listings were determined for Level 6 water restrictions. Residents were restricted to taking two-minute showers with a maximum showerhead flow rate not exceeding $10\ell.m^{-1}$ as per Water By-law amendments (Groenendaal, 2018). Low-flow showerheads ranged from $6-10\ell.m^{-1}$ but were averaged at $8\ell.m^{-1}$ to account for various brands (Econation, 2018). Washing machine usage was limited to 70ℓ per load in economy cycle and 150ℓ in old machines; both were limited to once a week use (Western Cape Government, 2018b). Dishwashers were restricted to 29ℓ with use every three days (Western Cape Government, 2018b). Baths were not considered as they were prohibited during Level 6 water restrictions.

The quantity of litres for one, two and four people were estimated and multiplied by seven days (total litres per week). This total was then multiplied by four weeks to determine usage in a month. The water usage for one month was multiplied by three months to determine usage during peak tourism season (December to February). The three months total was then multiplied by four months to determine usage per year. Listings were assumed to be occupied year-round where low tourism season was not accounted for. The above estimations were calculated for no water restrictions ('normal') and Level 6 water restrictions to provide an approximation of water usage with and without drought.

Full estimation maps were created using Esri ArcMap 10.4.1 for City Bowl Airbnb listings during peak season with manually delineated classifications using the number of amenities identified per area in UPA. Amenity totals (showers, baths, washing machines and dishwashers) for each suburb were multiplied by the estimated total litres for two and four people within listings during peak season. These amounts were added to obtain total use of all water amenities during peak season per suburb. Estimation maps were created for 'normal' water use and within Level 6 water restrictions.

4.4.2 Questionnaires

Questionnaires were utilised to collect structured information from a large population of Airbnb hosts regarding their Airbnb listings, adaptations to the drought as well as perceptions regarding the drought and water crisis in Cape Town without having to physically be in Cape Town (Wilkinson and

Birmingham, 2003; Giddy and Webb, 2018). Questionnaires were sent through online links and administered in-person to potential participants from mid-September and officially terminated in January 2018. Online questionnaires were used as they allow for a large sample of data collection, are inexpensive and time effective (Wilkinson and Birmingham, 2003; Wegner, 2012). Online data collection also provided a digital output avoiding data-capturing errors (Wegner, 2012).

Online questionnaires were personally posted and sent to personal contacts to distribute and post on the social media sites, Twitter and Facebook. It could not be determined which site produced more feedback. In an era governed by the internet, this was thought to be a logical and fitting choice, as transferring information in the sharing economy is most easily done in what Hamari *et al.* (2016) term social commerce: interaction with peers through social media. In addition, this was used to counteract the challenge around accessibility to hosts through the Airbnb website due to privacy settings. Particular group sites on Twitter and Facebook containing the words 'Airbnb host' and 'Cape Town' were targeted to distribute questionnaires.

Wilkinson and Birmingham (2003) argue online questionnaires produce higher responses rates than paper-based questionnaires. However, upon reflection in the middle of this time period, online avenues produced limited feedback. Whilst the online questionnaires were continuously reposted through the aforementioned social media sites, the researcher decided to

administer these questionnaires in-person to Airbnb hosts during field work in Cape Town. This strategy was used as it would provide the opportunity to clarify questions and personal rapport could be established to request the distribution of the questionnaire to associates of known hosts (Wegner, 2012). The identities of four hosts who had also agreed to be interviewed and completed questionnaires were known whilst the remainder of responses were not. It is noted that each method is flawed to an extent, as hosts were not able to request clarification of questions and maintain their anonymity within online questionnaires. In addition, in-person data collection may have been influenced by interviewer bias by direct questioning (Fitchett and Hoogendoorn, 2018b) and data-capturing could be prone to human error (Wegner, 2012).

The questionnaire was generated using Google Forms software and utilised as it is highly accessible, allows for a greater spatial distribution than mail questionnaires and is inexpensive (McLafferty, 2010). The platform allowed for 'unlimited' questions, reply notifications on feedback and created downloadable Excel spreadsheets of recorded data (Google, 2017). Closed, multiple-choice, open-ended and Likert style statements were used (Wilkinson and Birmingham, 2003). The questionnaire was structured into three sections: demographic data, resource use and restrictions and opinions around the drought (Appendix B). The first section contained three fixed demographic questions to determine users of the Airbnb platforms. The first section also asked participants to state the number of rented listings (Appendix B).

Based on the number of listings stated, the second section would require a description of resources available and restricted per listing described. Participants were first asked, using an open-ended question, to state the suburb within which the listing was situated (Appendix B). Participants were then requested, through closed-ended questions, to describe the type, purpose and frequency of use within the listing. Multiple-choice inventory checklist questions were then used to describe appliances, facilities, restrictions and green adaptations found within the listing (Appendix B). Open-ended questions were used under each category to allow for the elaboration of items not considered (Wilkinson and Birmingham, 2003). This section also contained closed-ended questions around pool care (if applicable), drought awareness of guests and whether green implementations had been made. The third section of the questionnaire contained 10 five-point Likert scale statements (Appendix B). These were developed to understand the attitudes towards the drought, climate change, water restrictions and greening adaptations. The values ranged from 'strongly disagree' to 'strongly agree' (Appendix B; Wilkinson and Birmingham, 2003).

4.4.3 Semi-Structured Interviews

Qualitative semi-structured interviews were conducted with 10 Airbnb hosts. Semi-structured interviews were used as it allowed an unspecified number of questions to be set, where questions could be asked in an unspecified order or rephrased depending on how the conversation with participants

proceeded (Corbetta, 2003). This was beneficial as it allowed interviews to proceed in a casual manner in which rapport was established. Rapport is defined here as establishing a connection of mutual understanding between researcher and a potential participant (Corbetta, 2003). Furthermore, this type of interview was beneficial as it allowed the interviewee to be prompted for clarity on answers or to elaborate explanations if thought necessary by the researcher (Corbetta, 2003; Longhurst, 2010). Semi-structured interviews included a set of 12 planned questions around the practices and perceptions of resource use within Airbnb spaces (Appendix C). The period of fieldwork for interviews took place in November 2017, predominately within the homes of Airbnb hosts with two interviews held in public restaurants and two interviews held through email and telephone. All interviews were audio-recorded with the exception of one host who preferred email correspondence. The length of interviews ranged from 15 minutes to two hours.

4.5 Sampling

Airbnb research participants were identified using the non-probability strategies of purposive and snowball sampling. Neuendorf (2002) argues that defining a population and sampling frame are challenging in website content analysis. Non-probability sampling, which is selection of sample participants based on “Criteria other than random selection” (Wegner, 2012: 153), is argued only to be used when the subject of study is constrained where the search may then not be generalised (Neuendorf, 2002). This type of sampling was chosen for data collection as although UPA data was

relatively straightforward to collect, the participation of Airbnb hosts in the questionnaire and interview process was not guaranteed and therefore slightly constrained. Content analysis involved purposive sampling. Purposive sampling involves choosing participants who may add value to the research as they are considered to have noteworthy information to contribute towards the study (Ritchie *et al.*, 2013). Within UPA, listings were systematically chosen within particular suburbs and due to their location in the City Bowl.

Questionnaire data and interview participants were identified using snowball sampling. Snowball sampling is when a member of the target population is identified, selected and asked to identify other members to potentially join the study (Wegner, 2012). Babbie (2013) highlights that certain authors consider this accidental sampling. However, it is effective when study participants are difficult to locate, where in this study, Airbnb hosts could not be directly contacted through the Airbnb website unless booking a property (Babbie, 2013). Interview participants were initially identified through personal contacts where additional potential participants were sought through those already interviewed (Babbie, 2013). Questionnaires were posted on the personal social media sites of the researcher and sent to personal contacts to distribute through social media.

4.6 Data Analysis

4.6.1 Descriptive Quantitative Analysis

UPA data underwent univariate descriptive analysis to simply outline the frequency of appliances, amenities, facilities and greening adaptations advertised. This type of analysis is used to summarise “The characteristics of some phenomenon in terms of distributions of variables” (Blaikie, 2003: 47). A descriptive process was used to explain the practices and perceptions of hosts within Airbnb spaces advertised. Counting in the form of tallying, creating frequencies and simple manipulation by calculating percentages from frequencies allowed a description to be formed (Blaikie, 2003). Blaikie (2003) argues this type of counting is used to review large sets of data. Frequencies were converted to and reported in percentages to compare relative proportions of data and to enhance understanding of distributions (Blaikie, 2003). Nominal categories of data to be tallied were identified according to appliances and facilities advertised. These were further categorised according to bathing facilities, laundry appliances, large and small kitchen appliances, common amenities, heating and cooling appliances and pool accessibility. Frequency for each category was obtained for suburbs. Greening adaptations were not tallied within UPA as there were too few advertised.

Descriptive quantitative analysis was also used to examine questionnaire data. Closed-ended and multiple-choice questions of demographic, appliance, facility and green adaptation data were tallied, and frequencies were developed per category. Percentages were then calculated from the

categories of frequencies. Likert style statements were grouped according to the categories: impacts and opinions on drought and climate change; water use and water crisis restrictions and greening adaptations. Categories were created to assist in finding similarities and differences of opinion between statements (Braun and Clarke, 2006). Responses were tallied, and frequencies and percentages were then calculated for each statement.

4.6.2 Thematic Analysis

Thematic analysis was used to interrogate semi-structured interview data. This form of qualitative analysis is useful as it aids in identifying patterns within the data and highlighting the larger image within which they are situated (Ayres, 2008). Thematic analysis is a data reduction technique and strategy where data is summarised or split into categories and reconstructed into themes that allows the most important data to be captured (Ayres, 2008). According to Braun and Clarke (2006) thematic analysis occurs in six phases including: 1) Becoming familiar with transcribed data 2) Developing codes 3) Categorising and searching for themes 4) Reviewing developed themes 5) Refining and defining themes 6) Reporting findings.

Interview data was manually transcribed and coded following data collection. Coding involves identifying reoccurring ideas and aids in classifying categories and patterns which are then developed into defined themes (Ayres, 2008; Cope, 2010). Certain themes will be known due to the intention of the researcher during data collection whilst other data may be

unexpected (Ayres, 2008). Codes were highlighted using predefined colours within transcripts and separated by colour into documents. Themes were then developed, refined and defined within each document. Through the categorisation and refining process, five themes were identified including:

- Variegated modes and motivations behind Airbnb use
- Host perceptions around and relation to the Airbnb platform
- Adaptive devices and practices within listings during the drought
- Perceptions around adaptations
- Changing relation within and outside the Airbnb platform space

Additional comments or reviews of interest within UPA and open-ended questions in questionnaires were captured. Data was coded and themes regarding alternative water sources, water crisis information and management companies were identified.

4.7 Ethical Considerations

The study required the involvement of human participants and therefore ethics were considered. Prior to the interview process ethical clearance was granted through the Wits Ethics Committee for Human Research (Non-medical), Protocol NUMBER H17/08/27: (Appendix D). Potential participants should voluntarily provide information without obligation or coercion and therefore it was stated that all interaction within the study was voluntary (Babbie, 2013). Online and physical questionnaires provided information regarding the research and the role of the participant within it.

Participants were asked to provide consent and asked to then proceed with the questionnaire (Appendix B). Anonymity did not apply as Airbnb hosts hold a public profile on the Airbnb website and potentially social media. However personal information was not revealed in the research although certain property information was captured.

Interview participants were provided with information sheets (Appendix E). Participants were made aware of the expectations of the interview as well as the purpose of the data collected (Babbie, 2013). Signed consent was requested prior to the interview (Appendix F). The acceptance of interviews was not obtained through benefits or monetary rewards and was stated through written and verbal information sheets provided prior to interviews (Appendix E; Babbie, 2013). Enquiries were made in advance to potential participants to determine where they would prefer interviews to take place and whether interviews could be audio-recorded. In addition, interview participants were informed that all data collected would be kept confidential (i.e. for use in this research only) and data would be secured on a password-protected computer. Finally, interview participants were informed that should there be inadequate time or feel uncomfortable with the interview process; the interview would be rescheduled or cancelled. All participants provided consent to utilise collected information and although certain hosts provided consent to reveal their identity, all hosts and managers interviewed were kept anonymous through a specific coding system developed by the researcher to disguise names and other personal information.

4.8 Conclusion

The research is concerned with understanding how Airbnb spaces are impacting the practices and perceptions of resource consumption, particularly water use during the drought in Cape Town. To understand these impacts, a triangulation of mixed methods was used. Quantitative and qualitative methods of UPA, questionnaires and semi-structured interviews were pursued. In addition, media analysis was performed within the duration of the research to develop a timeline of the water crisis in Cape Town. Data was collected using non-probability sampling techniques of purposive and snowball sampling to account for the lack of accessibility to Airbnb hosts. Collected data was analysed using quantitative univariate descriptive analysis and qualitative thematic analysis. Finally, participants involved in the research did so voluntarily and with consent.

CHAPTER 5 RESULTS

5.1 Introduction

This chapter considers the data collected from three different methods and outlines a timeline of the drought in Cape Town. The results presented in this chapter capture the marketing profiles and voices of hosts and reviews of guests through analysis of their Airbnb listing profiles (User Profile Analysis (UPA)). Questionnaire responses are analysed and presented followed by thematically analysed semi-structured interviews. A timeline of the Cape Town drought including annual dam levels, water restriction levels and 'Day Zero' dates was created and is presented to illustrate the dynamic nature of the study context. Water and electrical amenities advertised for guest use in UPA are examined. Based on information provided, estimations of resource use in the City Bowl, to demonstrate potential water use by Airbnb in City Bowl suburbs, are presented. General trends in consumption, specific perceptions, adaptive practices and changing relations between actors and the Airbnb platform are also identified.

5.2 Water Crisis Timeline

Drawing on media analysis, the following timeline (Figure 5.1) was constructed to unpack the events of the three-year drought, that have at times appeared confusing in the public sphere. Various media articles from 2015 to 2018 were purposely sought for information regarding dam levels, water restrictions levels and official announcements such as 'Day Zero'.

The three-year drought in Cape Town began in 2015 and ended in 2017 (Figure 5.1; Richman and Leslie, 2018). Annual major dam levels recorded on 25 September each year from 2015 to 2017 reveal a decline in average dam levels for the six major supply dams, followed by an increase in dam levels towards the end of 2018 (Greyling, 2017; Chambers, 2018). On 22 May 2017, the Western Cape Premier officially declared the Western Cape a disaster area and in water crisis (Davies, 2017). To save water, the City of Cape Town implemented water restrictions from Level 2 in January 2016 to Level 6b on 1 February 2018 (Figure 5.1; CapeTalk, 2016; City of Cape Town, 2016b, 2017; Haden, 2017b; Naidoo, 2017a, b; News24, 2017; Felix, 2018). The latter restrictions resulted in a maximum amount of 50ℓ or less per person per day (Felix, 2018).

With decreasing dam levels; increasing water demand from population growth and expanding agricultural and tourism activities, the City of Cape Town announced, 'Day Zero', where taps were expected to run dry and residents would then have to queue in appointed areas for water (Fisher, 2017; Bernardo, 2018; Sousa *et al.*, 2018). The dates for the event changed numerous times from its initial announcement towards the end of 2017 to March, April, forward to May, pushed back to June, July and finally to 2019 (Figure 5.1; Fisher, 2017; Bernardo, 2018, Brandt, 2018a, b, c; City of Cape Town, 2018a; Freedman, 2018; Malgas, 2018; Smith, 2018a, b). Water restrictions were then relaxed back to Level 5 from 1 October 2018 whereby residents were allotted 70ℓ per person per day from 50ℓ maximum (Figure 5.1; Pitt, 2018).

It is within this dynamic context that fieldwork was conducted between August 2017 and January 2018. The following section will outline data collected for UPA in the form of water and electrical amenities advertised, water estimations based on these findings and more particular instances of the water crisis and green adaptations identified through host and guest comments and reviews.

CAPE TOWN WATER CRISIS TIMELINE

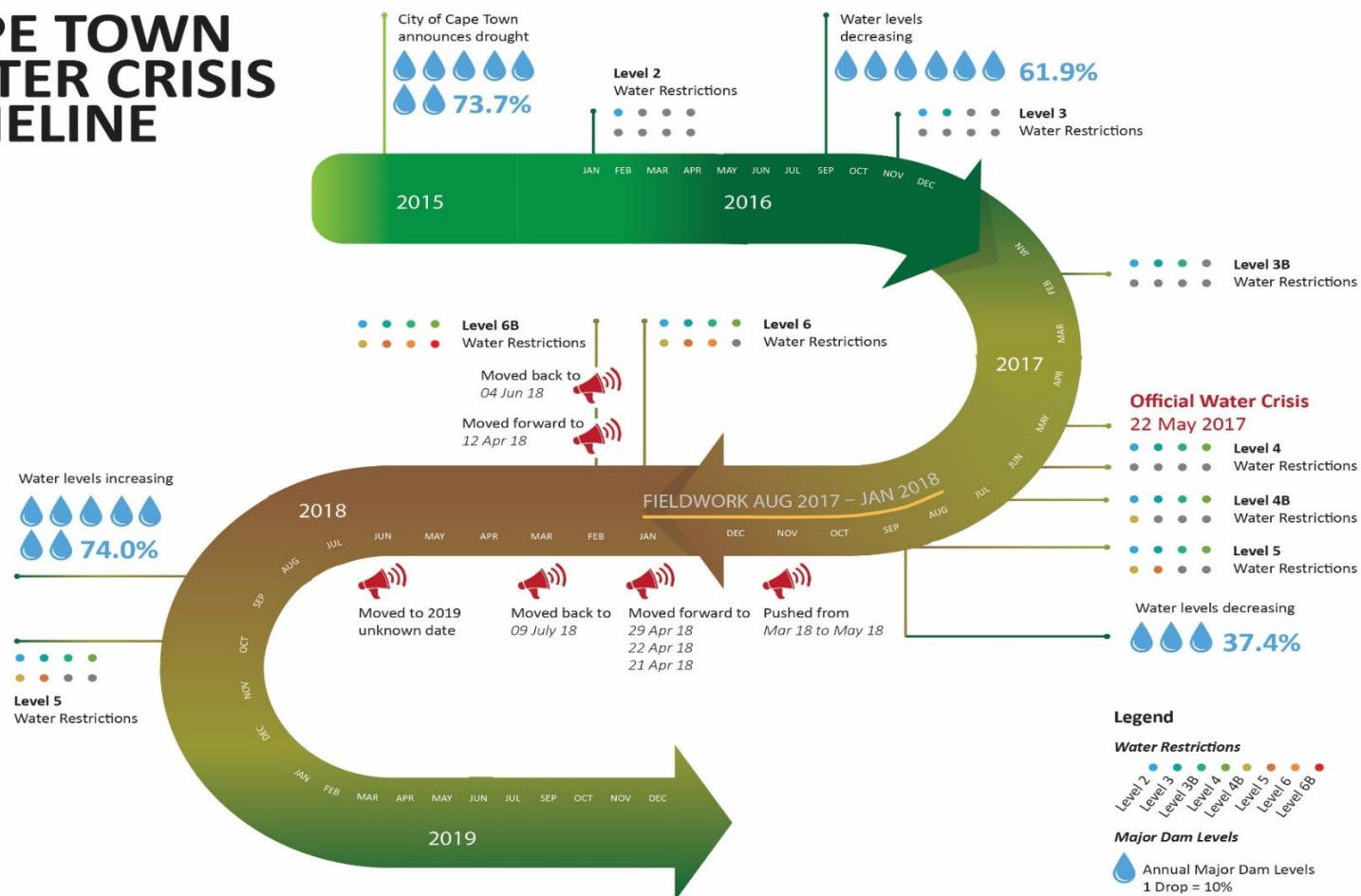


Figure 5.1: Timeline of the water crisis situating annual major dam levels, water level restrictions, ‘Day Zero’ announcements and fieldwork timeline.

5.3 User Profile Analysis

User profile data were collected for 500 Airbnb listings on the official Airbnb website. UPA was pursued to determine available amenities and facilities advertised for guest use and the extent to which greening adaptations and drought forewarnings are mentioned. 13 suburbs in the City Bowl were identified through the Airbnb website (Table 5.1).

Table 5.1: Summary of UPA of City Bowl Airbnb listings.

UPA of City Bowl Airbnb listings		
Total number of profiles	500	
Total number of suburbs	13	
Lowest price range	R141.00 – 250.00 per night	
Highest price range	R7,001.00 – R7,250.00 per night	
Range of guests accommodated	1 to 10 guests	
Types of accommodation	Private room in house Private room in apartment Entire apartment Entire Place Entire house Entire loft Entire villa Private room in BnB Private room in townhouse Entire townhouse Private room in loft	Private room in villa Entire guest suite Shared room in apartment Entire serviced apartment Entire cabin Shared room in house Shared room in dorm Private room Private room in hostel Entire vacation home Entire guesthouse
Average minimum number of nights*	Could not be determined	
Average number of bathrooms	1.2	

The following number of listings were found per suburb: Bo-Kaap (54), Central Cape Town (27), Devil's Peak (54), De Waterkant (13), District Six (10), Gardens (60), Oranjezicht (17), Tamboerskloof (78), Vredehoek (73), Walmer Estate (6), Woodstock (79), Zonnebloem (15) and Undisclosed City Bowl (14). Undisclosed City Bowl suburbs refer to several listings that were not clearly situated in a designated City Bowl suburb. Within these listings, pricing, number of guests, accommodation types, number of bathrooms, water and electrical amenities and facilities, green infrastructure and water crisis information was identified. The lowest pricing ranged from R141.00 to R250.00 per night and highest between R4,251.00- 4,500.00 per night. One listing stood out with a rate of R7,021.00 per night. Most of the listings (62%, n=500) can accommodate a maximum of two guests, while the remaining listings accept three to 10 guests. The number of bathrooms within the sample contain a minimum of 1.2 bathrooms available between all listings (Table 5.1).

The average minimum night stay could not be determined due to lack of data. This category had been removed from the Airbnb website in October 2017 during the period of data collection, where the structure of the website had also been altered. Upon revisiting the web address of certain listings, the format had once again been changed in January 2018 as well as June 2018 where minimum night stay had been added once again. Furthermore, certain listings were taken down after data were collected. The reason is unclear, however as this research was aimed to be based in a particular moment of the drought in Cape Town, data was perceived as accurate for

all listings collected from August 2018 to November 2017. In addition, varied types of accommodation were identified showing the diversity offered by the Airbnb platform (Table 5.1).

5.3.1 Water Amenities

To understand the amenities marketed and restricted to guests through Airbnb user profiles and to estimate potential water usage in City Bowl Airbnb listings, particular water-related data were collected. Water amenities such as showers, baths, bath showers, pools and other water related amenities were identified. The data revealed that most host listings contain showers (Figure 5.2). Eight out of 13 suburbs indicated 50% and above containing showers. Six profiles within Walmer Estate revealed that 117% (n=6) of the profiles contain showers. This comprises five properties that contain showers and one that did not; two properties contained more than one shower. All suburbs contained baths and bath showers. Half of Walmer Estate listings contained baths. This reveals the potential for larger water use in the area. The remainder of suburbs ranged from 6% (n=13) to 50% (n=6) of listings containing baths. Bath showers were a minimal category identified during UPA with the highest (40%, n=15) located in Zonnebloem listings. Bath shower availability within the remainder of listings, in varied suburbs, ranged from 0% (n=10) to 33% (n=6) of listings.

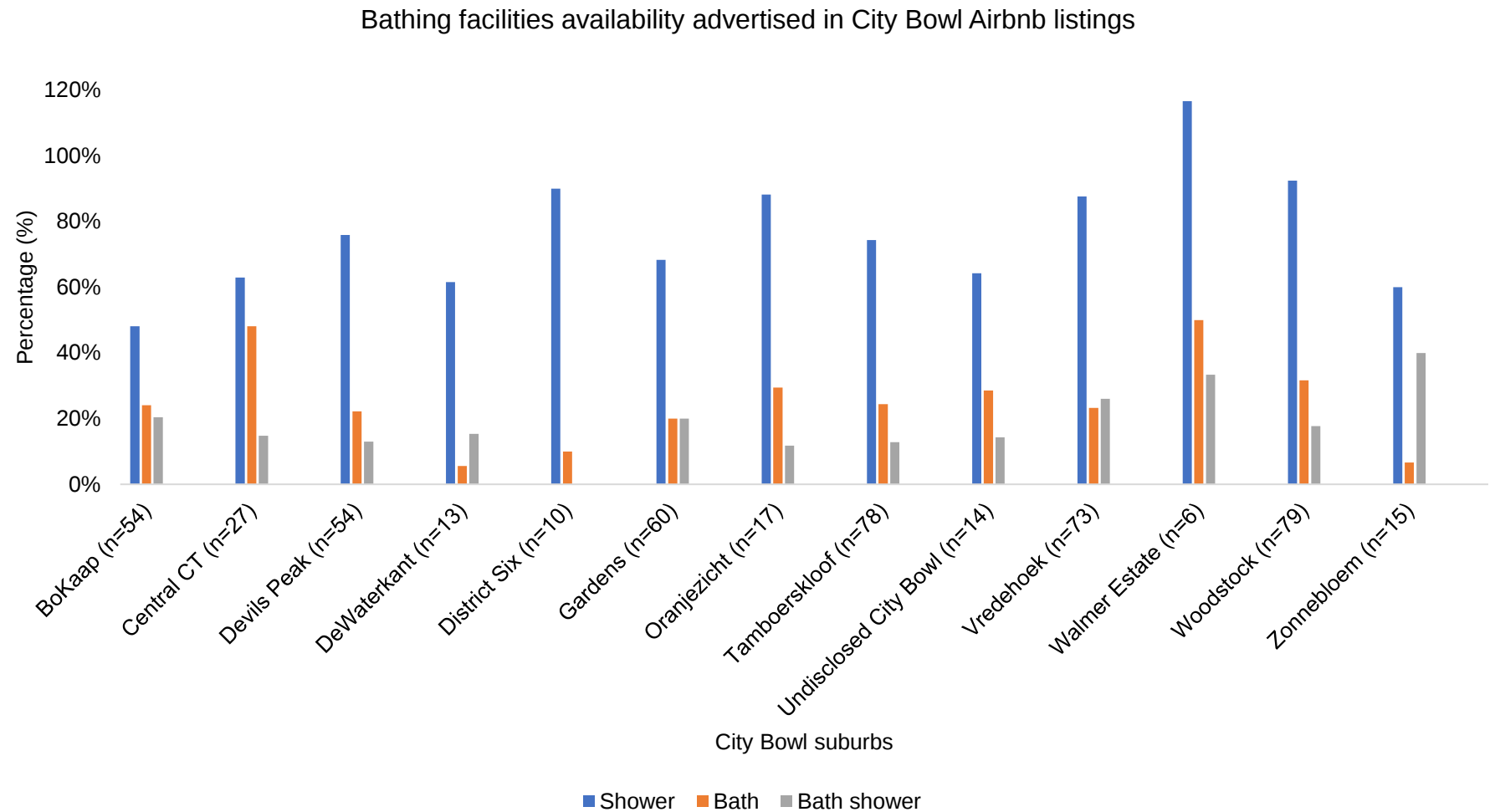


Figure 5.2: Percentage of Airbnb listings advertising the availability of bathing facilities for guest use in City Bowl suburbs.

Water usage incorporates pool availability. Swimming pools were classified into two types, one being private pools located in standalone household rentals and the other being apartment pools that are shared in apartment buildings, complexes, townhouses and other shared properties. In addition, pools were restricted in certain listing profiles whereby the hosts had explicitly stated lack of access to pools due to lack of maintenance or pools being empty due to the drought.

City Bowl suburbs were observed to seldom offer swimming pools (either private or within apartment complexes) with the highest percentage of listings being 29% for Oranjezicht (n=17) and Vredehoek (n=73) for both pool categories (Figure 5.3). There are relatively more apartment pools than private pools available in the City Bowl area. Suburbs with listings that have restricted access to an undefined category of pool include: Bo-Kaap (2%, n=54), Central Cape Town (4%, n=27), Oranjezicht (6%, n=17), Tamboerskloof (1%, n=78) and Woodstock (5%, n=79) (Figure 5.3). Although Bo-Kaap and Central Cape Town have an equal percentage of listings that market private pools and pool restrictions, it cannot be assumed that all of these private pools are necessarily also restricted, as these restricted pools may refer to pools within apartment complexes. Furthermore, additional water amenities advertised in listings included outdoor showers (2%, n= 500) and Jacuzzis or hot tubs (6%, n=500).

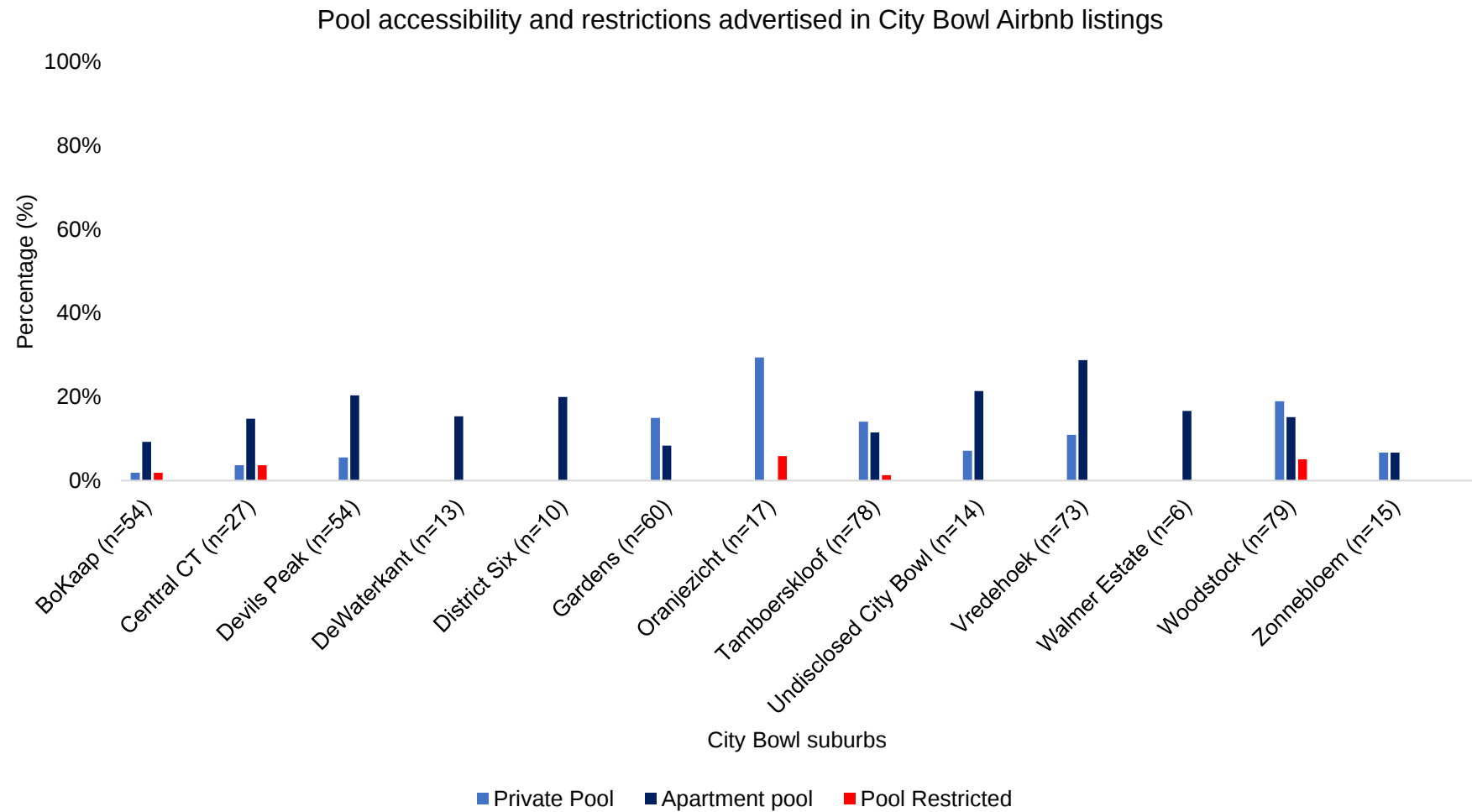


Figure 5.3: Percentage of Airbnb listings advertising the availability and restriction of pools in City Bowl suburbs.

Another water-consuming appliance advertised in these listings was access to laundry amenities including washing machines, washer dryers as well as tumble dryers. Although tumble dryers are not direct water consumers, they indirectly consume water, both in that they necessitate clothing having been washed during a vacation in Cape Town and through the large amount of electricity consumed which requires water in production. Half of listings from all of the suburbs (n=500) advertise the availability of washing machines (Figure 5.4). All listings within Walmer Estate advertise the availability of washing machines. Similarly, tumble dryers are advertised in listings from all of the suburbs. Woodstock has the largest proportion of listings (58%, n=79) advertising tumble dryers. Only three suburbs, Oranjezicht (18%, n=17), Vredehoek (1%, n=73) and Woodstock (3%, n=79), advertise the availability of washer dryers (Figure 5.4).

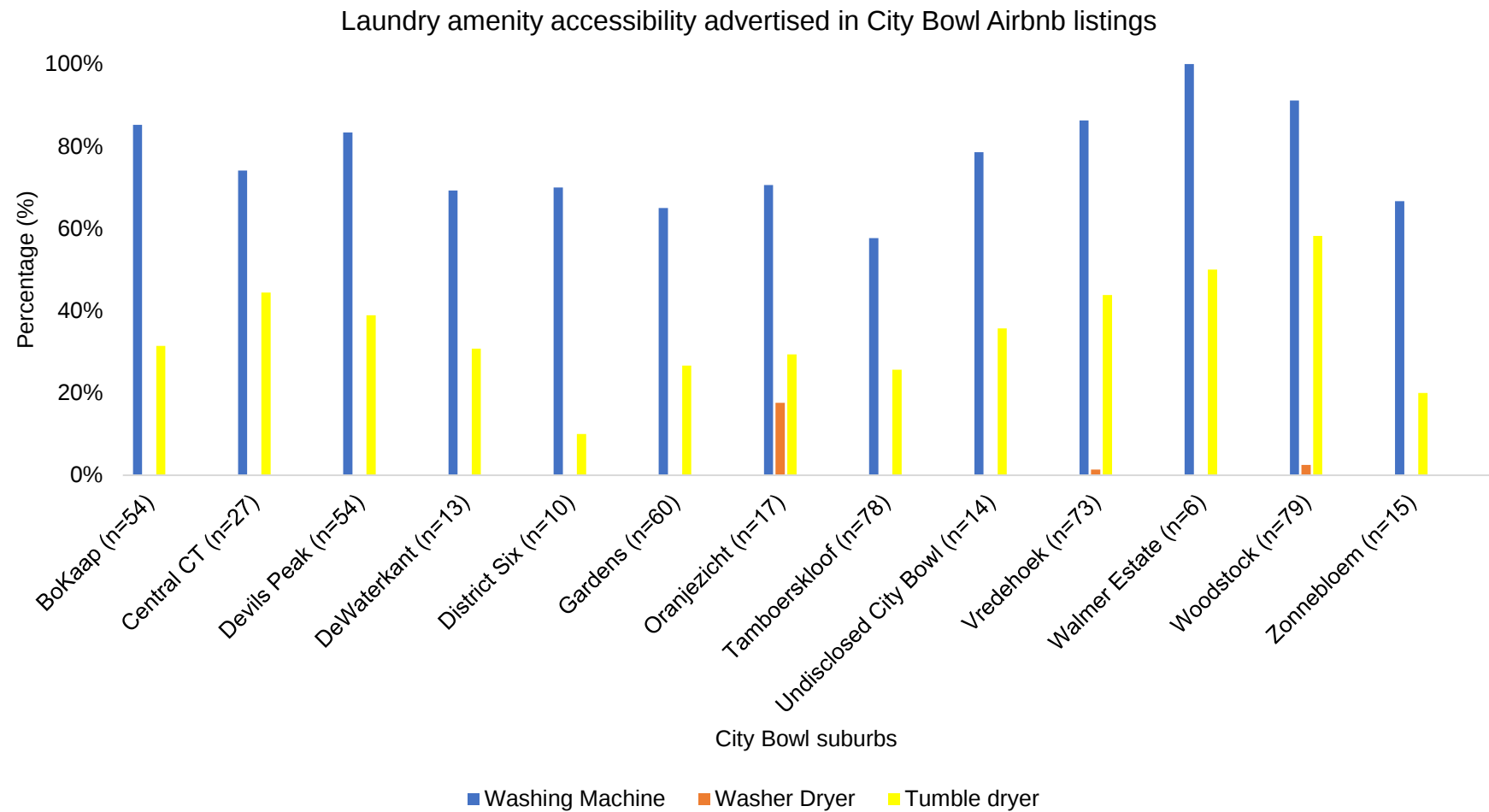


Figure 5.4: Percentage of Airbnb listings advertising the availability of laundry access facilities within City Bowl suburbs.

5.3.2 Electrical and ‘Other Amenities’

Apart from water-consuming amenities and facilities, hosts advertise a large number of electrical amenities. For the purpose of the study, this was identified to obtain an understanding of what is advertised for use in each listing. Advertising a greater number of electrical amenities may be due to two reasons. Firstly, listings may advertise all amenities to inform guests what is available for use within the listing as well as to anticipate their short-term living experience. Secondly, electrical amenities may be used as points of distinction among Airbnb listings and therefore are used in the promotion of the listing. Electrical appliances are also useful in that they provide information regarding hidden water usage in that most appliances use water either directly or indirectly and can provide insight into general resource consumption of electricity in listings. For example, a kettle requires the direct input of water and water in the production of electricity is required for it to function.

UPA revealed large, small, commonly-found and heating and cooling appliances listed as amenities available for guest use. Categorised large kitchen appliances identified by the researcher, revealed that most listings advertised the availability of combination fridge/freezers with the largest percentage found in De Waterkant (Figure 5.5; 85%, n=13). The second most advertised appliance were combination stove ovens. The marketed availability of ovens, stove/hotplates and dishwashers varied among suburbs. The least advertised appliance were bar fridges (Figure 5.5).

Small appliances such as toasters, electric kettles, microwaves and coffee machines were found in user profile listings. Toasters and electric kettles were found in every categorised suburb except 27 (n=500) listings identified in Central Cape Town (Figure 5.6). Microwaves were seen to be more available than coffee machines. Appliances of hairdryers, irons, Wi-Fi and televisions were identified as common amenities available in all listings (Figure 5.7). Wi-Fi was the most common amenity available for guest use and hairdryers are the least common (Figure 5.7). Regarding heating and cooling, the most common appliance available were heaters followed by air conditioners, with three suburbs exhibiting no availability of electric blankets or fans (Figure 5.8).

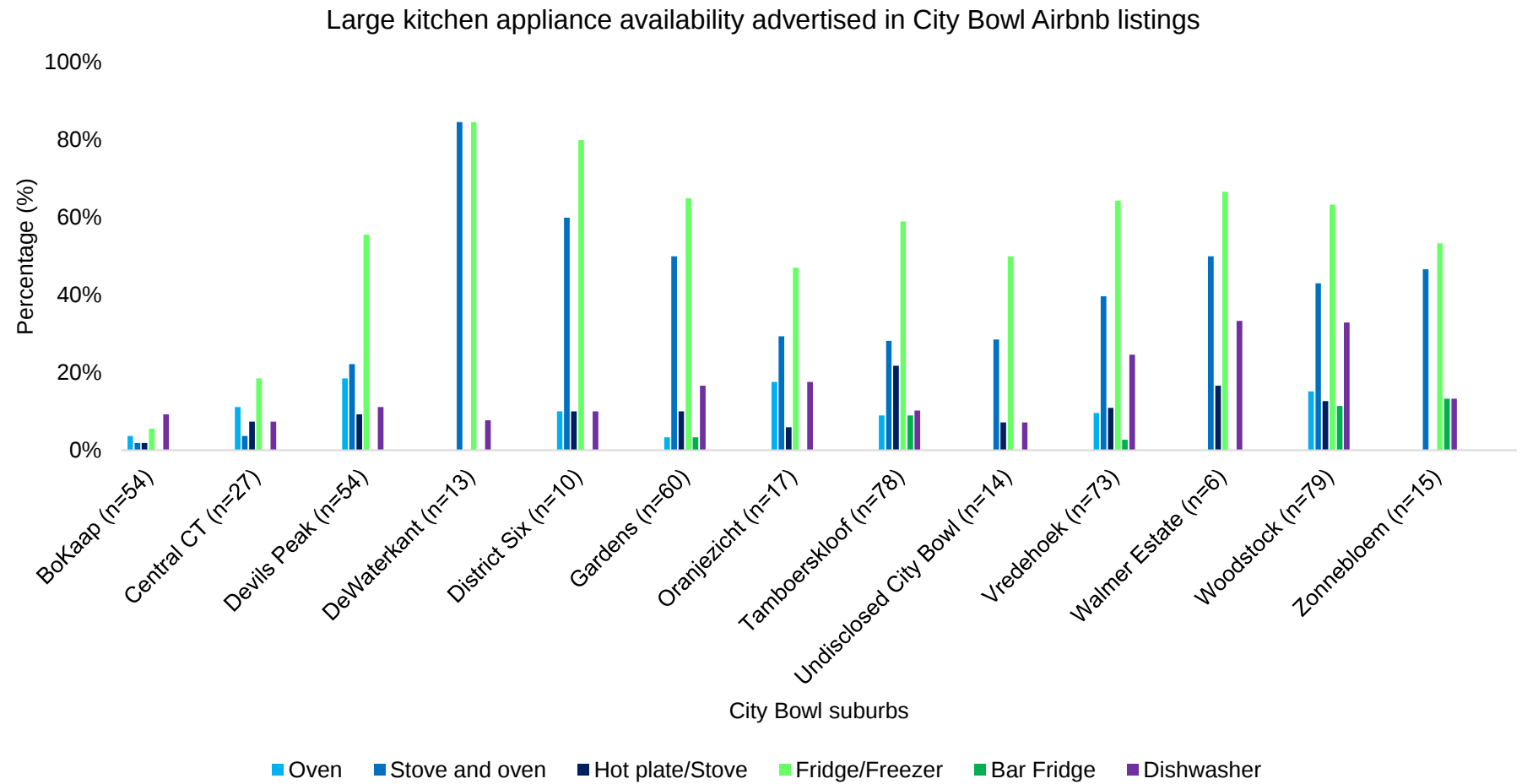


Figure 5.5: Percentage of Airbnb listings advertising the availability of large kitchen appliances for guest use in City Bowl suburbs.

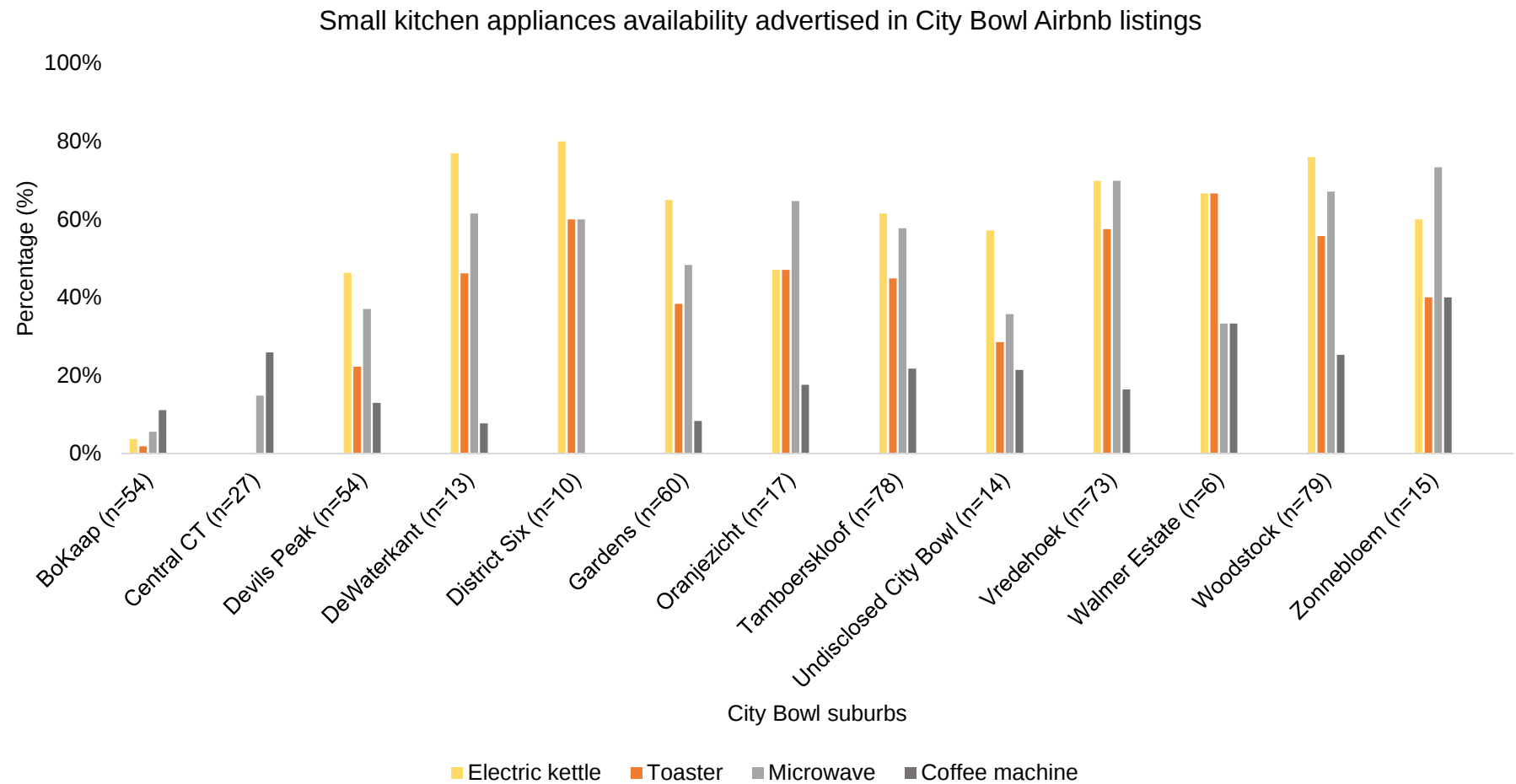


Figure 5.6: Percentage of Airbnb listings advertising the availability of small kitchen appliances for guest use in City Bowl suburbs.

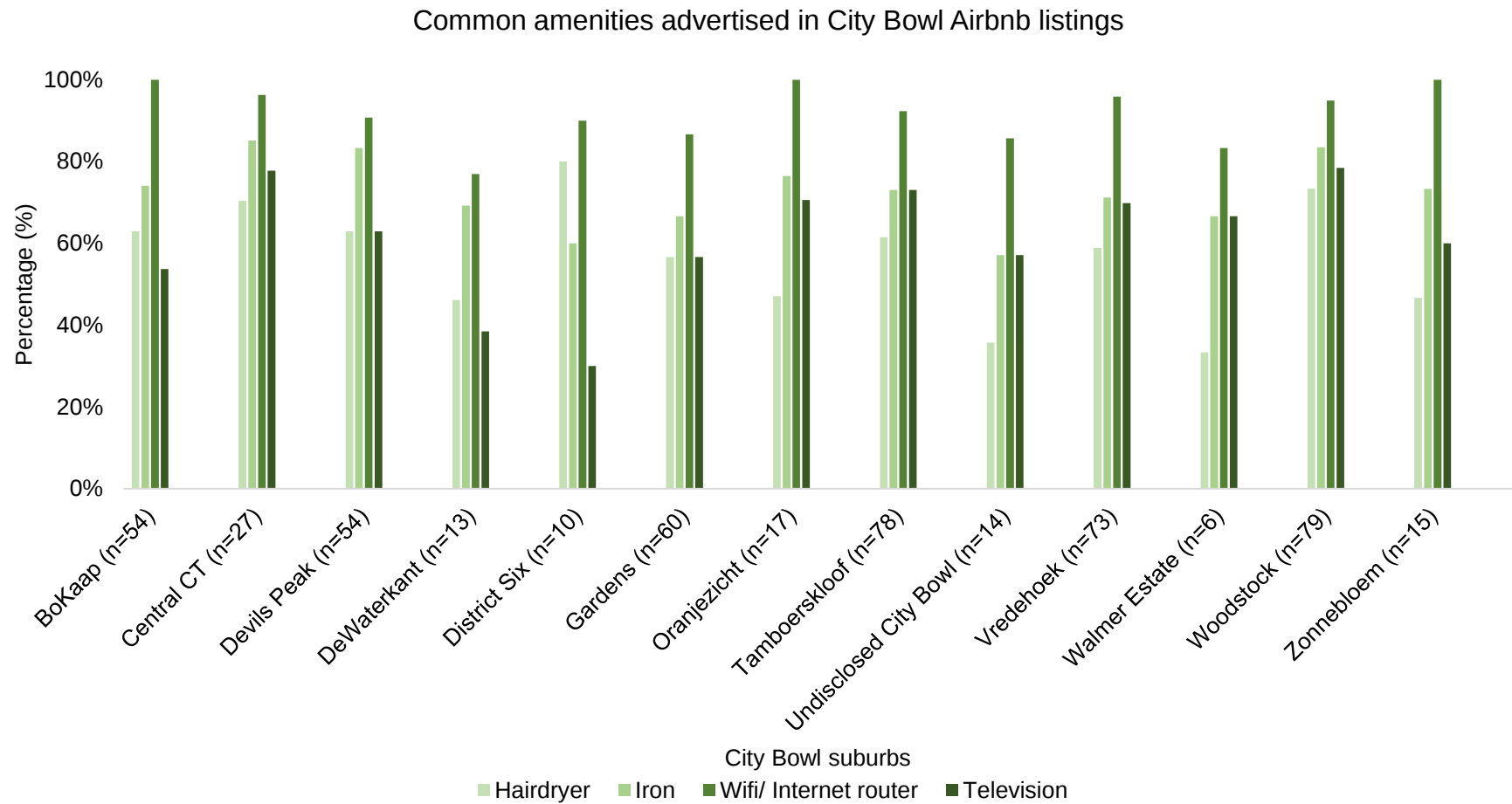


Figure 5.7: Percentage of Airbnb listings advertising availability of commonly-found appliances for guest use in City Bowl suburbs.

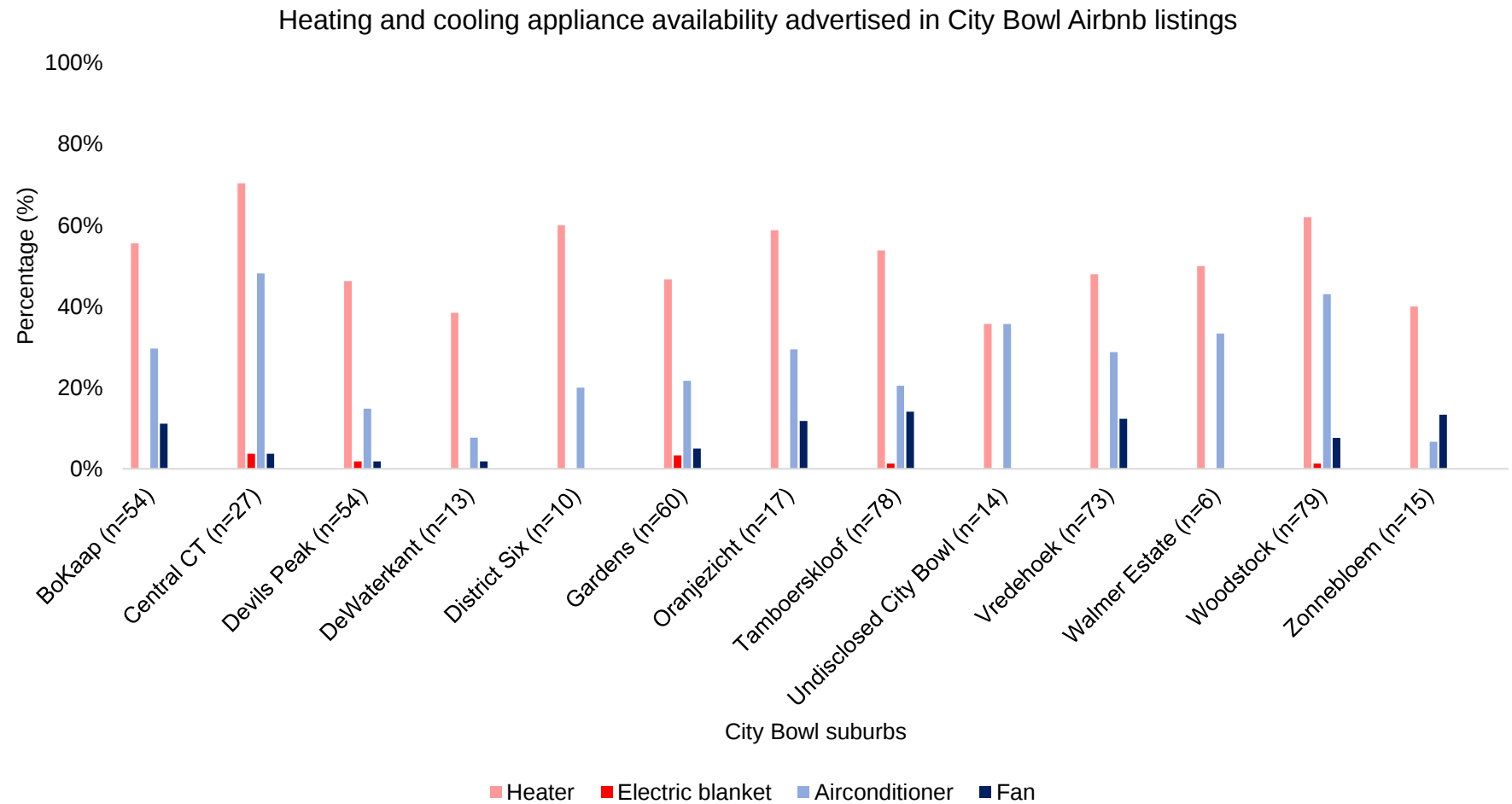


Figure 5.8: Percentage of Airbnb listings advertising availability of heating and cooling appliances for guest use in City Bowl suburbs.

UPA revealed additional appliances that may not be found in basic households. These included: food blenders (15), gas stoves/ovens (10), heated floors (5), deep freezers (3), double ovens (3), juicers (3), toaster ovens (2), a half spa area (1), a computer (1), a steamer (1), an icemaker (1) and an electric boiler (1). Similar to Airbnb hosts marketing all electrical appliances in their listing profiles, these varied appliances are used as points of distinction between listings. With one or more comparable listings in the same area, special amenities may attract guests who could possibly want to use an appliance not commonly-found. This increases their listing appeal. In the particular cases of heated floors, double ovens, electric boilers, these appliances are high electricity consumers where indirect water to power these appliances needs to be considered by hosts.

5.3.3 Scope of Water Use

A scope of water use was determined for Airbnb listings in sampled suburbs as a means of approximating water usage rather than as a predictive tool. UPA data were collected when Level 5 water restrictions were in effect, but estimations were calculated according to predicted Level 6 water restrictions in January to approximate water use during a more intense period of the drought. To estimate the total water usage of Airbnbs in City Bowl suburbs, it was assumed that listings are occupied 100% of the year. The average use per week, month, peak season (from December to February, summer months) and yearly total were estimated for showers, baths, washing machines and dishwashers (Table 5.2). These amenities

were considered the highest water consumers in households. It is noted that although estimations for a washing machine and dishwasher were calculated, not all properties may have access or space for these amenities. Moreover, washing machines may be included in the services of apartment blocks and used by all apartment residents. Estimations for bath showers could not be determined. Pools were also excluded as size and depth may greatly vary and thus averages could not be created. Water restriction estimates are provided for reference, with the exclusion of a bath as these were not permitted during the water crisis (Table 5.3). It is noted that these are mere estimations to identify potential water use of Airbnbs in the City Bowl.

Table 5. 2: Water estimations with no water restrictions ('normal') for shower, bath, washing machine and dishwasher use.

Water estimations with no water restrictions ('normal') in City Bowl Airbnb listings							
Amenity	Flow rate/ Total litres	Average duration	Average per 1, 2 and 4 people	Total litres weekly	Total litres per month	Peak season (Dec- Feb)	Total per Year *Assuming listing is 100% occupied
Shower	22 ℓ.m⁻¹	8 minutes once a day ≈ 176 ℓ *Assumption of a daily wash	1 person:	1 person:	1 person:	1 person:	1 person:
			176ℓ	1,232ℓ	4,928ℓ	14,784ℓ	59,136ℓ
			2 people:	2 people:	2 people:	2 people:	2 people:
			352ℓ	2,464ℓ	9,856ℓ	29,568ℓ	118,272ℓ
			4 people:	4 people:	4 people:	4 people:	4 people:
			704ℓ	4,928ℓ	19,712ℓ	59,136ℓ	236,544ℓ
				1,225ℓ	4,900ℓ	14,700ℓ	58,800ℓ
Bath	1 bath ≈ 150ℓ to 200ℓ Average≈ 175ℓ	Duration is not required					
Washing Machine*	150ℓ	Average 0.75 hours	2 people:	2 people:	2 people:	2 people:	2 people:
			2.25 loads	337.5ℓ	1,350ℓ	4,050ℓ	16,200ℓ
			4 people:	4 people:	4 people:	4 people:	4 people:
			3 to 6 loads per week (Average of 4.5 loads)	675ℓ	2,700ℓ	8,100ℓ	32,400ℓ
Dishwasher*	40-75ℓ Average≈ 57.5ℓ	Daily		402.5ℓ	1,610ℓ	4,830ℓ	19,320ℓ

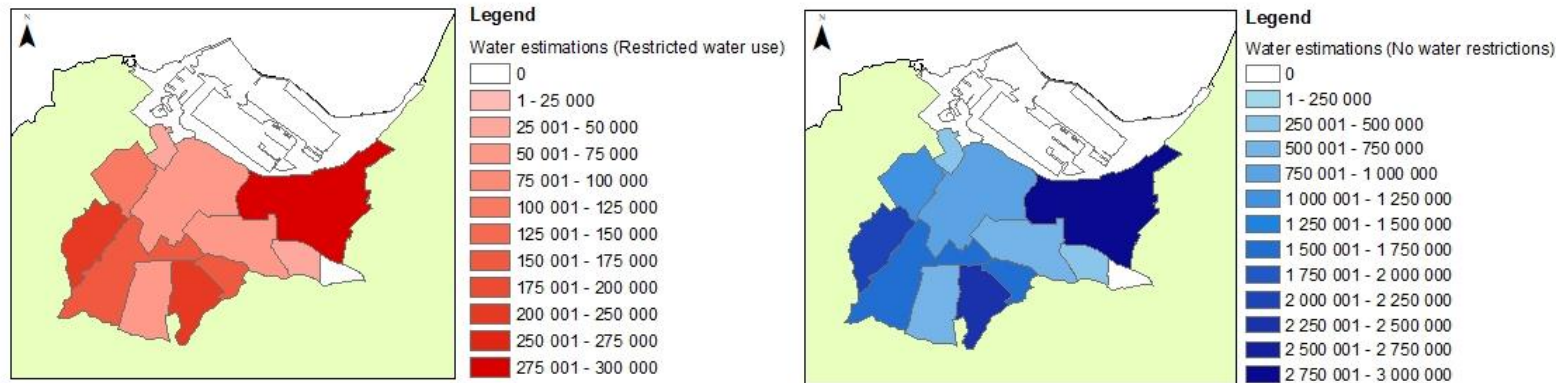
Table 5.3: Water estimations at Level 6 water restrictions for shower, washing machine and dishwasher use.

Water estimations at Level 6 water restrictions in City Bowl Airbnb listings							
Amenity	Flow rate/ Total litres	Average duration (2 -minutes)	Average per 1, 2 and 4 people	Total litres weekly	Total litres per month	Peak season (Dec- Feb)	Total per Year *Assuming listing is 100% occupied
Shower	Minimum 6-10 $\ell.m^{-1}$	2-minutes $\approx$	1 person:	1 person:	1 person:	1 person:	1 person:
		16ℓ	16ℓ	112ℓ	488ℓ	1,464ℓ	5,856ℓ
	Average is 8 $\ell.m^{-1}$		2 people:	2 people:	2 people:	2 people:	2 people:
			32ℓ	224ℓ	896ℓ	2,688ℓ	10,752ℓ
			4 people:	4 people:	4 people:	4 people:	4 people:
			64ℓ	448ℓ	1,792ℓ	5,376ℓ	21,504ℓ
Washing Machine* (Hand wash or altered)	70ℓ (Economy load)	Average 0.75 hours	Once a week	70ℓ	280ℓ	840ℓ	3,360ℓ
Washing machine* (no alterations)	150ℓ	Average 0.75 hours	Once a week	150 ℓ	300ℓ	900ℓ	3,600ℓ
Dishwasher*	29ℓ (Economy load)	Every 3 days		2.3 $\approx$ 2 loads per week	232ℓ	696ℓ	2,784ℓ
				$\approx$58ℓ			

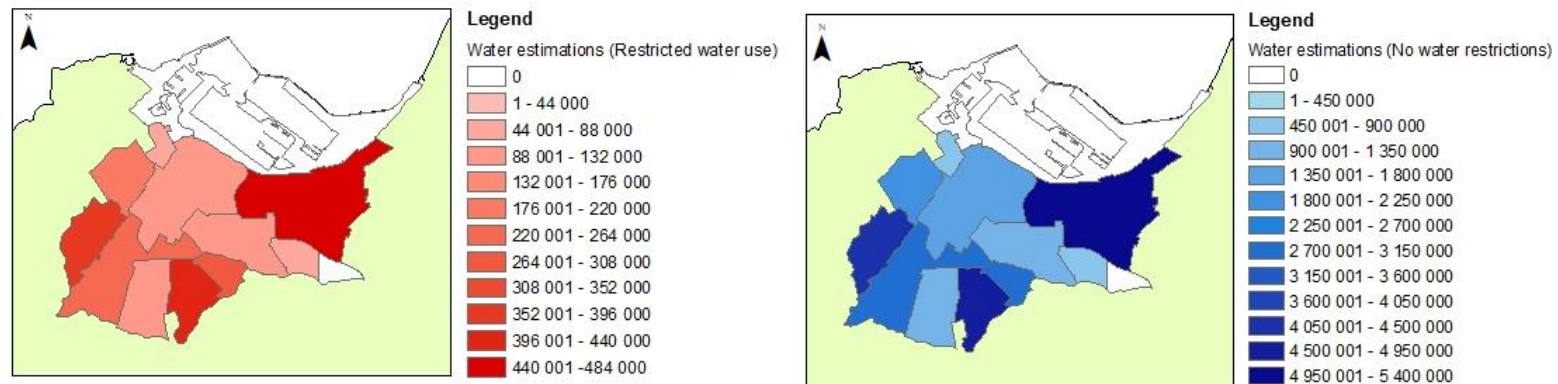
Water estimations for Airbnb listings in the City Bowl reveal vast differences between restricted and non-restricted 'normal' water use for a peak season period of three months (Figure 5.9). During the peak tourism period, the suburb of Woodstock demonstrates the potential to consume a high amount of water in non-restricted periods and within implemented water restrictions for both two and four-person households. In addition, within this three month period, two-person households are estimated to consume between 2,750,001ℓ and 3,000,000ℓ during 'normal' periods of use and between 275,001ℓ and 300,000ℓ with water restrictions (Figure 5.9). This reduction by a factor of 10 between 'normal' and restricted peak tourism season is notable. Similarly, four-person households are estimated to consume between 4,950,001-5,400,000ℓ in 'normal' periods of use and between 444,001-484,000ℓ with water restrictions (Figure 5.9).

During the three month peak tourism season, suburbs exhibiting the potential for low water consumption within restricted water use and in 'normal' usage include: Central Cape Town, Walmer Estate, Oranjezicht, De Waterkant and Zonnebloem/ District Six (Figure 5.9). Relatively medium water consumers include Gardens, Bo-Kaap and Devil's Peak. Suburbs that have the potential to consume a relatively higher amount of water include Tamboerskloof and Vredehoek (Figure 5.9). As UPA revealed more listings in the suburb of Woodstock, estimated water consumption is likely to be higher in this suburb.

Water estimations in litres for 2 people per Airbnb household in the City Bowl (peak season)



Water estimations in litres for 4 people per Airbnb household in the City Bowl (peak season)



0 0,75 1,5 3 4,5 6 7,5 Kilometers

Figure 5.9: Water usage estimations for two and four-person household occupancy during peak season in the City Bowl.

5.3.4 Advertising the Water Crisis

UPA revealed that only 69 profiles out of 500 listings had forewarned guests about water restrictions and the drought. Electricity warnings were also presented with only 14 out of the 500 listings highlighting concern in their listing profiles. Guest and host reviews were also analysed for any information regarding the drought. These highlighted that in some listings, a water crisis notification was put in place as well as a request for assistance to save water by showering rather than bathing, capturing shower water in buckets and prescribing two-minute showers. One listing stated that only one shower per person per day was permitted. In addition, varied periods of the drought were identified as listings warned guests of level three, four and five water restrictions as well as restrictions of 87ℓ and 80ℓ per person per day. Restricted pool access, particularly in summer was highlighted in addition to limited access to laundry facilities through notified changes of turnover of linen and bedding. Listings described that if excessive water was used, heavy fines would be implemented where one host stated:

“Otherwise we will be fined up to 10 thousand rands/800\$, and they might cut off the water. We WILL CHARGE YOU FOR EXCESSIVE WATER USE!”.

In connection to the water crisis, one listing highlighted water rationing between five and nine am/pm. One guest review highlighted a lack of water in the duration of stay attributed to the water crisis by the listing host. Another review left by a guest stated that they “Love ideas of smart water use”.

In addition, in analysing listings for water information, other information about environmental perceptions were identified. One host stated that they identify as sustainable in their listing profile, which may determine the guests they seek to host. Alternative uses of water were also identified with one host stating they solely supply spring water from Table Mountain, whilst others stated that they supply 'fresh drinking water'. One particular host making use of alternate water sources indicated no impact from the water crisis, stating that the listing "Has its own independent water source fed from the Table Mountain Aquifer. I have no water restrictions". An indication of the potential water use after the drought was identified by one host who optimistically stated on their listing profile that they hoped restrictions would end with the ending of the drought. This gives the impression that once the drought is declared over, water will be used more excessively.

An unexpected finding whilst looking for information regarding the drought was the concern around electricity usage. Several listings warned guests to switch off unnecessary appliances and lights whereby one host highlighted the use of rechargeable backup LED lighting in case of 'load shedding'. Hosts also pointed to the high costs of electricity in which an extra R50 would be charged to do a load of washing. Certain listings described the use of prepaid electricity whereby one host stated on their listing profile, the common occurrence of prepaid electricity in Cape Town as well as price differences between summer and winter that guests must be aware of when purchasing electricity. Other hosts that also provided prepaid electricity

stated the significant increase in the cost of electricity and in one instance had provided three to five days' worth of electricity in which a guest could then load further required electricity.

5.3.5 Green infrastructure

UPA revealed that greening techniques had been implemented within individual listings. Certain hosts stated in their listing profiles the installation of low-flow taps and shower heads, light dimmers, solar electricity, solar water heaters, roof deck terraces (for the growth of roof top gardens or the collection of rainwater), double glazed windows and ceiling insulation. In addition, practices of recycling, upkeep or assistance with organic vegetable gardens and organic compost heap were also highlighted.

5.4 Questionnaire Responses

Within the data collection period (August 2017 to January 2018), 26 questionnaire responses were received. The received sample comprised of hosts who maintain multiple Airbnb listings, resulting in 26 hosts with 43 described listings. Host demographics and listing analysis will be outlined respectively. Airbnb listings in the City Bowl and the greater Cape Town area were included where it is noted that these areas are not exhaustive of the Cape Town Airbnb community and therefore no generalisations can be made based on the suburbs identified. Two responses neglected to indicate the suburb under which the listing is situated. As the responses from hosts do not equate to the number of listings reported, host response demographics and Likert style responses about varied uses of Airbnb and

perceptions around climate change, drought, guests and the water crisis as well as greening adoptions will be reported.

5.4.1 Host Demographics

The 26 questionnaires collected provided host demographic information regarding gender, race and age of respondents (Table 5.4). Majority of hosts are white, female and aged between the ages of 46 and 55. The second highest age of hosts were identified to be between 25 and 34 (Table 5.4). Among the 26 hosts, 15 operated only one listing, while eight operated two listings. The categories of three, four and five listings were represented by one host each. It is noted that the response of one host stated that six listings were operated, however only one listing was described. The layout of the above listing cannot be assumed. In addition, the reasons for rental of listings indicated that 23 out of 43 listings were used for supplemental income, followed by six out of 43 listings used to increase efficiency of space available where five out of 43 listings indicated being used for business purposes. One respondent indicated that all the above were reasons for rental where eight did not respond at all.

Table 5.4: Demographics of Airbnb hosts found in questionnaires.

Gender	19- Female 7- Male
Race	24 -White 1- 'Other' 1 - 'Preferred not to say'
Age	0- between 18 and 24 6- between 25 and 3 5- between 35 and 45 7- between 46 and 55 5- between 56 and 69 3- between 70 and above

5.4.2 Listing Analysis

Collected questionnaires provided details regarding multiple listings not limited to the City Bowl area. Questionnaires identified Airbnb listings within the greater Cape Town area such as the Atlantic Seaboard, Camps Bay, Claremont, Green Point, Muizenberg, Newlands, Panorama, Salt River, Sea Point and Rondebosch. In addition, entire apartments followed by private rooms and entire houses are the most popular forms of listing stated. Questionnaires did not identify any shared rooms or other forms of listings available for rent. However, additional comments such as private rooms containing shared bathrooms, providing a co-host service and rental of a house only during the December period highlight the flexibility offered by the Airbnb platform.

Flexibility of the platform is also identified in the usage patterns of listings. Flexibility refers to certain owners listing spaces whereby they can rent and

block dates for personal use throughout the year. Data revealed that the highest period of rental is for more than half a week followed by everyday rentals. Less significant are the varied usages for the options of once a week (9%, n=43), more than twice a month (5%, n=43), twice a month (7%, n=43), once a month (5%, n= 43), less than once a month (7%, n= 43) and less than once a year (5%, n=43). Two written responses indicated that the listings were occupied 70% and 60% respectively within the year.

Appliances and facilities available in listings were indicated (Figures 5.10; 5.11). Hosts also indicated additional appliances and facilities for use such as DSTV, toasters, hotplates, electric frying pan, braai areas, sandwich machines, blender and juicer, use of gas only, PlayStation gaming device and a comment stating that there is a bath but it not available for use. Regarding the use of a pool, majority of responses indicated the lack of pool availability. However, few responses indicate pools located in house gardens (previously communicated as restricted) and pools located within complex units. Responses highlighted that the complex pools are not taken care of by residents but rather by the complex association and have also been restricted due to previous communications. One particular response indicated that the complex pool is always full and available because it is filled with spring water. The pool is guaranteed because it is paid for and regulated by the City Council. This same response indicated the use of the spring water for showering purposes.

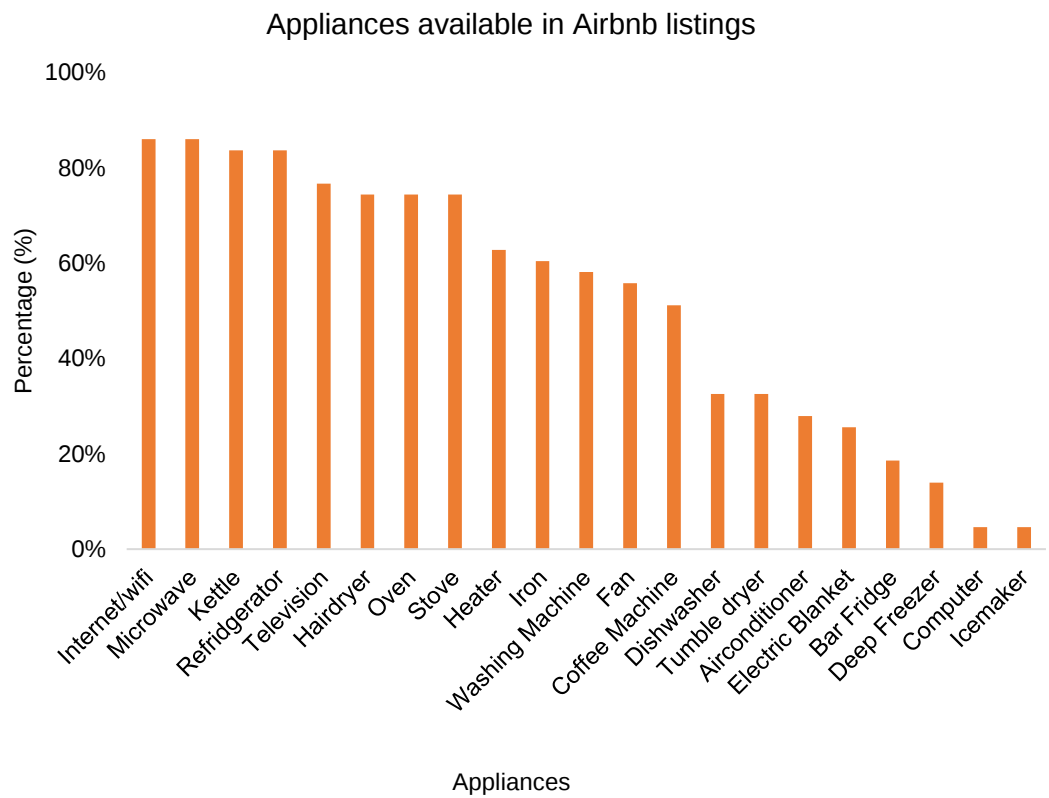


Figure 5.10: Percentages of appliances available for guest use in questionnaire Airbnb listings.



Figure 5.11: Percentage of facilities available for guest use in questionnaire Airbnb listings.

5.4.3 Likert Scale Host Responses

Hosts were requested to answer 10 5-point Likert type statements. The 10 Likert statements were categorised around perceptions of the drought and climate change (Figure 5.12), water restrictions (Figure 5.13) and greening implementations (Figure 5.14). Statements regarding the current reality of the drought and recurrence of drought due to climate change were highly agreed upon with responses between 80% to 100% (Figure 5.12). However, a statement regarding whether the drought would have an impact on the running of the Airbnb received varied levels of agreement with 38% (n=26) strongly agreeing, 31% (n=26) agreeing, 27% (n=26) neutral and 4% (n=26) disagreeing with the statement. Similar results were identified when asked whether climate change would have an impact on the running of the Airbnb (Figure 5.12). Thus, hosts believe future drought events will occur due to climate change and majority agree their Airbnbs will be impacted by current and future drought events.

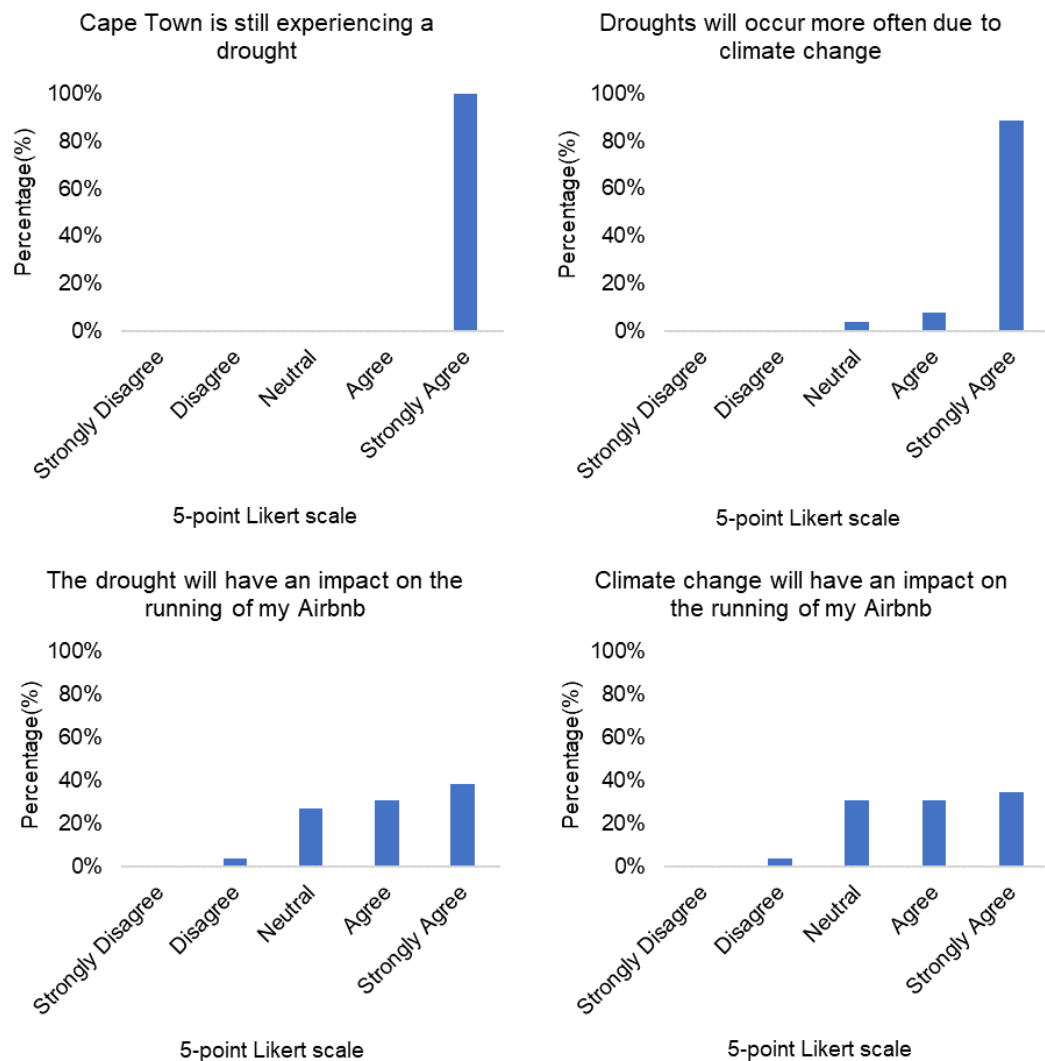


Figure 5.12: Perceptions of drought in Cape Town, climate change and its potential impact on respondent Airbnb listing/s.

When prompted as to whether there was a concern about the water crisis in Cape Town, 92% (n=26) of respondents strongly agreed with one replying in written format that she was 'hysterical' about the water crisis (Figure 5.13). When asked whether water restrictions were necessary, 77% (n=26) strongly agreed with only one response in disagreement. When asked whether government had taken Airbnbs into consideration when implementing water restrictions there were mixed responses. Most

respondents disagreed, 15% (n=26) strongly disagreed, 27% (n=26) were neutral, and 15% (n=26) agreed with the statement. Similarly, mixed responses were received regarding a statement asking whether guests were high users of water and electricity within Airbnb listings. However, most hosts were not of the opinion that their guests use a large amount of water (Figure 5.13).

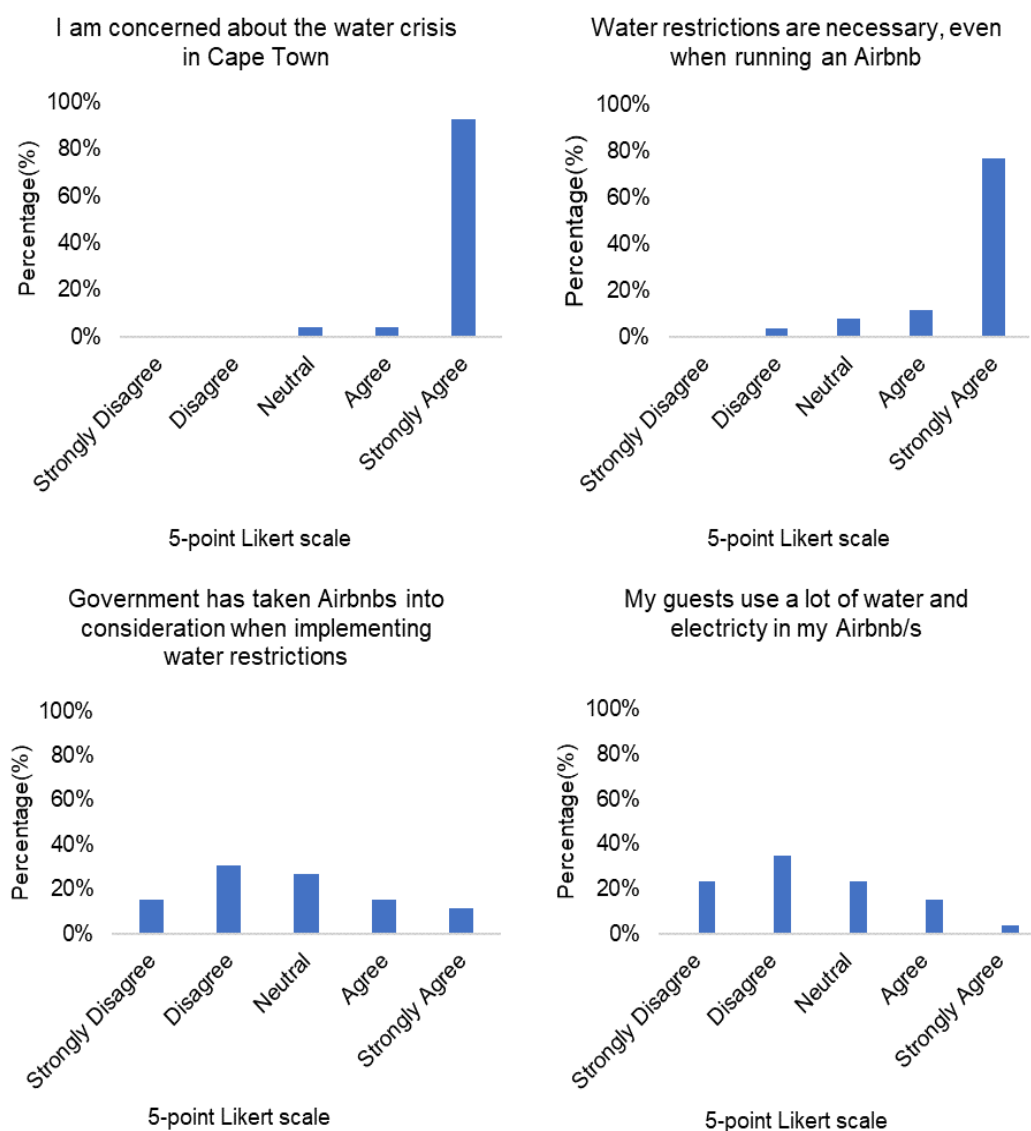


Figure 5.13: Perceptions of the water crisis, restrictions, governmental role and guest water use.

In installing green infrastructure to Airbnb listings, most hosts agreed that green changes help reduce water and electricity consumption and that it is cost effective, with one stating in written format that it is “Expensive but pays off in the long run” (Figure 5.14).

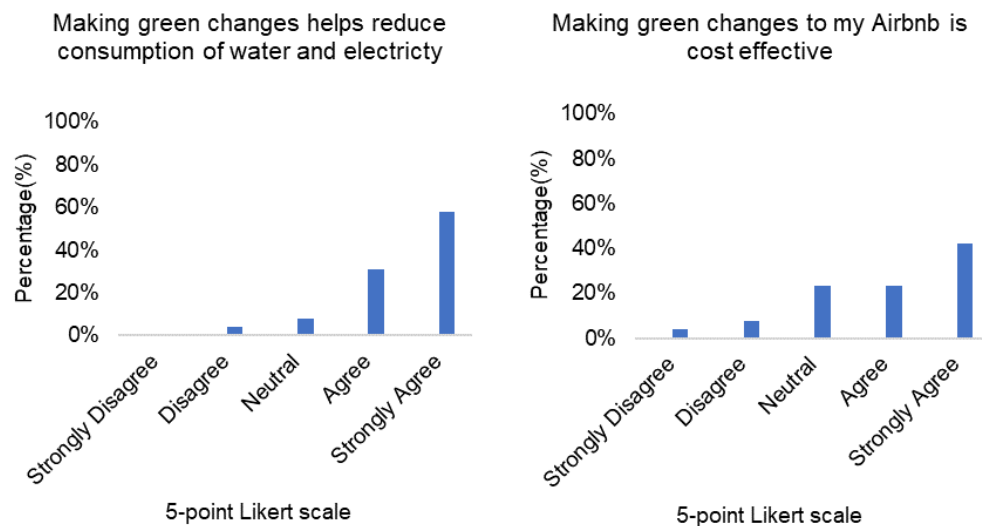


Figure 5.14: Perceptions of the implementation and cost effectiveness of greening infrastructure within respondent Airbnb listing/s.

5.4.4 Sensitivity to the Water Crisis

Questionnaire data revealed the adaptation practices implemented by hosts. All hosts indicated they have made their guests aware of the water crisis. Restricted access to appliances and facilities implemented by hosts revealed that 77% (n=43) have made verbal instructions to guests, 72% (n=43) have written rules, 26% (n=43) have restricted access to particular spaces or appliances, 37% (n=43) have put information stickers within the listing, 2% (n=43) have timers for use of appliances, 19% (n=43) have removed plug stoppers for baths and finally 2% (n=43) of respondents have implemented no restrictions. Additional restrictions include water

restrictions written in house rules, request to flush toilets with collected shower water, adjusted frequency of washing towels and bed linen to longer periods, five-litre bottled water used for drinking and restricted access to the laundry room.

LED lighting was the most common electrical greening technique implemented in listings at 91% (n=43). The second most common greening technique was the installation of low-flow shower heads at 63% (n=43) (Figure 5.15). Additional greening techniques maintained by particular hosts included the disconnection of underfloor heating, use of spring water for drinking and toilet flushing, shower water collection with use for toilet flushing, deck harvesting, eco-pool that contains a semi-pool cover as well as greywater collection and usage.

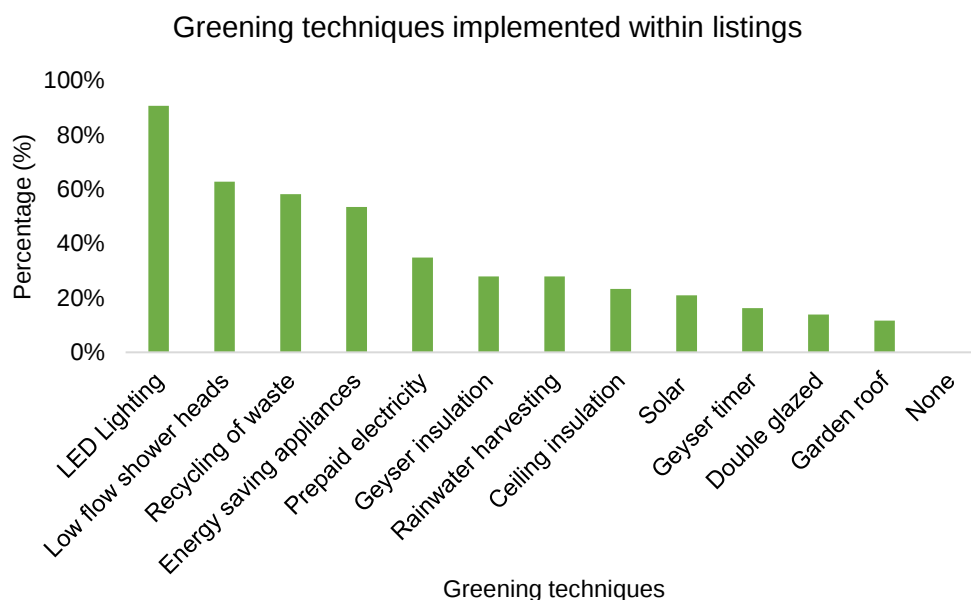


Figure 5.15: Percentage of Airbnb listings with adapted greening infrastructure.

5.5 Semi-Structured Interviews with Airbnb Hosts

5.5.1 Situating the Interviewed Airbnb Hosts

10 semi-structured interviews were conducted with Airbnb hosts and two managers. Demographic characteristics of interviewed hosts included seven females and three males; white individuals ranging between the ages of early thirties to mid-sixties. Three categories of hosts were identified including: hands-on hosts (hosts that live with or occupy the same space as guests throughout their stays), hosts using managers (hosts that frequent their properties during certain times of the year or have no time but want the income from Airbnb and therefore use managers) and managers (individuals who are part of or have created their own property managerial company that assist property owners with their short-term rentals).

This research identified seven hands-on hosts, two hosts that use managers and two listing managers. It is noted that one host owns two properties whereby one is managed and the other is self-hosted. Within this sample group, five hosts operate private apartments with private entrances, one host operates a shared room and finally, one host operates a private room in a residence containing a private entrance. Along with these variegated modes of Airbnbbing, hosts also demonstrated variegated histories in their use of Airbnb (Table 5.5). Following this introduction to the respondents, thematic analysis of interviews is presented with themes around relations to the Airbnb platform, adaptations and perceptions of adjusting to the water crisis and changing relations within and beyond the Airbnb platform.

Table 5.5: Variegated modes and histories of Airbnbbing of 10 interview participants.

Respondents	Variegated modes of Airbnbbing	Variegated histories of Airbnbbing
TF	Superhost	Has always shared property
	Only uses Airbnb to “Fill the gaps between the regulars”	Used Airbnb since 2013
	Airbnbs three on-suite apartments which include small kitchenettes. All based on one property	Claims one of the first hosts on Airbnb
	Prefers five-day minimum stays	Previously got guests/visitors through CapeAds, word of mouth, Gumtree or classified newspaper advertisements
TS	Operates two Airbnbs both attached to her home with private entrances	Started on Airbnb a year ago (2016) but one unit has only been in operation since October (one month ago)
	Uses ‘Instant booking’ “Airbnb fills listings 60% of the time, the others are all private bookings from returning over the years”	Before Airbnb, apartments stayed full by word of mouth whether short, medium or long term and were “Full enough for me to be quite happy with the income”
BG	Superhost	Based in Johannesburg, operates one Airbnb in Cape Town
	Home is listed for rental	Been an Airbnb host for five years
	Takes bookings but has a manager/housekeeper to look after guests in person Airbnb’s throughout the year expect when blocked for own use	
TU	Operates an Airbnb/s in an apartment block	Has hosted an Airbnb since 2015
CC	Airbnb’s three rooms, two doubles and one single. One room contains an on-suite bathroom and private entrance, while the other two are separate rooms but share a bathroom. Only uses Airbnb during the peak season from December to January	Has been hosting medium to long term lodgers in her home for 22 years. Thinks she was one of the very first Airbnb’s in her suburb
		Has been an Airbnb host for four years (since 2013)

Respondents	Variegated modes of Airbnbbing	Variegated histories of Airbnbbing
RM	Operates one shared bedroom listing Airbnb's throughout the year unless blocked for her personal use. "I believe I'm like a purest"	Claims was one of the first people in Cape Town to sign up with Airbnb. Signed up at the end of 2014 but only started hosting in October 2015, about two years ago. Has advertised Airbnb on other platforms such as Facebook and Hodme to increase competitiveness
WC	Property management advertises through varied portals During winter months, certain properties are let for six-month long-term rentals Individual owners choose Airbnb for short term rentals	Manages Airbnbs with her son Based on managing experience, has Airbnbed her own seaside property Unclear when Airbnb was initially used
DA	Superhost Operates two listings. Self-contained apartment and a studio apartment. One apartment operates by herself, the other she uses host who is also a manager	Joined Airbnb in 2015
VO	Operates an apartment at the bottom floor of her house with a private bathroom and a separate entrance, a studio apartment Apartment listed on multiple sites with few private referrals	Wanted to get into the holiday market and thought her studio apartment would be great on Airbnb
MG	Superhost South Africa manages individuals looking to list their property on Airbnb where they may not have time or be situated in Cape Town Aims to replicate the authentic 'I'm a host' experience added with a layer of professionalism	An Airbnb manager for Superhost South Africa since October 2017 Oversees and manages 60 properties

5.6 Host Perceptions Around and Relations to the Airbnb Platform

5.6.1 Multiple Motivations for Airbnb Hosting

Cape Town residents use the Airbnb platform for multiple reasons. Three out of 10 hosts highlighted the purpose of Airbnb was to create their sole income. One host described his Airbnb as a functional space:

“I can live in it sometimes, but I can also rent it out and make money out of it...I rely on the funds enormously.” (BG, 30 November 2017)

Conversely, four other hosts revealed that Airbnb is only used as a supplement to their income in which they do not rely on rentals for income.

One host became particularly upset where she described:

“Airbnb is just a platform that I started to use about four years ago...Airbnb wasn't, doesn't come first and me second, I was always around, I've been around for a long time, Airbnb is, it's only an addition to what I was doing already. It's not a, my business didn't start because of Airbnb, my business would have continued despite Airbnb.” (TF, 19 November 2017)

Hosts identified that a particular motivation for using the Airbnb platform is that it allowed the creation of employment. Respondents felt that hosting allowed them to employ domestic workers, some on a more full-time basis. In addition, with the existence of Airbnb, managerial positions and companies have arisen. To further elaborate, a host identified that she manages a fellow host's Airbnb listing when she is unable to. Airbnb hosting also aids in supplying income to the local economy in terms of tourism and other services whereby one host stated:

“You’re creating jobs...You’re also stimulating the economy because you’re having to buy nice sheets and duvets; I mean you can’t give nasty sheets and duvets and towels and things like that, so you’re also ploughing it back, you know.” (CC, 15 November 2017)

Additional reviews within UPA also highlighted the use of property managers for particular listings. Individual hosts as well as reviews by guests had pointed to two Airbnb management companies. A guest review revealed a previous guest was taken off-guard about the management company and would have preferred to deal with the owner directly. UPA also identified repeated ‘hosts’ who branded themselves as managers who could be seen to handle multiple properties.

Further motivation to rent a space through the Airbnb platform was the flexibility it affords. Five hosts interviewed view this as a key motivation for hosting an Airbnb. Two managers and two hosts stated that 1) most clients who use Airbnb prefer to block times of the year when they want to use their property and 2) earn a small income, hosts can block this listing on Airbnb when they do not feel like hosting or when they want friends and family to stay over. Such is the case with one host who blocks periods where her mother or sister come to stay with her. In addition, spaces have become flexible in what platform may be used to rent or the type of guest rented to. Two hosts and one manager made the researcher aware that more than one platform may be used to rent the same space, each with its own pros and cons.

Four hosts identified that being hospitable is a key aspect when running an Airbnb. For these hosts, Airbnb is more about the experience than earning money, whereby one host explained:

“One of my reasons for deciding to do Airbnbs ... I thought, I’d like to meet people, like I think that’s something that I could be good at...you’ll more than ever have to step outside your comfort zone by sharing your space, your personal space with a stranger but at the same time you will get the greatest return...and some hosts are like, ‘no I don’t even meet my guests or I don’t want to interact with my guests’ but I’m like that’s not Airbnb.” (RM, 21 November 2017)

She further explained:

“I think there’s a lot of people who are like, ah cool I’m going to Airbnb and then they realise how much work it is and that Airbnb’s not about rental, it’s about hospitality and I think some people have maybe lost that... just the fact that people don’t meet their guests is kind of like shocking.” (RM, 21 November 2017)

In addition, the added benefit of ‘arm-chair travelling’ was identified. This particular host uses Airbnb to teach her son about Cape Town hospitality and to expose him to varied travellers’ cultures and nationalities as she often cannot afford to travel.

5.6.2 Perceptions of the Airbnb Platform

Airbnb hosts revealed their perceptions about using the online platform. It was identified that hosts preferred Airbnb to other online booking sites as it allows hosts to expose bad guests and if incidents occur, in these scenarios, Airbnb will side with the host. However, this was not consensus as one host felt Airbnb positions itself more in terms of guest experience stating:

“It’s orientated towards guests. And so, if a guest complains about something about the facility not being right... Airbnb takes it much more seriously than if a host says that a guest was not what they said they were or who they said they were.” (VO, 13 November 2017)

Using Airbnb also helped a host in reflecting about her own living space and what it would mean to rent it professionally. In addition, four other hosts reflected on the pricing of their listings in which all claimed that they provided reasonable pricing, with one host in particular highlighting that pricing could not be too low as the money made needs to be practical in terms of effort and time spent on preparing the space. One host further explained that Airbnb was a good renting platform as it allowed her to easily get money and a secure deposit from international guests.

5.6.3 Reflections on a Changing Platform Climate

5.6.3.1 Saturated Subscription and Increasing Competition

Airbnb as a platform within the sharing economy is changing. Three hosts commented on the increasing supply of Airbnb listings in Cape Town where hosts have complained that the Airbnb market is completely saturated in the region. As a result, the number of bookings throughout the year is affected as identified by one host who stated, “I have most definitely noticed a decrease in bookings” (BG, 30 November 2017). Another host felt as though this saturation is due to the commodification of Airbnb in which she commented:

“What is so sad is Airbnb is almost like pushing people who share their spaces to the side because they have this whole business

travel...Airbnb's becoming like a commodity and the business travel is a bit more like a hotel...some people have like 150 listings and I'm like, you're not an estate agent." (RM, 21 November 2017)

According to hosts interviewed, there is also a concern around increasing competition between Airbnbs listed within Cape Town. The challenges around professionalising listings and obtaining the 'Airbnb look' were raised as well as the difficulty around pricing which may reduce a host's chances of being booked if the cost is too expensive. In addition, besides needing to remain competitive, hosts also described accepting relatively short bookings that would be worthwhile in terms of time and effort.

5.6.3.2 Future Sustainability of the Airbnb Platform

Respondents reflected on the future sustainability of the Airbnb platform. Through their responses, it is evident that hosts hold different understandings and definitions of sustainability. Understandings of sustainability included economic aspects such as the saturated market of Airbnbs in Cape Town as well as financially in terms of maintaining booking levels and finally, its impact on the environment in terms of infrastructure.

Eight hosts identified the positive sustainable aspects of the Airbnb platform and the sharing economy. With the large tourism economy in Cape Town, one host stated that Airbnb is a sustainable business model for the city. Two hosts agreed with this sentiment explaining that hotel capacity of Cape Town during peak tourism season is not enough whereby new hotels would have to be built to cater for increasing numbers of tourists, however, hotels

would be empty during the low tourism season in winter months. Adding to this, one host suggested Airbnb is sustainable in Cape Town as the amount of bookings are “Mushrooming” (TS, 21 November 2017). Two hosts further stated that hotels and guest houses dislike the use of Airbnb as an alternative accommodation and that it attracts a different type of tourist. This may highlight a contention between the different tourism accommodations, however as these are opinions, cannot truly be spoken to in this study.

Two hosts revealed that although aspects of Airbnb are sustainable, it could not remain so due to the above-mentioned saturation of listings. One host added that in regulating Airbnb, a tax should be added to appease the government. With regards to the environmental sustainability of Airbnb, one manager states:

“I think overall the sharing economy is a more efficient way to use a lot of different types of resources...but I don’t know if Airbnb’s is the most prime environmental example in my opinion.” (MG, 15 November 2017)

Following the description of situating Airbnb hosts within the sharing economy and highlighting varied motivations for use and perceptions around the changing platform it is imperative to locate these hosts within the water crisis. Although this research pays particular attention to resource use within a drought, it was interesting to see that there are still greater concerns around finite resources, population and what may seem trivial in a water crisis, access to wireless internet. This was identified in the comments “WIFI is like air!” (DA, 18 November 2017) and “I’ve always believed that

resources are kind of finite maybe not finite finite but unless we find alternative needs with the growing population..." (TF, 19 November 2017). However, with the focus on the water crisis, the following sections will identify the practices Airbnb hosts had adapted and the perceptions around the resources (water and to a slight extent, electricity) used in their Airbnb listings. Finally, the changing relations with varied parties within the platform space as well as the drought will be discussed.

5.7 Host Adaptive Devices and Practices During the Drought

5.7.1 Drawing on Past Practices

In dealing with the water crisis in their individual listings, Airbnb hosts have implemented and developed adaptive devices and techniques in order to reduce the amount of water and to a slight extent electricity within these spaces. For some, these adaptations have come into being due to past practices. Four respondents stated they had experienced drought and had to save water before in other regions and due to this, are very aware of using water in their respective spaces. One host experienced the 1983 drought in Durban and commented that none of the adaptations used then have been used now due to the inexperience of local municipal councils. She explained:

"So, I just don't think they've imported knowledge that was already here from another place and time, you know... and I think isn't enough of this 'Let's ask the old guard how did you manage back in the day?'" (CC, 15 November 2017)

Two hosts had already implemented water savings prior to the water crisis where one stated:

“I’ve been bucketing water for 10 years in Camps Bay because this is no surprise. So, when I bought here (the house), this was two years ago, I put a tank in straight away... So, I’ve been bucketing from the bath even when my son was a baby.” (DA, 18 November 2017)

However, these historical practices were not only centred around water as one host explicitly stated:

“I’m obsessed with electricity use; I always have as I have with water.” (BG, 30 November 2017).

5.7.2 Devices and Adapted Infrastructure

The Airbnb hosts interviewed implemented various adaptation devices and methods to reduce water consumption (Table 5.6). Hosts identified repercussions of these adaptations in terms of investment in infrastructure and time. This was seen in the installation of water collection tanks where the initial cost was expensive, however provided benefits overtime. In addition, managers explained to retain bookings, owners have opted to bus water in from other areas in the Western Cape for the filling of pools. Additional challenges of investment in new greening devices were also identified. These challenges included access to space to install water collection tanks, the ability to replace current devices in old infrastructure such as new water-saving shower heads or washing machines. In addition, time invested into these adaptation techniques was noted. Hosts identified the increased time of ‘normal’ tasks such as showering, or cleaning dishes.

One host explained the process of cleaning dishes stating that, “It’s not difficult, it just takes more time. It’s all about time you see, see I’m like a real old-fashioned housewife now” (TF, 19 November 2018). Furthermore, the collection of spring water for personal and guest use was seen as a time-consuming task.

Table 5.6: Devices and techniques implemented by interviewed hosts in listings to reduce water consumption.

Device	Usage frequency	Practice	Usage frequency
Buckets for water collection	9/10	2-minute showers	3/10
Removed Bath/ plug	3/10	Grey water recycling	7/10
Water-saving shower head	0/10	Communicating with guests (Introductions, prior emails)	10/10
Water collection tanks	5/10	Metering before and after stay	1/10
Water notices (Stickers, welcome book)	6/10	Recycling	1/10
Electricity notices	2/10	Collect and use spring water	3/10
Gas	1/10	“Yellow let it mellow”	3/10
LED lighting or Electricity saving light bulbs	4/10		
Solar installations	1/10		
Other (Flow rates, covers for pools, halogen heaters, greywater plumbing infrastructure)	4/10		

5.7.3 Cleaning Techniques

Similar cleaning techniques were found to be used between hosts. Rainwater collected in buckets, installed tanks and grey water collected from baths or dish water was used to clean their spaces. Particular managers and hosts highlighted being selective about how thoroughly to clean. For example, a manager explained:

“So now we just need to be a little bit more selective about when it’s time to clean up, how do we clean up, how deep a clean can we do, do we just wash what is clearly dirty? And we look around carefully and make sure that everything else is clean.” (MG, 15 November 2017)

Hosts and managers indicated that they or their cleaning staff use discretion on what areas of the listing are cleaned with greywater, rainwater and freshwater. Floor surfaces were generally cleaned with grey water. Two hosts perceived that there is a lack of information afforded to helpers based in township areas, where although they are not large water consumers, hosts felt the knowledge of water restrictions was necessary in the Airbnb spaces. However, cleaners have also adapted, where a manager commended his cleaning team for adjusting their techniques whilst maintaining good reviews.

In the turnover between successive guests, laundry is a large component of water usage. One host indicated that certain guests may use Cape Town as their ‘Glamour Stop’, wanting to wash large amounts clothing. She felt she needed to rethink the load limit she has placed on her Airbnb. Other hosts have informed guests about a reduced changeover of towels and linen

and offered guests one load of washing (with discretion) a week to control the amount of washing and water used per load in their listings. A manager stated that they change towels more regularly because “We think that is proper” (WC, 20 November 2017). One host only did a changeover if requested or every seven days whereby she added her own clothing to the laundry of the guest in order to reduce the number of loads required. Similarly, another host selected her outfits based on her guests’ attire, stating:

“I will actually wear jeans because then I know that they (guests) are going to be washing jeans. The rest of the time I wear all these pale colours because it’s going to go in with the linen from the apartment so I’m actually tailoring what I wear according to the loads...we only wash when there is a wash, and we hang on in between.” (DA, 18 November 2017)

One manager opted for using rental linen instead of washing linen on site as was done in the past. He reasoned it saved water for the owner as well as ensured the excellent quality of the linen expected whilst avoiding bad reviews for the business.

5.7.4 Building New Practices

In addition to the water-saving campaigns introduced by the City of Cape Town such as *Save like a Local* and *Think Water*, Airbnb hosts interviewed have formed creative methods of saving water in their own listings. Innovation had struck one host where she excitedly explained:

“I don’t have enough money and too many gutters to actually have one of those JoJo tanks... they’re quite expensive. So, I made my own. And so, I have, now I have got 700ℓ of water and

its cost me...maybe 1000 rand, not even.” (CC, 15 November 2017)

Another host also collects rainwater through bins and had fixed plastic sleeves to her gutter to easily capture the water into a larger bin she uses to water her food garden. One host, inspired by the recent Airbnb meeting also attended by the researcher, came up with a game involving a small rubber duck, where the host wanted to challenge guests to reduce the amount of water collected in the shower bucket that the duck would float on. The aim was to keep the duck within the bucket during a shower.

5.8 Host Perceptions on Adapting to the Drought

5.8.1 Estimating Water Demand

Airbnb hosts reflected on water use estimated within listings. Excluding managers who were not privy to such information, eight hosts interviewed stated they saw no large water consumption with guests in their listings, and with adaptations made, consumption has been reduced. Within her listing a host described her reduced water consumption:

“I mean our water bill is so come down, it’s ridiculous yeah...I haven’t been worried about being fined.” (VO, 13 November 2017)

Another host referring to her water and electricity consumption, compared it to prior drought consumption:

“Oh, far less... far far less. Because I’ve always been conservative, and because we’ve had this tank. Um but definitely it’s definitely dramatically reduced. I’m really extreme about it because we are using 43.5ℓ per person per day at present.” (DA, 18 November 2017)

Referring to her Airbnb bachelor apartments, one host explained:

“So, electricity consumption in the apartments is extremely low...and I do not see a blimp on my accounts. Electricity-wise it’s gone down from where it was in the past. At one stage when Eskom toppled, and my apartments were full I was running at R4,000.00 a month then I still had a little mini-stove with those hot plates and ovens... and the moment I started changing all those things out, (claps) it stopped, it’s gone down to about 1-5 (R1,500.00) now from R4,000.00 my electricity bill... I discouraged people to use the bath at all and they definitely, according to my bill, my water bill- they have heard me.” (TS, 21 November 2017)

One host based in Johannesburg claimed he does not see the consumption of his listing as rates and taxes are paid by direct debit. Two hosts operating in apartment blocks stated that it is not simple to estimate whether consumption had increased or decreased within their Airbnb listings as metre readings are not specific to one apartment. In operating a shared apartment, a host explained:

“I can see my electricity consumption but our water is paid through the body corporate... we don’t have metres, so I don’t even have an electric metre to get it on my account, it’s quite an old block but I think we might look into getting water metres because the price of water’s going to start going up astronomically so it would only be fair that I don’t pay much for water and whoever uses lots they do pay, you know.” (RM, 21 November 2017)

Although hosts did not report having noticed an increase in water use and were aiming to reduce the cost of water and electricity, one host stated that as the drought becomes more problematic and should water and electricity

prices increase, he would simply pay the increased rates. Airbnb hosts also reflected on the amounts of water needed to maintain their listings as well as their personal spaces. Two respondents connected their now reduced water usage to their experience at AfrikaBurn⁷. These respondents reflected on the value use of five litres of water and thus felt that the 87ℓ per person per day set out by the City of Cape Town was excessive. Four out of the 10 respondents identified that 50ℓ per person per day was a more reasonable amount considering the dire circumstances of the water crisis.

5.8.2 Guests and Adaptation

Hosts reflected on the manner in which the water crisis and water-saving adaptations have affected guests. Guests had revealed that they are greatly concerned about the drought, however it does not deter their travels to Cape Town. All hosts also explained that some guests are aware of the situation and are prepared for it. When explaining the upcoming arrival of two American guests a host explained:

“I have said to them that, ‘Please be aware of the fact that you will be visiting in the middle of the worst part of the state of emergency and potentially running out of water’ and they’ve said no they don’t have a problem with that.” (BG, 30 November 2017)

Hosts also explained that guests are adapting to the water crisis and revealed being impressed with the behaviour of guests. One host explained that she hosted guests who had bought their own buckets in an effort to

⁷ AfrikaBurn is a festival situated in the Karoo, where principles of self-reliance and decommodification are followed in which festival goers must provide all resources consumed (AfrikaBurn, 2018).

collect rainwater. Two respondents stated that the water crisis provides an opportunity for individuals to reflect on their personal water usage. A manager explained people do not know how well they are saving because it may be unclear to imagine the quantity of 87ℓ. Both aforementioned respondents explained that when a specific amount of water is allocated, or water is collected in a bucket, a reflection of the extent of excessive water use can be realised. Linking to this a host explained:

“The one guest commented she’s like ‘ya I showered, and I filled the whole bucket and I was shocked that I filled the whole bucket’. And so, they’re also just learning you know at the same time...so, I think it’s important for them to know that that’s how much they’re using.” (RM, 21 November 2017)

Similarly, another host described guests in his listing within the water crisis:

“Most guests seem to be very concerned. Many ‘brag’ that they only had a 2-minute shower instead of their usual 10 min!” (TU, 09 November 2017)

Majority of guests are reported as not complaining about the drought and according to hosts are embodying these new practices. A host described inviting guests into her personal space for drinks where guests have scolded her for using a new cup instead of reusing the same one as well as asking if she minded if they did not flush the toilet. She was elated by these behaviours. A manager also noted that guests are not generally large consumers as they spend most of their time outside of listings.

Guests were also revealed to be previously accustomed to water restrictions with the need to save water in their native countries. European guests were

identified as the most adaptive to water restrictions. One host had stated that a French guest “Just bought into it” (VO, 13 November 2017), whilst another explained:

“You know quite a few of them, when you bring it up, will say that they have dealt with it wherever they are, so they are mindful of it. Like we had a couple on Saturday that came to Airbnb and they said because of the country where they are from, they very happy and they also have a bucket in their shower so that’s cool you know.” (WC, 20 November 2017)

Interestingly, two hosts had felt that they needed to compensate guests for the experiences of water restrictions. One host explained:

“You can’t tell them you can only have a 2-minute shower and not be making it up to them because we do want them to return. And we want them to send their friends and maintain our tourism industry for the workforce in particular.” (DA, 18 November 2017)

By contrast, a different host emphasised that all water-saving efforts would be futile if guests did not aid in saving water and that inconveniencing guests is part of the necessity of saving water under the water crisis. She explained:

“This is not about like, ‘oh shame I’m inconveniencing the guest’...this is the way it is, we might not have water, you need to do this because there isn’t enough water, like you’re an extra burden on our system now, I’m mean obviously I wouldn’t tell the guest that. But they kind of need to know that in a nice way.” (RM, 21 November 2017).

Three respondents did note that not all guests aid in saving water and thus have had to strategize to promote water saving through, for example, reminders through the Airbnb application. Guests who are not that adaptive or comfortable with water saving are, as one manager explained, more

complex to persuade in terms of saving water than owners of properties. He elaborated:

“Our owners are exceptionally...conscious and concerned for a whole bunch of reasons, um I think they live with the reality and so they know the challenges, they also realize that there are heavy penalties if they go over certain thresholds which are going to be difficult to manage because it's not them in the apartment.... So, owners, 100%. Guests are tricky.” (MG, 15 November 2017)

He went on to discuss that his management company has done work to educate guests but that owners are more proactive in that some request metre readings taken prior and post-guest stay. Certain owners had asked the company for water-saving advice and have gone as far as to suggest importing water into their properties from the outer city. However, this manager stated that he aimed to discourage owners from monitoring guests as he felt it was unfair and draconian for guests particularly when they have paid a lot of money for a holiday.

5.8.3 Reflecting on Capetonian Practices

In addition to thinking about guest adaptation, hosts reflected on residents' and fellow Capetonian practices within the water crisis. Three respondents maintained that residents are large water wasters and guests may be better at saving water. Five hosts expressed their concern around the lack of adaptation to water saving by local residents. They explained there has been a delay in action by Capetonians and a lack of consciousness of their

personal water use. In describing the continued lack of awareness by residents, one host explained:

“I’ve come across a lot of people who don’t even know that we’re on Level 5. They still think they can water on a Tuesday and a Saturday, like before, they still think they can do that and I’m going... Hello... don’t you look at your rates thing? No.” (CC, 15 November 2017)

5.8.4 Water Ambassadors and New Campaigns

Five hosts identified themselves as water ambassadors. Within these self-allocated roles, hosts stressed that they are the individuals in Cape Town encouraging guests and residents alike to save water. Hosts stated that they have not felt pressure by the City but rather have themselves felt the need to pressure others. An optimistic host felt she could bring a lighter side to saving water stating that Capetonians have been “Living like absolute piglets in terms of water usage so it’s just a rethink.” (TS, 21 November 2017). One respondent exclaimed:

“I am a complete ‘Water Nazi’⁸... I think I’ve been quite a campaigner with regards to water saving, particularly on the host page which I write actively on. So, I’ve actually been the driver. One of the big drivers...I haven’t felt pressure from them (the City) at all in fact it’s been more my encouragement.” (DA, 18 November 2017)

Similarly, another host felt her position as an Airbnb host held a greater role in the water crisis, explaining:

⁸ Although this phrase is regarded as highly problematic, it was added in this context to reveal the extent to which individuals identify themselves as water savers.

“We’re in a unique position to influence, and we should be, we all should be.” (RM, 21 November 2017)

The ambassador role is aided by the promotion of the campaigns run by the City of Cape Town such as *Save Like a Local*, launched mid-October 2017 where they used this to further explain and calm guests to the water situation. Another form of water-saving campaign, the *New Cape Town Adventure* was mentioned by two hosts, however it is unclear where it originated from.

5.8.5 Reflections on the Anticipated ‘Day Zero’

With a greater focus on the drought, interviews provided insight into the possibility of ‘Day Zero’ or lack of water within the city and what this would mean for them as Airbnb hosts. The responses to the extreme possibility were mixed as certain hosts claimed it would not impact them as Airbnb hosts, whilst others viewed the possibility as a greater threat. One host highlighted that the impact of ‘Day Zero’ on citizens was more important than guests stating:

“I think it’s more important that we concentrate on the health and safety of Cape Town residents and losing some profit (likely from cancelled bookings) is secondary.” (TU, 09 November 2017)

Similarly, two hosts found the impact of ‘Day Zero’ on their role as an Airbnb host insignificant as they would just revert back to long-term tenants. These hosts were more concerned about their future as Capetonians. One host claimed she was uncertain about her future as she owns property in a sectional title apartment block where decisions are regulated by a body

corporate. Three interviewees were concerned about the impact 'Day Zero' would have on tourism in general with one stating, "Really? Is a tourist going to be bothered to come here? I wouldn't bother" (CC, 15 November 2017). Managers felt this event would have more of an impact on their businesses in terms of the number of properties they would be able to still rent, and profit made as properties would have to be cheaper to retain appeal. One host, who also depends on rental for income, reflected that he would have to close his property until water is returned.

One host foresaw this occurrence in an optimistic light, stating that rain would occur before 'Day Zero' occurred. She further explained that tourists coming in peak season will not be allowed to waste water stating:

"I think a great deal of the waste that would have happened it's just simply not going to be happening...honestly I cannot imagine anybody coming from upcountry or overseas and just letting water run. I don't see any Capetonian allowing that" (TS, 21 November 2017)

5.9 Changing Relations Within and Outside the Platform Space

Along with changes to the platform as a result of the water crisis, relationships within and around the platform have also changed. The researcher was invited to an Airbnb Water Management and Security meeting on 16 November 2017. Airbnb, in partnership with the City of Cape Town, organised an event in which hosts could be informed about plans for the potential 'Day Zero' event and share ideas about water-saving tips, particularly for the anticipated peak tourism season. In addition, Cape Town

Tourism presented marketing strategies around increasing tourism and visitor safety. This partnership has changed since the inception of Airbnb in Cape Town and has been driven in large part by the drought.

Aspects of the new partnership between Airbnb and the City of Cape Town were seen to be beneficial for sharing information, with one host stating it was a “Very clever business move” (RM, 21 November 2017). Another host commented that it was a great way to share information and support hosts stating she had not seen Booking.com arranging similar meetings and that this is one way Airbnb will be able to sustain itself. One manager was grateful to Airbnb for inviting managers and felt this meeting was more a strategy to creatively share information around saving water and the complexities around interacting with guests in the drought rather than to propose implementing solutions, in which he stated, “It’s not necessarily Airbnb’s job to mitigate or fully control the water crisis.” (MG, 15 November 2017).

The timing of invited meetings for Airbnb hosts relative to the progression of the drought appeared to discourage hosts and managers. Hosts who have been operating Airbnbs for three years stated this was the first invitation to a meeting while one host interviewed claimed she did not receive an invitation to the aforementioned meeting. She described the relationship of Airbnb to the City and the gap that could be filled by Airbnb stating:

“I haven’t found that the City has done anything to support any hosts. You know I haven’t received any invitation to a meeting or

a chat or a debate on how we as a team can ensure that no water is wasted. I think there is a gap that can still be filled. I personally think that Airbnb's, Airbnb hosts are far better collaborators with the City Council, we're far closer to our clients, far more direct control that we have over water usage than hotels and large guest houses have, they I really think so, I think if the City needs help in saving water in the tourist season, it's the Airbnb hosts who are their closest allies... if anybody is going to convey the message of Save Save Save, it'll be us." (TS, 21 November 2017)

Complaints were raised by hosts at the meeting regarding action by the City of Cape Town, with one host explaining that the City has infrequently sent out notices of the water crisis and to rate payers only. In addition, two hosts felt anger towards the inaction by the City around drought planning, where one host yelled:

"They've been warned about it for 10/20 years by the way... some guy actually told parliament 10 years ago, Cape Town is a ticking bomb with water...there's going to be outrage, people are going to actually have civil war here. (And 10 years later?) Nothing nothing nothing!...so now they're starting STARTING!!... why were they not doing that 3 years ago?" (CC, 15 November 2017)

Respondents further discussed their relation to the City during the water crisis regarding their Airbnb operations. A manager described approaching council to ask for help as they worried about fines in her listings. The manager explained that total values work on an average of four to six people per day, where she has operated listings with up to 16 people. She seemed deflated as she explained, "I've had no confirmation from them or commitment at all as yet" (WC, 20 November 2017). A similar situation,

identified in the Airbnb Water Management and Security meeting, was experienced by another host who operated a listing in an apartment block. One host who has regularly interacted with council described the process as “Inefficient” and exclaimed “I know how impossible it is to get things through land use” (RM, 21 November 2017). This discussion may have been due to the recent announcement, at the time, by the City regarding obtaining zoning permission to operate Airbnbs in apartment buildings (Nkanjeni, 2017a).

5.9.1 New Alliances and Information Sharing

The water crisis has created new alliances between Airbnb hosts and increased information sharing. On the one hand, particular respondents indicated that they rarely, if ever, associated with other Airbnb hosts. On the other hand, three hosts revealed they communicate with other hosts via social media and WhatsApp to ask questions particularly regarding interacting with guests. In addition, one host claimed most hosts brag about the reduction of water use achieved in their listings. Information sharing has increased to the extent that one host views another as a mentor. She further explained:

“On the Airbnb’s host group, a lot of people are talking about water saving and sharing tips and asking questions, and what I think is unique about Airbnb is we do have a control over that which is harder to gain in a hotel, because I can tell my guests, I can make them do things.” (RM, 21 November 2017)

In addition, at the Airbnb Water Management and Security meeting, a hosting couple was observed approaching other hosts to promote a water-

saving device and a potential partnership in their business that would take the form of 'pop' up stores.

5.9.2 Employee Interaction and the Water Crisis

Hosts interviewed stated no employees had been retrenched as a result of the drought. However, hosts discussed retrenchment of their employees as a potential negative effect of the predicted 'Day Zero' event. As mentioned, five respondents stated that the water situation was discussed with domestic helpers and cleaners, where initiative with using collected water and clean water for varied purposes had been taken. One of the respondents felt she needed to explain the water crisis, after the realisation that her helper did not know about water restrictions due to her living within an informal settlement. However, she explicitly stated that affluent areas are the large water consumers but that individuals in these settlements do not receive information about the drought. One particular host felt that she needed to retrain her cleaning team in order to better inform them about the water crisis but also to set a good example of water saving for guests. She explained:

"I decided on Valentine's Day that I would cook them a lunch...And they were ready to start, and I said but no you can't start yet, and they looked at me and I said no...because I'm now going to strain the peas, so you can't start it's not finished yet. So, I brought the pot and the strainer, and I strained the peas over the pot plants next to the dining room table. And I said now you see. No more water will ever go down the drain in this house. So, they had a plate of food and they were waiting for the peas, and I strained the peas in front of them over the pot plants and I said that's the standard...So, the point was to actually train them

properly so that they could take the message home. And so also, they could support my guests by demonstration.” (DA, 18 November 2017).

5.9.3 New Water Crisis Relations with Guests

Interviews revealed the changing relationships between hosts and guests due to the personal nature of the platform as well as the water crisis. New intimacies were identified in the subtle monitoring of guests by hosts, in which the duration of showers and towel use were monitored during guest stay. During a tour the researcher was taken on of an occupied listing on her property, a host expressed concern stating:

“They’ve not used the towels...I sent them up Lions Head this morning, I don’t think they’ve showered since they got here. The towels are unused. One hand towel has been used, but no bath towels ... But maybe they have only spot washed. But that can’t be very comfortable for them and that’s not what I described at all. So, I’m going to have to address that this evening you know... I will write to them on Airbnb, to say please that’s not what I described, and I do hope that you’ve been able to feel fresh. So, but word it in a very very nice way. I’m now a little bit concerned about it because they are possibly taking it to the extreme which is um not necessary. I won’t wash for 3 days so they can wash.” (DA, 18 November 2017).

Besides the monitoring of guests, other intimacies of hosts sharing bathrooms with shared shower bucket collection and ‘if it is yellow let it mellow’ practices were revealed.

However, these intimacies also revealed challenges in discussing water-saving techniques and use of water with guests. Hosts were concerned

about how to discuss these sensitive topics together with how strict they needed to be within their own spaces in maintaining low water usage. Two respondents reflected on their experience and felt in interacting with guests, they could not be draconian in their water-saving practices, with a manager explaining:

“Someone’s coming here, they’ve paid their hard-earned money to have a holiday, I don’t think it would feel very good to police them. We’ve had owners suggest... taking water readings before and after, and kind of monitoring it. I’ve advised against it if I’m honest because that again I think it feels a little bit draconian.”
(MG, 15 November 2017)

A host further explained:

I can’t force it upon them. You know I just don’t feel that I could be draconian about it...how do you do that if you if you’ve got a really, what do you do? Do you start getting angry with them and saying, ‘look here guys you know you haven’t harvested any water, I’ve heard you for 5 minutes in the shower, should be 1, and you’ve put the water pressure full on’.” (CC, 15 November 2017)

Another host identified her increased comfort with speaking to guests over time and stated it was easier to make a request around switching off lights because of the personal relationship that often develops in her shared apartment. However, she noted she was still aware of challenges within the space such as requesting the toilet seat be kept down or sharing her personally collected spring water. Other hosts also reflected on their confidence to request saving water as it has stemmed from necessity to

save but acknowledged that only one or two requests should be made so as not to nag and thus deter guests.

Apart from the water crisis, guests were seen to interact personally with hosts, often resulting in private repeat bookings, bypassing the Airbnb platform. Two hosts explained they reduce their prices for guests who have become friends. Hosts were not only seen to share their spaces but also their lives with hosts taking guests to areas of interest around Cape Town such as the Silo District⁹ as well as personal sites such as church and adoption agencies. The relationships formed are also reciprocal in nature as guests cooked native recipes for hosts and in one instance, walked the hosts dogs daily. Referring to these interactions, one hosts stated, “They become friends really quickly and they leave as family” (DA, 18 November 2017).

5.9.4 Embodiment of Water Savings

Hosts were seen to embody particular changes produced by the water crisis. In addition to a previously mentioned example of a host who alters her clothing to fit her guests’ laundry, other embodiments were seen in the form of hosts cutting hair to reduce washing and bathing in natural spring water to avoid bathing at home. One host described his manager limiting toilet paper rations in his listing. Another particular host had taken to regulating her own bathing in which she explained:

⁹ The Silo District is located at the V&A Waterfront built from old grain silos from the 1920s where tourists are able to enjoy, art, food, and shopping (Cape Town Tourism, 2018).

“I don’t actually shower... when I have guests, because I am so conscious of... I give them the water.” (DA, 18 November 2017)

These practices may to some extent be for the benefit of guests, but they are also seen to be practiced out of necessity as Capetonians who are fearful of fines and the unknown amount of water resources available to them in future.

5.10 Conclusion

Data revealed there is limited advertised warning about the water crisis amongst hosts online. By contrast, hosts exhibited extreme concern in one-on-one interviews. The advertising of electrical appliances and amenities are used as points of distinction in the marketability of Airbnb listings however, there is a lack of consideration around the indirect water use in the production of increased electricity use. This too is contested as few hosts online and in-person are concerned about electricity usage. Airbnb hosts are extremely concerned about the drought and believe future drought events will occur due to climate change where majority agree their Airbnbs will be impacted by this. Green adaptations were considered effective in reducing consumption and are cost effective to implement. Guests were not deterred in their travels by the drought with both hosts, guests and managers aiding to reduce consumption and adapt to the water crisis. Hosts were also seen to not only be reflective about their water consumption but also their interactions with guests, highlighting easy intimacies and challenges around discussing sensitive topics. In addition, the drought has fuelled new alliances of information sharing between hosts, Airbnb and the

City of Cape Town. Although data obtained only provides an insight into Airbnb hosts perceptions and practices in a moment of the drought, it does highlight concern by multiple parties and collective action by hosts, who feel in these particular roles they can provide guidance to fellow citizens and tourists in their water-consuming practices.

CHAPTER 6 DISCUSSION

6.1 Introduction

This study aimed to understand the way in which Airbnb spaces shaped practices and perceptions of resource consumption in the context of drought-impacted Cape Town. It further sought to understand the relationship between the sharing economy and sustainability, particularly in a water scarce context where sustainable resource use is urgent. This chapter interprets and critically evaluates the core findings of importance to the research and evaluates their significance with regards to literature.

The following section reflects on the triangulation of data collected. Further reflection is then provided on the quantity and quality of the data obtained, identifying challenges of positionality and personality that impacted these. Subsequently, the research questions around Airbnb spaces and the forms of practices and perceptions that have developed within the water crisis are discussed. This is followed by an evaluation around the changing identity of the Airbnb platform as well as the extent to which the sharing economy has become shared in the event of the water crisis. Finally, limitations experienced in the pursuit of this research project are outlined.

6.2 Reflections on Triangulation, Positionality and Personality

Upon reflection on the research process and data collection, data was shaped by the extent of participation, positionality and personality. Based on these observations, challenges of unequal access to interviews and

discussions around positionality, virtual-material positionality and personality regarding research participants were identified.

6.2.1 Triangulation of Results

This section considers the work that connecting multiple methods does in identifying the productivity of using each of these methods together. Participation by participants across methods of data collection was uneven. Three participants provided data through all three methods: interviews, UPA and questionnaires. Four participants provided information through interviews and UPA and seven had only taken part in interviews and completed questionnaires. Approximately four participants provided information through UPA and questionnaires, however it is unknown whether more hosts had completed the questionnaire and identified within UPA (Figure 6.1). Through identifying the number of participants obtained for each method, it indicates the practicality of using these methods separately and together. It can be interpreted that providing questionnaires within interviews may yield higher acceptance.

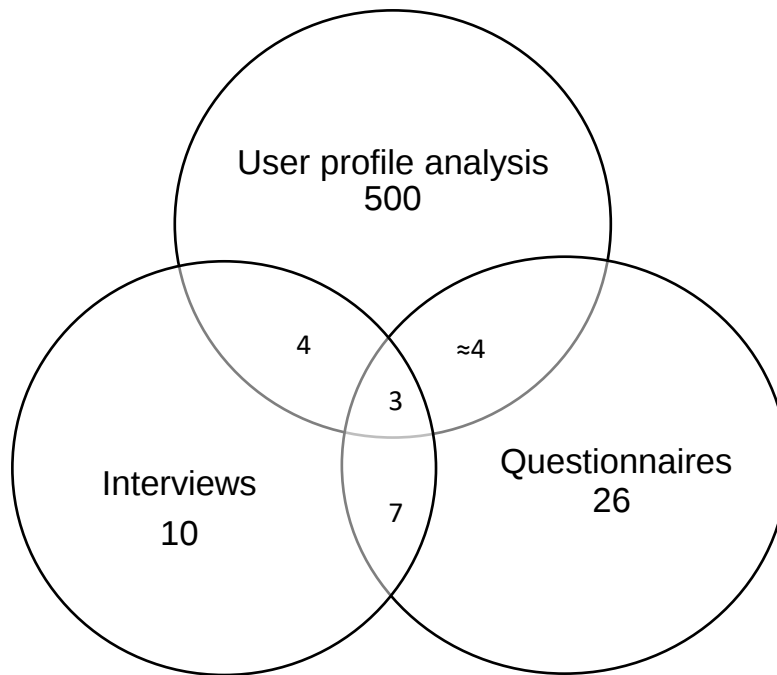


Figure 6.1: Venn diagram indicating the overlap of participants choosing to take part in the research through UPA, questionnaires and interviews.

UPA was effective as it allowed a large amount of data to be mined for a specific sample area (City Bowl) in Cape Town. However, Lazer *et al.* (2014) raise the concern that single analysis of large data sets cannot substitute other forms of traditional ‘small data’ collection, as it can often lead to a misrepresentation of the real world. When compared to the output of the questionnaire data, the difference was notable. The quantity of questionnaire responses received was below expectation; although it had been made available to hosts for an extended period of time. Similarly, the sample size of interviewed Airbnb hosts was also limited, as the majority of hosts who were contacted through a process of snowball sampling were not willing to be interviewed.

Reflection upon data quality revealed inconsistencies between the different methods. Within UPA, images were found not to match descriptions. For example, in one profile a bath was labelled as a Jacuzzi tub. Questionnaire data also saw certain hosts neglecting to fill in all fields provided, resulting in incomplete questionnaires. By contrast, three interviewed hosts had provided extra written information about available and restricted amenities as well as their concerns about the drought. In addition, two participants known to have participated in UPA and interviews, maintained user profiles with no warnings about the drought or electricity concerns; although they had explicitly stated concerns regarding water scarcity in interviews conducted.

Reflecting upon the three datasets highlighted the unreliability of utilizing separate methods therefore results were triangulated. The data collected for each method are not representative of the Airbnb population due to two of the three methods containing too few participants. The inconsistencies found in the various methods also highlights the discretion of hosts to disclose information through different mediums. Through triangulation of results, all three methods contribute to a richer image of Airbnb host water use during the drought. However, as all methods produced imperfect data, conclusions about the overall water use of Airbnb cannot be made.

6.2.2 Online and Virtual-Material Positionality

Positionality is “The notion that personal values, views and location in time and space influence how one understands the world” where these positions “act on the knowledge a person has about things, both material and abstract. Consequently, knowledge is the product of a specific position that reflects particular places and spaces” (Sánchez, 2010: 2257). It is these subjective contextual spaces that the researcher needs to be aware of in addition to their own (Rose, 1997; Sánchez, 2010). Positionality aids in the contextualisation of observations and interpretations (Cloke *et al.*, 2000). As compared to positionality, online positionality is more complex as researchers must consider spaces that change and contain user-generated information from varied contexts, where this information is also interacted with by people in other contexts. In addition, Ruths and Pfeffer (2014) highlight that in examining large data sets, particularly in an online setting, it is imperative to consider the characteristics of the platform as well as potential biases such as the types of people that use the platform.

Questionnaires were distributed through social media to identify potential interview participants. This process was ineffective as hosts may not have wanted to take part in the study for various reasons including busy daily lives, not fully understanding the platform, privacy and historical occurrences with government surveys. Firstly, hosts are adjusting their practices within an ever-changing platform in the midst of a drought. This may be a consequence of the relatively recent introduction of the Airbnb platform to certain individuals, its persistent website changes and, as

described by hosts interviewed, the manner in which each individual often struggles and needs to strategize to start up and promote their Airbnb. Secondly, hosts may not have wanted to be further scrutinized as prior to the data collection period, Airbnb short-term rentals were blamed for property price increases in the city in which the City of Cape Town had run a city-wide survey to understand the impacts of Airbnbs (De Villiers, 2017).

Sultana (2007) highlights that the refusal by individuals to participate in research reveals the agency and exercising of power by potential participants. It is necessary to understand the mutual relationship in fieldwork processes, where obtaining participation by those researched is not the sole responsibility of the researcher but also the researched, particularly in places over studied (Sultana, 2007). In addition, Ward and Jones (1999) problematise the ideas around 'research situatedness' during the time research is pursued in what they term, 'political-temporal contingency'. Accessibility and positionality are influenced by the time a researcher enters the research context (Ward and Jones, 1999). As a new phenomenon in the Cape Town space, where numerous studies may have been initialised aiming to interact with Airbnb hosts, the lack of participation is better understood by the researcher as hosts may have felt bombarded by researchers and government aiming to understand its impacts on the city.

In analysing an online setting that is practiced materially through varied forms, the researcher must situate herself in between what is marketed online and how this is materialised in space. In turn this will determine what this means for researcher objectivity and an understanding of the context, in what Morrow *et al.* (2015) term virtual-material positionality. Informed by a feminist approach, virtual-material positionality challenges the notion of simply archiving online information, where researcher situatedness is questioned in the reciprocal nature between the virtual and material. Geographers Crang *et al.* (2007: 2406) aim to rethink this complex dichotomy with the explanation that “Online and offline interactions are constituted and constructed together to sustain and transform the complex temporalities and spatialities of everyday urban life”. In developing this concept further, Morrow *et al.* (2015) highlight it is the position of the researcher at points of connection between the virtual and material that need consideration.

Through situating oneself in such a manner, inconsistencies between what is portrayed online and how everyday life materialises can be examined. The information obtained as an anonymous webpage viewer produced the perception of very few hosts concerned about the drought (identified through UPA) and hosts who seemed slightly worried about the drought but more so on increasing occupancy (identified through social media). When approached directly by a geography student seeking information about the drought, in person, hosts were more forthcoming with their concerns and practices in the water crisis. Hosts that had provided information on their

user profiles that did not coincide with their true feelings toward the water crisis were doing so to portray a particular image of themselves and potentially the atmosphere in Cape Town. Hosts explaining their more active water-saving practices in person exhibited enthusiasm knowing the researcher came from a geographical field.

6.2.3 Personality

In combination with positionality, personality needs to be considered within research as it could impact the research process and data collected (Moser, 2008). Personality is a term most commonly used within the discipline of psychology and is theorised differently according to field and author (Ewen, 2003). One particular author defines personality as “The distinctive patterns of behaviour (including thoughts and emotions) that characterise each individual’s adaptation to situations of his or her life” (Mischel, 1986 in Moser, 2008: 387). Through sharing similar positionalities, where demographics of Airbnb hosts indicate majority are white and female, accessibility to interview participants should have increased (Moser, 2008); this is not to say however, that these are the only aspects that may have created favourable opportunity in accessing potential participants. Within the tourism literature, Hoogendoorn and Visser (2012) identify challenges of positionality in second-home research where personality required further attention in addressing interviewee interactions. In addition, the personality of the researcher may prohibit, or aid challenges experienced in the research (Hoogendoorn and Visser, 2012). In this research it could be seen to aid in access to an extent.

Although accessibility to hosts was challenging, interviews were secured through snowball sampling which was aided by personal contacts of the researcher, social skills and personality. Throughout this process, hesitation towards interviews developed into confidence as assistance from already interviewed hosts regarding potential participant contacts was requested. As a result, the researcher secured interviews towards the end of fieldwork with one manager and three hosts. In addition, six female hosts and one male manager seemed more willing to speak about Airbnb in the drought with prolonged interviews where rapport was established. Rapport is defined as a connection of mutual understanding between researcher and a potential participant (Corbetta, 2003). Enthusiasm by respondents was in response to the enthusiasm of the researcher in learning about resource consumption during the water crisis in Cape Town. This increased interest in the research project, although possibly prompted by particular personality traits, could be more an alignment in environmental morals or due to response by a collective concern for drought in Cape Town where these beliefs create similar positionalities from which to interact (Berger, 2015).

Berger (2015) however, highlights there is a danger in sharing similar experiences with those researched as the relationship that is formed between researcher and participant can impact the reliability of data. For example, the researcher needs to reflect on the extreme truths of water practices shared by hosts as certain information, such as only bathing in spring water or not bathing at all, could have been exaggerated. Mullings (1999) draws attention to positional spaces that are influenced by self-

representation where the insider or outsider status of a researcher is subjective to varied contexts and therefore impact information collected.

By contrast, online personality of the researcher could not be gauged in the attempt to secure interviews online and distribute questionnaires. It was determined that exclusive and closed group sites on Twitter and Facebook looked through profile information for particular criteria in order to determine whether one would be a suitable candidate for the group. One criterion was that members would have to live in Cape Town. The researcher could not ethically change this information on the social media sites used. Interestingly, it became apparent that even though during UPA the researcher aimed to identify the manner in which Airbnb hosts marketed themselves online, in actuality, the researcher needed to be marketed in such way that would allow access to these closed groups. More so, personality traits through online posts needed to be portrayed in a particular manner to increase access to sites as a researcher.

In line with the aforementioned distinctive emotions and thoughts that form part of a personality (Moser, 2008), Wilkinson (2016) suggests considering the toll research has on the personality of the researcher. With the challenges of accessing hosts, in a foreign city and with an anxious character, it is clear that the quality of certain data collected was impacted. In the anxious state of interviewing two male hosts over the phone, neither male hosts could gauge the intentions of the researcher and the quality of each interview reflected such. As a result, basic information about their

Airbnbs and the water crisis were collected. Similarly, in an interview with a white female manager, first encountered at the Airbnb Water Management and Security meeting, anxiety of the researcher gave rise to little rapport, resulting in a concise interview. With more time to get to know hosts and receiving invitations into their homes, the majority of hosts interviewed provided long, informative interviews by choice. Similar experiences have been found in psychology, broader social sciences and information systems research where the researchers personality influences the degree of openness of the interviewee (Myers and Newman, 2007; Moser, 2008; Du Toit, 2013).

6.3 Altered Practices: Then and Now

6.3.1 Historical Water Practices

With the research questioning the current and changed practices that have arisen due to the drought, both historical practices and new practices were identified. The only sense of historical practices was found predominately through interview data. Four interviewees provided brief insight into their past experiences with drought in South Africa where these practices have since been reflected upon and adapted to present water savings. One host who exhibited extreme water-saving behaviour in the present was exceedingly conscious of water saving as this was required of her 10 years prior in Camps Bay. Less extreme, but also historically shaped, were the practices of a host who experienced severe drought 22 years prior in Durban. The host exhibited a greater understanding of saving within a

drought and what could be expected of guests in the space. Although still concerned, approaches to guest water-saving practices seemed more methodological and practiced compared to hosts who seemed more frantic about guests and water restrictions.

Hurlimann (2011), having performed a study based on a 12-year drought in Victoria, Australia, determined that through drought events, government and communities' water-saving initiatives led to changes in water use culture. Obioha (2018) examined the management practices of coping with drought in Lesotho, where as a result of consistent drought in the region, farmers and communities had effectively developed and adapted to drought events using local knowledge-based practices. Obioha (2018) also argues that these local knowledge systems are robust in that they are historically based and tested, thus raising the trust and confidence by local communities in these practices.

The drought experiences mentioned by these two hosts refer to severe drought periods, lasting for over two years in the 1990s and mid-2000s (Vogel *et al.*, 2010). The drought of the 1990s has become a 'benchmark drought period' as it demonstrated that drought policy contained significant weaknesses in the ability of government structures to respond timeously. Drought policy however, did aid in re-orienting focus onto previously marginalised people (Baudoin *et al.*, 2017). Analyses of drought policy responses have referred to its reactive nature rather than proactive strategies to mitigate drought impact (Vogel *et al.*, 2010; Wilhite *et al.*,

2014). The Cape Town drought could be seen to engage with reactive strategies in the form of 'behavioural nudges', physical interventions to water restrictions, increased water tariffs and extensive communication campaigns that were implemented whilst the drought was in effect rather than prior (Brick *et al.*, 2018; Köhlin *et al.*, 2018). In addition, although Booysen *et al.* (2018) feel 'fear mongering' in the form of media scare tactics was effective in changing water use behaviour; the effective saving behaviour is also influenced by historical experiences with drought as demonstrated by the two hosts experiencing two distinct historical drought periods.

6.3.2 Contemporary Practices

6.3.2.1 Uneven Water Crisis Warnings

The extent to which Airbnb hosts forewarned their guests about the drought and water restrictions differed in both quantity and quality across the three methods. UPA contained the least amount of information as compared to other methods pursued. This is despite the large amount of data collected for UPA, compared to questionnaires and interviews. Both questionnaire and interview respondents indicated that all guests were forewarned. It could not be discerned whether a warning was issued through personal contact when enquiring about listing availability.

Forewarnings did not show much range in questionnaires, whereas in UPA and interview responses, forewarnings ranged from gentle reminders about the drought to relatively more hysterical and threatening warnings. Like a

comparative analysis of three platforms, Xiang *et al.* (2017) found discrepancies in terms of representation of hotel product, where this study found discrepancies in representation of the drought amongst Airbnb host listings. Through online representation, Cape Town may appear not to be experiencing a drought as severe as in reality. This is to say that even within one platform, the representation of a destination image can be unevenly constructed.

Hallmann *et al.* (2015: 95) consider destination image to be created from the perceptions of the tourist or tourism businesses characteristics that comprise the destination and it is particularly crucial in the “Description, promotion, amalgamation and delivery of the destination’s product distribution”. Hallmann *et al.* (2015) further stipulate that the image of a destination is multidimensional and complex. The destination image of Cape Town is shaped by multiple factors such as weather or climate, value for money, scenery, tourist attractions and hospitality, to name a few, that will impact on whether the destination is seen negatively or positively and thus determine tourist visitation (Prayag, 2010).

Destination image could be seen to be potentially affected both positively and negatively by two guest reviews identified in UPA. One guest positively stated that they “Love the idea of smart water use” whilst another highlighted:

“Only problem was the lack of hot water. It took forever to get lukewarm. Not ideal for a city experiencing water shortage.”

All other guest reviews were aimed at the property and experiences available. The comments were similar in positive review style with very few reviews indicating displeasure. Fradkin *et al.* (2015) and Bridges and Vásquez (2018) identify that positivity bias in reviews is due to multiple factors including Airbnb guests maintaining lowered expectations of Airbnb compared to large hotel brands. In addition, Airbnb maintains a reciprocal reviewing system where reviews of both guests and host are released at the same time to avoid retaliation of reviews and the expectation of positive reviews from both parties, due to the personal nature of Airbnb (Bridges and Vásquez, 2018). Therefore, guest reviews regarding the water crisis would have very little if no effect on the destination image of Cape Town during the drought. Similar results were found by Fitchett and Hoogendoorn (2018b) who, using TripAdvisor commentary for the period 2012-2016, identified that drought was predominately mentioned for St Lucia, KwaZulu Natal, and was not among commonly mentioned climatic factors (such as hot conditions) for Cape Town.

Furthermore, minimal information about the drought was provided by Airbnb hosts on user profiles. Aarsal *et al.* (2010) identify that residents have an influence on travel decisions, particularly with regards to restaurant experiences, safety within the destination; where experienced travellers were influential in accommodation, transport and monetary issues. However, in this study, the lack of forewarning by hosts also influences travel accommodation decisions by indicating the limited threat of the drought. Similarly, a case study on TripAdvisor highlighted that online

communities have a strong influence on image and marketing of hotels and therefore consumer behaviour (Miguéns *et al.*, 2008). Thus, the collective lack of forewarning may create a favourable destination image where the water crisis is observed to be of little concern as opposed to the concern publicised by international, local media or word of mouth. Other forms of warning, such as *Live Like a Local*, campaign posters in Cape Town International Airport and billboard signs may signify a more threatening water crisis experience. However, as noted from interviewed hosts and highlighted by Airbnb Cape Town Market Manager, an email was sent to all guests a week prior to arrival to remind guests about the severity of the drought and related expectations (Greyling, 2017). Thus, although potential wariness is expected of guests who see the effects of the drought in reality, due to joint efforts by Airbnb and hosts, expectations are managed.

6.3.2.2 Archetypal Roles

Current practice of Airbnb hosts identified multiple potential host archetypes that may develop as a result of the water crisis. Across UPA, questionnaires and interviews, individual host approaches were identified through their respective comments on the water crisis. In psychology, Jung and Eliade theorised the notion of the archetype to understand religious behaviour patterns (Meadow, 1992). In contemporary times, the notion of archetype has been implemented by the Australian government to comprehend the heterogeneity amongst the population to appropriately address social policy needs (Berry *et al.*, 2008). Archetypal roles were developed with respect to the responses by Airbnb hosts to the drought. Hosts were characterised as

1) The water savers 2) Water ambassadors 3) The inventors 4) Managers and 5) Hands-off business hosts (Table 6.1).

Table 6.1: Archetype roles taken on by hosts and managers in the period of study of the water crisis.

Role	Characteristics
The water savers	Aim to save water but do not want to be draconian. Some water allowed down the drain Use of fresh water to clean Do not believe guests have to be extreme in their water practices Cannot dictate what tourists can and cannot do on their holiday
Water ambassadors	Extreme water savers No water allowed down the drain Term themselves 'Water Nazi'¹⁰/ 'Water warriors' To an extent avoid bathing so guests can utilise water Aim to educate tourists and the general public about water-saving practices
The inventors	Aim to save as much water as possible with limited resources Create innovative cost-effective methods to save water Changed household infrastructure for long-term cost-effective saving
Managers ¹¹	Aim to create 'the host experience' Owners of listings are concerned about drought that filters to their water-saving practices in the space Operate with teams of people over multiple properties Aim to educate guest about the water crisis
Hands-off business hosts	Use managers Do not stay with guests in their listing Do not know how guests interact with water in their listings. Motivation for Airbnb use is for an income or supplemental income

¹⁰ This particular word has previously been identified as problematic. It is included here as a verbatim quote from a respondent, and to reveal the extreme nature of individual hosts.

¹¹ This archetype role excludes Airbnb hosts who manage on behalf of other hosts.

The roles played, and archetypes hosts fit into demonstrate the extent and range of concern about the water crisis and the prioritization of hosts. This can be seen in one host, who although requires Airbnb for income, chooses to prioritise water saving through extreme practices and guidance for guests. In contrast, one host who is not located on the Airbnb property or within Cape Town, demonstrated little concern as he felt his listing manager had effectively taken control of the household in terms of water saving. In addition, this host merely pays for water through direct debit and does not evaluate the water use of the listing. The multiple roles taken up by hosts also highlights the varied adaptations that have been made as tourism operators to provide services in this new tourism context of water crisis in Cape Town (Scott and Lemieux, 2010).

6.3.2.3 Appliance and Amenity Use

Appliances and amenity availability in Airbnb listings were examined to determine the potential for resource use. Potential resource use was examined through the number of appliances and amenities advertised for use within listing profiles, to estimate potential water consumption in Airbnb-inhabited suburbs in particular time periods, such as peak tourism season. UPA and questionnaires revealed a vast number of appliances and amenities available for use in Airbnb listings. Questionnaire structure asked for available and restricted appliances, where UPA had noted whether certain appliances were restricted. Interview data did not identify any specific mention of appliance use; however, two hosts did mention that guests needed to be compensated for the inconvenience of restricted water

use during the water crisis. Michalkó *et al.* (2015) highlight that atypical weather conditions may result in a failure of expectations of tourists resulting in disappointment in travel experience. Michalkó *et al.* (2015) claim that to avoid such disappointment, indirect compensation must be applied but stemming from regional or institutional collaboration. The study highlights that motivation to compensate the guest experience stems from the individual host rather than Airbnb Cape Town or managing firms, whose priority could be seen to inform potential guests rather than provide compensation. Compensation only came in the form of providing hosts with water-saving shower heads.

6.3.2.4 Innovative Adaption Strategies

The inventor archetype previously mentioned reveals initiative to save water, but also a perceived deficit in governmental action. The characteristics of innovation, learning, collective learning and creativity together with the ability to test and experiment with adaptations are highlighted to increase adaptive capacity regarding climate change (Adger, 2003; Folke *et al.*, 2005; Pahl-Wostl, 2007; Armitage *et al.*, 2008; Mawdsley *et al.*, 2009; Marshall *et al.*, 2011). Hosts were seen to be able to increase their adaptive capacity in dealing with drought impacts through implementing creative solutions to collect water. Innovation and creativity took varied forms as hosts used dustbins and plastic cylinders to direct water from gutters; used a plastic toy to help water users reflect on their total water use during showers and created partnerships with other hosts to promote self-invented water-saving devices. The reinvention of the

campaign by the City of Cape Town, *Live Like a Local* to the *New Cape Town Adventure* also reveals creativity on the part of hosts. The testability of these adaptations was identified through hosts reflecting on water use totals and monetary values from the water sections of their rates and taxes bill. During the drought hosts are seen to increase their individual adaptive capacity, as a minimal contributor to the overall population (Airbnb hosts). As stated by Köhlin *et al.* (2018) and Visser and Brühl (2018) the water use of the City of Cape Town, has been halved within the three-year drought. This can be interpreted in the context of this study as revealing Airbnb hosts contribution as middle to upper class residents in reducing water consumption. More so, although interviewed respondents highlighted the perceived late and limited response by the City, the adaptive capacity of the city to drought in terms of resident water usage maybe tentatively argued to have slightly increased.

The archetype of the inventor may feel it is their duty to aid water saving for the greater good of Cape Town, although the necessity of hosts to increase their adaptive capacity in varied forms also points to a deficit of action by the City of Cape Town. This was demonstrated by two hosts who expressed their frustration at the lack of action by the City even though they had been forewarned about this crisis event 10 years prior. Baudoin *et al.* (2017) argue that climate research information on ENSO (El Niño-Southern Oscillation) conditions should provide government with ample warning to combat known drought effects, yet Sousa *et al.* (2018) argue that this particular drought was driven by shifts in the westerlies.

In talking to the practices of government in managing climate change impacts, Bramwell and Lane (2010) explain that government intervention is still required and must work with already creative strategies and 'take the lead' if climate change and sustainable tourism are to be properly addressed. The creative strategies stated, stem from potential forms of self-regulation of the tourism sector. Self-regulation involves social responsibility initiatives and voluntary conduct where interest is self-driven with a general lack of concern for public well-being (Bramwell and Lane, 2010). In this research, however, Airbnb hosts are seen to voluntarily save water beyond what is required by government, both for financial self-interest and for public good. In the context of Cape Town however, Frey and George (2010) identify a general lack of support by government, particularly towards responsible tourism initiatives. In addition, even with the new alliance between City of Cape Town and Airbnb, the exact support provided directly to Airbnb hosts is unknown.

6.3.3 Conversations around Greening

Greening adaptations in Airbnb listings were examined to understand the contributions of the recent greening aims by Airbnb (Airbnb, 2017a). Greening is understood as proactive changes to a space through varied practices and components adopted to mitigate negative impacts through water and electricity usage, air quality and waste management (Jackson, 2010). The purpose of understanding these greening aims was to assist regulatory mechanisms for a sustainable transition of Airbnbs in Cape Town. Majority of hosts interviewed went into great depth to explain the

greening adaptations made within their Airbnb listings (for example installation of low-flow showerheads, rainwater harvesting, recycling of waste, LED lighting, solar installations and ceiling insulation). This could be what Marshall *et al.* (2011) identify as attitudinal behaviour change towards the environment in which, rather than tourists, 'tour operators' (Airbnb hosts) are aiming to align their environmental morals with potential future guests. This is emphasised in a comment by one interviewed host where she explained:

"I suppose on my webpage I do say that I'm vegetarian and the environment is a very important part of my life ...I have in the past drawn a lot of people who are interested in the same things. They like animals, they really care for nature, so I hope that most of the people who are drawn to me will have the same kind of ethos." (CC, 15 November 2017)

By contrast, it was found that few hosts had advertised green adaptations on their Airbnb listing profiles whilst majority of hosts that responded to questionnaires revealed that greening adaptations aided in reducing consumption of water and electricity and were cost effective (Figure 5.14). UPA hosts may have chosen not to list greening adaptations that really are available in what Font *et al.* (2017) refer to as 'greenhushing'. As opposed to 'greenwashing' which is argued to oversell, mislead and persuade sustainable practices, 'greenhushing' purposely withholds information regarding sustainability practices and adaptations employed in order to deter potential conflict between the environmental values held by operator and guest. Its purpose is to normalise green spaces and reveal an alternative to daily life without creating feelings of guilt in guests (Font *et al.*,

2017). The concept of 'greenhushing' also aligns with host choices to refrain from enforcing draconian water-saving practices in their listings where desired water saving from guests are being met regardless.

The extent to which green adaptations are advertised and described is questioned by the researcher regarding its impact on Airbnbs competitive advantage and costs benefits. Lee *et al.* (2010) explain that greening of hotels has been in effect since the emergence of green consumers in the 1990s, and a growing number of consumers are demanding to stay in green hotels where the implementation of green management can increase the competitive advantage of a hotel. In addition, Choe *et al.* (2011) identify that consumers reward socio-environmentally responsible firms through their willingness to pay for green services. Although the presence of green consumers is increasing, the costs towards creating a green establishment may be outweighed by its benefits. Graci and Dodds (2008) claim cost savings, customer retention and competitive advantage, amongst others, are benefits to environmental adaptation in hotels.

This study reveals that Airbnbs in Cape Town are incentivised to adapt green mechanisms through service to green consumers, financial gain through reduced consumption and are further incentivised to save through water restrictions and potential fines. Maintaining the image of a 'green' listing however, may not result in a competitive advantage compared to other host listings if perceived comfort or luxury of the listing decreases due to these changes (Baker *et al.*, 2014). In addition, the financial returns on

large adaptations do not guarantee increased guest occupancy, although it may be for personal benefit. Robinot and Giannelloni (2010) identify that hotel patrons view greening mechanisms in hotels as a common feature and warn against the promotion of green advertising as guest evaluation or perception may be disapproving resulting in dissatisfaction. This is of concern, particularly if greening adaptations become expensive, seen through one host who plans on re-piping gutter water into all toilets as an alternative to using municipal water.

6.4 Perceptions and Misperceptions of Resources

In aiming to understand how Airbnb spaces have shaped perceptions around resource consumption in the water crisis, it is pertinent to understand the perceptions that have developed regarding the value of water and indirect usage of water. Host and tourist perceptions together with resident practices also highlight the extent to which perceptions are shared in these spaces. In addition, wider understandings around the impacts of climate change on Airbnb listings and their practices are important in determining the potential behaviour of this platform regarding the future impacts of climate change. This research however can only speak directly to this one particular climatic event.

6.4.1 The Value of Water and ‘Other’ Resources

The value and use of water in Airbnb spaces reveals a new understanding of water consumption during the drought. Interviewed hosts reflected on the amount of water required in everyday practices and stated that water

restrictions of 87ℓ per person per day¹² were excessive for individual use. In addition, two interviewed hosts referenced the AfrikaBurn event in highlighting the incredible use of five litres of water per person per day. One host explained that she did not believe it was possible to only use five litres of water to bathe.

The value of water was also understood financially with interviewed hosts referring to a reduction of consumption in their water bills. Hosts operating listings in old apartment blocks however, are slightly disadvantaged as they do not receive water bills and therefore do not know the exact financial cost of their water use. This is not to say that a host in an apartment cannot judge the amount of water used as one respondent determined usage by observing the water collected in hand washing and shower collection buckets. Financial connections to water were also highlighted with the fear of expensive fines should water be wasted. Within Level 5 water restrictions at the time of study, the maximum domestic water use per property per month was 20,000ℓ where if exceeded, residents would be penalised with a fine in the region of R5,000.00-10,000.00 according to Water By-laws (Villette, 2017). The endeavours of Airbnb hosts to not only reduce water consumption and the totals on their water bills, signifies meaningful attitude change toward water, which Parguel *et al.* (2017) highlight is required if the sharing economy is to become more sustainable in terms of its indulgent

¹² The recommended water amount per day during the period of fieldwork. It was reduced to 50ℓ per person per day during Level 6b water restrictions two months later, in February 2018.

consumptive patterns. In contrast to themselves, hosts perceive locals to lack consciousness regarding water saving, where one host expressed that should 'Day Zero' occur resulting in the loss of international or national bookings, she would never accept bookings from locals for her Airbnb.

In addition, questionnaires revealed that while the majority of hosts believe water restrictions are necessary, alternative water sources were referenced such as 'fresh drinking water', aquifer and spring water. Hurilmann (2011) identified the use of alternative water sources within water restricted households in Victoria, Australia, in which motivation behind their use was encouraged by the government. These alternatives included rainwater tanks and use of diverted laundry water for gardening (Hurilmann, 2011). Gleick (1998) claims freshwater resources are renewable and can be used in a manner that will not impact long-term availability except in the cases of mismanagement of water sheds, over-pumping and contamination. The use of 'natural' alternative water sources by Airbnb hosts in this study is argued to encompass short-term planning as within a severe drought event, these 'natural' water sources can easily be exploited by the mass population.

6.4.1.1 Electrical Resource Use

An unexpected finding in the study was the concern for electricity usage. Although this research sought to investigate resource use, focus was predominantly on water consumption. Warnings to reduce electricity consumption were identified in UPA and interviews with hosts. Hosts and managers revealed concerns regarding electricity usage and aimed to

reduce consumption by installing LED light bulbs and turning off electricity intensive appliances such as underfloor heaters. Ek and Söderholm (2010) identify that energy saving practices are influenced by environmental concern as well as social interactions. South Africa has experienced extreme electrical uncertainty and rising electricity prices since 2008 with the introduction of 'load shedding' and as of 2016 faces threats of electricity shortages due to turmoil within the parastatal of Eskom (Sebitosi, and Pillay, 2008; Dentlinger, 2018; Goliger and McMillan, 2018). In addition, due to debt incurred by the parastatal, electricity prices are predicted to double by 2021 creating unaffordable electricity for all South Africans (Daniel, 2018a). The continued electricity saving behaviour may be prompted by concern for the environment with the presence of the drought but is more likely as a result of increasing electricity prices.

The demand for water in the production of electricity can often be forgotten in periods of drought (Fthenakis and Kim, 2010). South African electricity production is created through coal burning and requires water in the extraction, preparation of the coal, combustion in the power plant, dust and pollution control and in the disposal of coal combustion by-products (Wassung, 2010). The plethora of appliances listed in Airbnb profiles and the appliance and amenity options selected in the questionnaires, although possibly a form of compensation, identifies a misconception of the indirect water use found in the production to create and power those electrical products. Although interviewed hosts had spoken in depth about their water savings, the indirect use of water in the production of electricity was not

highlighted. Gössling *et al.* (2012b) highlight that indirect water requirements in tourism, in its food production, building materials and energy are not entirely understood and are suggested to be of greater concern than its direct water use. Therefore, increased water management is required, particularly in water scarce areas.

6.4.2 Perceptions of Climate and Climate Change

The impact of weather and climate on tourism have recently been explored in the context of climate change (Scott and Lemieux, 2010; Kaján and Saarinen, 2013; Hoogendoorn and Fitchett, 2018a). Scott and Lemieux (2010) argue that climate impacts selection of destination, the travel period and enjoyment of travels (Scott and Lemieux, 2010; Fitchett and Hoogendoorn, 2018a). In addition, extreme climatic events such as tropical cyclones, flooding, storms and heatwaves impact tourism infrastructure and deter tourists from travelling to these destinations (Scott and Lemieux, 2010; Fitchett *et al.*, 2016a). Of course, additional factors influence the choice of destination and enjoyment of a vacation, including but not limited to the political stability, crime, and the perception of a destination (Gössling *et al.*, 2006; 2012a). Giddy *et al.* (2017) identify that American tourists were not deterred by the climate when choosing to travel to South Africa, but that daily weather experiences did influence the outdoor activities that they could pursue. Fitchett and Hoogendoorn (2018b) similarly highlight a low percentage of TripAdvisor commentary regarding climate mentions for the South Coast of South Africa which is a favourable destination for outdoor activities.

Guest adaptations in this study reveal that Airbnb users are concerned about their contribution to the environment of a travel destination. While guests were not discouraged from travelling as a result of the water crisis, they were seen to be adaptive. Hosts identified that guests were informed and aimed to make minimal impact on the drought, with certain guests even boasting about the short duration of showers. In addition, certain guests had taken the initiative not to shower and one couple was identified to have bought their own buckets to place beneath gutters to aid in water collection. Marshall *et al.* (2011) similarly found that an environmental attitude shift had occurred in dive tourists. In contrast to the 'perception gap' of awareness of climate change and impacts between tourists and operators (Marshall *et al.*, 2011), this research revealed that hosts understand and appreciate the awareness of their guests concern for the drought and their impact towards it.

The difference between understanding a drought as a single climatic event and its larger role in climate change could not be discerned by the perceptions held by guests or hosts. UPA comments by hosts or guests did not indicate discussions of climate change or the drought event. One interviewed host linked the severe drought to climate change with others only referring to the drought or water crisis. The perceptions of climate change could only be identified through Likert scale statements. Within questionnaire responses, hosts are aware of climate change and believe that drought will occur more often as a result, where most believe it will have

an impact on the future of their Airbnb (Figure 5.12). It is interesting to note the disjuncture between the believed impacts of drought events and climate change amongst hosts using varied sources. Conversely, Saarinen *et al.* (2012) found that tourism operators in Botswana are aware of climate change but do not think it had a current effect on their operations. By contrast, tourism research investigating the perceptions of climate change in the Eastern Cape of South Africa, where the severity of climate change impacts differed between tourists and accommodation owners, due to the nature of the water crisis in Cape Town, both hosts and guests agreed with the severity of the water crisis and the effects should water not be saved (Hoogendoorn *et al.*, 2016).

6.5 Changing Identity of the Airbnb Platform

One main finding identified the drive to save water is not fuelled by guest presence but rather how hosts embody water practices themselves as Capetonians aiming to contribute to mitigating the water crisis. Water saving appears to be linked to their identity and understanding of themselves within Cape Town. This coincides with the argument made by Davidson and Infranca (2016) in which the sharing economy and information produced within it remain place-based. By contrast external factors have contributed to altering the identity of the Airbnb platform, including new alliances and oversubscription. A surprising finding in the duration of fieldwork was the new alliance formed between the City of Cape Town and Cape Town Airbnb. What is notable about the announcement of this new alliance was

its proximity to 'Day Zero' (then April of 2018). This timing of this partnership was as a strategic move by both parties as a way of increasing Airbnb morale and support in aiding water saving by tourists in the tourism season to come one month later. Prior to peak season in Cape Town, the tourism sector was in disarray regarding concerns of water use and cancellations by tourists with the City relying on this sector to increase water crisis awareness (Shezi, 2017; May, 2018).

Interviewed hosts also revealed that the Airbnb platform is changing due to oversubscription. The additional Airbnb listings becoming available with a lack of regulation mean Airbnb hosts have to become increasingly competitive to secure bookings. Oskam and Boswijk (2016) and Guttentag and Smith (2017) have described Airbnb as requiring the introduction and implementation of regulatory policies as it challenges traditional hospitality accommodation. Haripershad and Johnston (2017) however claim Airbnb has not disrupted the hospitality industry. Even so, a director within the City of Cape Town, stated in the Airbnb Water Management and Security meeting attended during fieldwork, that there has been a call for regulations (Greyling, 2017).

6.5.1 Use of Managers

The increasingly competitive nature of Airbnb has resulted in the creation and use of managing firms. UPA and interview data revealed the use or presence of Airbnb managerial companies with nine clear managers revealed through UPA. Questionnaires did not provide the space to highlight

the potential use of managers, as it was unforeseen by the researcher. Besides emerging companies, both UPA and interviews highlighted a dual nature of managing where hosts could maintain their positions as host or manage other Airbnb listings. The introduction of managing firms is relatively new but growing in the Airbnb platform.

Phua (2018) identified that Airbnb is being increasingly used by professionals such as home management agents. Cusumano (2015) highlights that traditional firms must compete with the sharing economy. Although he is referring to traditional tourism accommodation such as hotels, there is no consideration that the innovation in employment opportunities created within the various platforms can impact the competition between traditional and niche establishments. It is noted that traditional firms such as hotels are increasing their capacity within this competition with the use of applications (such as TripAdvisor) that are utilised to enhance reputation and advise tourist travel experience (Miguéns *et al.*, 2008; Lee *et al.*, 2011; Baka, 2016). There is little literature exploring the potential impact by managerial companies on Airbnb usage as well as its resource consumption.

Managers and managing firms highlight an entry of employment potential in the sharing economy. UPA also revealed multiple profiles operated by the same individual identified through profile information. However, it could not be inferred whether particular individuals were managers or actual property owners. Property owners may advertise multiple listings which has caused

consternation in the current Cape Town housing market (Kretzmann, 2017). Interviews described managers as being utilised for obtaining the 'Airbnb look', professional advancement; substituting for absent owners and managing on behalf of other hosts. Managing within the Airbnb space contains the dual character of being informal and formal. As tourist accommodation, Airbnb encapsulates both. For example, the drought has resulted in Airbnb managing firms utilising rental linen to protect owners of properties from excessive water use and to consistently provide clean professional looking linen. This may not however be prompted by the water crisis but rather as a form of profit maximization.

6.6 How Shared is the Sharing Economy?

The conversation around sharing in the following paragraphs is firstly concerned with the intimacies of sharing space, sharing of resources and practices (or lack thereof) as well as ideas shared within a household and community (online included). Secondly, the discussion shifts towards larger conversations around the benefits and costs of the sharing economy across a community or city.

6.6.1 Sharing at Household Scale

Providing insight into sharing at a household scale can shed light on the intimacies of various forms of sharing within the sharing economy. In addition, the drought and rising property prices (Daniel, 2018b; Property24, 2018) has brought into focus the extent of 'sharing' in the sharing economy. Within Airbnb households, the closeness of the host-guest relationship has

become even more blurred within the context of the drought in Cape Town. This is due to the lack of privacy afforded to guests when monitored for water use by hosts that are located on the same property. Although ethically questionable, it provides an effective monitoring tool as one host described having to intervene when she learned guests were not showering. Hosts explained that close interactions enabled them to better appeal to the human nature of the guests to save water. The Airbnb space in most cases allowed for open conversations about resource consumption and its challenges. Examples could be seen in guests expressing their experiences of water saving in other contexts as well as providing their reflections on the amount of water they consume.

The sharing between host and guest was also identified to extend beyond the drought. Interview and UPA data revealed the close relationship that develops between host and guest where as a result, hosts indicated that guests often choose to book the same property through personal contact rather than through the Airbnb website. Decisions by guests to book privately rather than through the platform has not been identified in the literature. Conversations around this increasing phenomenon were found on the Airbnb community discussion portal where hosts in Canada, Florida and the United Kingdom complained that guests had provided lower ratings as a result of refusing to book the accommodation privately (Airbnb, 2017b). In addition, Phua (2018) identifies in non-area specific contexts that there has been a decrease in trust towards the platform based on accommodation

experiences. Private bookings seem to be unique in Cape Town where the future of Airbnb use in the city may diminish due to private referrals.

Other forms of sharing were identified between hosts and their employees in the household, in the form of knowledge sharing. Interviews revealed hosts who would attempt to understand the water context their employees came from, predominantly peripheral and under-resourced neighbourhoods. However, these forms of sharing were not always mutually reciprocal or non-hierarchical. One respondent was of the understanding that water restrictions are not implemented in township areas, and hence employees needed to be retrained to save water in the context of the drought. This demonstrates a dismissal of alternative experiences and local knowledge and creates a sense of divide between what is experienced in middle class areas versus low-income areas where a lack of water is the norm and adaptations to this have been perpetuated prior to the drought.

The training of staff to be more environmentally conscious has been identified and implemented in the technological industry (Perron *et al.*, 2006) and the hotel industry, where it is claimed not only to improve sustainable operational practices and hotel image but also increase employee skills and environmental knowledge (Tesone, 2004; Chan *et al.*, 2014; Alonso-Almeida *et al.*, 2017). On a local scale, Hoogendoorn *et al.* (2015) examined guest houses in Gauteng and KwaZulu-Natal where staff were seen to be trained in thinking and practicing environmental friendliness in these spaces. However, in the context of South Africa with deep hierarchical and

racialised employee-employer relations and consumption within the household, such 'environmental training' fits uneasily in a long history of paternalism (Cock, 1980; Archer, 2011).

6.6.2 Sharing at Multiple Scales

Moving beyond the household, hosts were seen to share information between other hosts on social media sites and in-person. Popular conversation topics included seeking advice for managing guests during the water crisis and sharing water-saving strategies. At a larger scale hosts seemed uncomfortable sharing information with local municipalities and councils for fear of financial prosecution. This is due to Airbnb rentals being considered prohibited in complexes or flats, where consent is required by the development management department of the City (Nkanjeni, 2017a). One host at the Airbnb Water Management and Security meeting used the opportunity to ask for assistance in addressing the unlawful use of apartments and getting property rental approved through council, as requests had gone unassisted. In a smaller sense, one host living in an apartment block was also uneasy about trustees knowing she lists her apartment on Airbnb. This is because she identified that the platform is taboo in her area and does not want fellow residents to become critical of the platform in terms of its operational aspects. This lack of sharing has already been seen in cities such as Amsterdam, Barcelona and New York, where municipalities stringently regulate home sharing platforms (Frenken and Schor, 2017).

At a larger scale, sharing resources with the other inhabitants of the city is less known. Hosts within the Airbnb Water Management and Security meeting had requested help from Airbnb and the City of Cape Town in supporting collective engagement with the City to gauge the reaction of residents to Airbnb. Assisted collective engagement is required as there is unease between hosts accusing residents of water wastage and residents blaming Airbnb hosts for the property price surge (Collins, 2017a). It was suggested at this meeting that the City could start a regulation process to aid both citizens and hosts.

In addition, the ideals around the ability of hosts to influence behaviour within their spaces provide insight into additional characteristics of the sharing economy. Airbnb hosts identified that they have the opportunity to influence consumption of guests in their spaces, where one host explained within her listing she had the ability to influence her guests water consumption behaviour adding, “I can tell my guests, I can make them do things.” (RM, 21 November 2017). This provides insight into the extent of power hosts believe they can emit within their spaces, which is in contradiction to the aforementioned draconian behaviour hosts disapprove of.

In a greater sense of the sharing economy, Martin (2016) identified that sharing economy actors compete to shape the development of the sharing economy within the areas of consumption, tourism and employment to

name a few. With regards to the use of their influence for the greater good of the city, Ganapati and Reddick (2018) suggest the sharing economy should be used and aimed to enhance public benefits. To elaborate, as Airbnb utilises underused space, space could rather be used to supplement public services for example, providing emergency accommodation during disaster periods (Ganapati and Reddick, 2018). Although space is a useful commodity, the Airbnb actors in Cape Town may be of more use to the public in reducing resource consumption. If Ganapati and Reddick (2018) are suggesting the sharing economy be used for the benefit of the public rather than individuals, Cape Town Airbnbs could be used to address water-saving strategies within a section of the population. This could arise in the form of hosts as a united 'tourism agency' working with the City of Cape Town and its new partnership.

In addition, the potential influence of Airbnb hosts lends insight into the paradox of the sharing economy (Richardson, 2015; Schor and Fitzmaurice, 2015; Martin, 2016). The sharing economy was ostensibly based on a critique of hyper-consumption (Botsman and Rogers, 2010), and it is commonly believed that sharing uses less resources as there is a lower amount of production required to create new goods where waste produced is also reduced (Frenken and Schor, 2017; Ganapati and Reddick, 2018); water is a different story. The research reveals the water saving potential of Airbnb in 1) hosts teaching and sharing loads of washing with guests to promote less water use and 2) the increased use of Airbnb and introduction

of management firms, has seen externalising of bulk laundry to other areas of Cape Town.

Although bulk laundry is perceived by managers to aid in saving water, externalising laundry to other areas of Cape Town highlights various spatialities at play and areas that are perceived to be severely impacted by the drought compared to others. The component of electricity use in bulk laundry services was not considered by managers. As a result, water consumption may increase in these peripheral areas. Thus, these practices bring into question the understanding around whether bulk laundry is a legitimate water saving technique or whether it merely displaces water use in a city. This is further cause for concern in the context of Cape Town with the increased visitation by tourists due to the increased number of beds on offer (Rogerson, 2018b). Therefore, the increased use of managerial companies and the exact commodification of space that requires externalising laundry, not only promotes profit seeking and increasing economic potential realised through sharing economy platforms but also the questionable use of water in a period of drought (Richardson, 2015).

6.7 Future Outlook for Airbnb in Cape Town

This research set out to understand how Airbnb had shaped resource practices and perceptions in the event of a drought in Cape Town. Due to the complex and dynamic nature of Airbnb, its commodification of household space and its impact on resource use is tentatively argued to be less problematic than it would appear at face value because resource use

is personally mitigated through various adaptations by hosts and managers. This is to say that although more Airbnbs will be rented through the platform in the City of Cape Town, should drought restrictions remain¹³, or future drought events occur, Airbnb hosts are more likely to reduce the consumption of resource use in their listings as any negative increase would mean a personal cost to themselves through increased household water tariffs and potential fines.

In addition, based on the practices of those participants interviewed, it is envisioned that their practices may become less extreme, however they will not stop saving water. This is due to the statements made by certain hosts, that they had known the drought was coming and were prepared as revealed by aforementioned historical practices. In addition, one manager passionately stated:

“No Capetonian will ever go back to using water the way they did before, regardless of whether the drought ends or not.” (MG, 15 November 2017)

This reflection highlights the dynamic nature of hosts in that they are not only Airbnb hosts but also residents of Cape Town located in a City and community that aim to utilise its tourism potential but also aim to ensure future water supply in water scarce periods through their actions. Although, this particular reflection was provided by a manager, it is uncertain whether

¹³ The city is currently restricted to Level 5 water restrictions as of 1 October 2018, with maximum of 70ℓ per person per day allotted (City of Cape Town, 2018c).

the increased use of disembedded managerial companies threatens this dual-identity of host and resident in reacting to future drought events.

The regulatory outlook of Airbnb in Cape Town is unclear with the new collaboration agreement between Cape Town Airbnb and the City of Cape Town. This new partnership is the first in Africa and aims to increase tourism benefits to local communities and promote Cape Town as an appealing unique destination to visit (Collins, 2017b; Pienaar, 2017). As part of the agreement the City will also address economic and social inclusion by running programmes to train township residents in hospitality and technology (Nkanjeni, 2017b). In addition, this partnership aims to promote Airbnb hosts as ambassadors of the city (Nkanjeni, 2017b). Paradoxically, although this agreement is driven by inclusivity and promotion, the exponential growth of Airbnbs and their impact on the housing crisis has not been addressed.

6.8 Limitations of the Study

6.8.1 Accessibility

The collection of data was limited by the access to hosts through the Airbnb website as well as through other mediums. Initially, questionnaires were intended to be sent through the Airbnb website to all 500 previously identified user profiles within the Cape Town City Bowl. It was hoped that from these responses potential interviews could be organised. Due to website access restrictions however, this could not be achieved without first booking each of the listings, which was not feasible. Access to hosts was

also restricted within social media, particularly Facebook, where Cape Town Airbnb group sites were restricted to residents and permission to join the groups and have access to content had to be requested and approved by the page or group administrator. In most cases, requests went unanswered with two stating a failure to meet group requirements. Furthermore, many hosts contacted through snowball sampling were too busy to be interviewed or utilised managers and felt they had no valuable information to offer. Based on these responses, managing companies were contacted, however most were not interested because of a lack of host status where other simply did not want to participate in the study.

Due to the lack of accessibility the sample size for questionnaire and interview data collection were limited. Although this research aimed to understand the shaping of practices and perceptions in Airbnbs in the midst of the drought, greater understandings and patterns from a wider population would have been more beneficial.

6.8.2 Accuracy

The research had initially set out to perform resource audits of Cape Town Airbnbs with the hope that based on these estimations, the resource consumption of Airbnbs during a peak tourism period could be estimated. Although primary water resources were estimated for the City Bowl area, there was a lack of consistency amongst appliances listed and limited baseline data for electrical and water appliance consumption (Total wattage and litres for various periods). As a result, estimations were not entirely

accurate. In addition, a larger and more focussed study on resource consumption is suggested due to the complex nature of the resources of a city.

Furthermore, as the Airbnb platform is relatively new, the layout of the website changed multiple times throughout the research process. As a result, information previously registered such as minimum night stay, during UPA was no longer available. Also, users of the website are not permanent and thus certain user profiles added to the database were no longer available. This was revealed as the researcher did 'spot checks' on random profiles to determine whether the website had once again changed. Therefore, consistency and accuracy within UPA was imperfect. Should future research require a database of Airbnb listings in a particular location, it is suggested that a shorter time period be used in order to collect data.

6.8.3 Questionnaire Method

Upon reflection of the questionnaire as a choice of method, the initial layout and content of the questionnaire was overly ambitious. Based on remarks by interviewed hosts, the questionnaire was considered too long, and the purpose of listing appliances seemed irrelevant as hosts suggested looking at their listing profile for such information. Demographics and the Likert scale statements provided the most useful data pertaining to who dominates the use of the platform as well as obtaining the perceptions of individuals towards the water crisis. In addition, potentially due to the length, questionnaire data found certain fields incomplete. It is suggested that

should future studies on Airbnb perceptions and practices be sought, focus groups as a means of study may be more beneficial. This will allow for better and multiple narratives to be examinable. However, if large data are required, questionnaire structure should expand on Likert scale statement responses.

6.9 Conclusion

The research aimed to understand how Airbnb has shaped the practices and perceptions of resource consumption in Cape Town during the recent drought. Methodological challenges of accessibility and unequal access influenced the quality and quantity of data collected. Airbnb hosts were seen to be complex as certain hosts were extreme and innovative in their water-saving practices whilst others were not. Airbnb hosts may have varied understandings about climate change, however it is clear their perceptions on water consumption have changed and this has affected and created amenable water behaviour in already enlightened guests. The behaviour of water use in these individual listings sheds light on the potential for all Airbnbs in Cape Town and the sharing economy to influence the behaviour of guests in their listings.

CHAPTER 7 CONCLUSION

7.1 Introduction

The study is situated in a case of severe drought in the City of Cape Town that occurred relatively soon after the emergence of the Airbnb platform. This platform has not only introduced a sharing economy to the tourism sector, but also increased the number of beds per night in an overburdened City of Cape Town. This study explores resource consumption through Airbnb during the period of the drought with key questions around whether this heightened or mitigated harmful usage during the drought and how the sharing economy allowed for personalisation of the experience and lessons that can be learnt in long-term management under climate change but also in the preparation for future drought events.

7.2 Main Findings

The research took place in a highly fluid context. During the research, the severity of the drought through dam levels, water restrictions levels and 'Day Zero' dates shifted, highlighting the uncertainty within the context of Cape Town. The Airbnb platform website layout also repeatedly changed in the research process highlighting the evolving nature of the new phenomenon of Airbnb but also the sharing economy in its entirety.

Using an environmental sustainability perspective and a household metabolism lens, resource consumption within the accommodation sharing platform of Airbnb was explored through UPA, questionnaires and semi-structured interviews. The triangulated findings suggest that Airbnb hosts

have the potential to aid the transition to sustainability as opposed to other traditional tourist accommodation providers, through the personalised implementation of water saving and green practices within their listings.

This study has contributed to the strategic aim by Airbnb in their *Helping Travel Grow Greener Report* (Airbnb, 2017a) and 2018 update report (Airbnb, 2018b) by identifying greening practices already taking place within the platform in the City of Cape Town. The partnership developed between Cape Town Airbnb and the City of Cape Town, in addressing water concerns during the severe drought, highlights the potential for further processes and management of Airbnb households in the transition towards sustainability.

This study revealed that guests using the Airbnb platform were not deterred by the drought and aided in water saving by being conscious in their water use. Hosts were seen to mitigate the reduction in water use in their listings where the drive to save water was found not to be fuelled by guest presence but rather through how hosts see themselves as Capetonians aiming to contribute to mitigating the water crisis. Host archetypes were also identified through understanding the various practices and concerns about the drought. A distinction between business-as-usual and water ambassadors was revealed.

Two unexpected findings identified through the study included the increasing use and presence of managerial companies acting as hosts in the Airbnb platform. This highlights the concern within the paradox of the sharing economy that managers may aid in an increased commodification of space. More importantly, managers embody less personalised and embedded capacities than hands-on hosts where the drive to reduce water use may be limited. Another unexpected finding was the increasing concern over electricity usage by Airbnb hosts within their listings. This highlights the concern over the electrical production future of Cape Town and increasing electricity prices.

7.3 Implications of Research

In light of global climate change, drought events will become increasingly severe and frequent in the future. This research has revealed the potential of Airbnb hosts to aid in the mitigation and adaption of water use of not only themselves as Capetonians but also incoming tourists. As tourism accommodation providers, Airbnb hosts have the potential to increase the adaptive capacity to climate change impacts in particular tourism spaces in which they are embedded. In addition, the intimate, innovative and creative resource use in individual listings and growth of the platform, reveal the potential of increased environmental adaptations within these spaces, aiding the transition to an increased environmentally sustainable platform.

However, as the use of the Airbnb platform continues to grow, the future of its use in Cape Town requires regulatory consideration. The unregulated nature of Airbnb is likely to cause increased competition between hosts and potentially introduce more managerial companies to assist in increasing the competitive edge of listings. Managers and managerial companies may hold less potential to reduce resource consumption as proxy hosts compared to dedicated host. Should this increase persist without intervention, the tourism sector such as hotels may be affected as seen in other contexts such as Texas, New York and Barcelona.

However, the new partnership formed between Cape Town Airbnb and the City of Cape Town has the potential to regulate listing availability and particular resource practices within these spaces. Therefore, in the instance of future drought events, government should look to support Airbnb as well as traditional accommodation providers to influence a large section of the city. This could be pursued through Airbnb hosts who have the benefit of reducing water consumption at a household scale due to the personalised nature of Airbnb persuading incoming tourists to save water. This could reduce water supply pressure during peak tourism periods.

7.4 Recommendations for Future Research

The research completed holds potential for additional future research. As Airbnb guests were not directly addressed, research could investigate guest historical and contemporary experiences with drought to gain insight into tourist perceptions of drought in Cape Town. In addition, to expand its

horizons, the Airbnb platform has launched the new features of 'Experiences' and 'Restaurants'. This has the potential to greatly impact the tourism sector in Cape Town and South Africa. It is suggested that studies aim to identify each feature in its introduction, expansion and use by tourists in Cape Town and understand their effect on older traditional forms of tourist experiences. This would provide further insight into the expansion of the sharing economy through varied tourist avenues in South Africa. Additionally, as Airbnb is not only used for the tourist experience, research could aim to explore the impact on local residents and their experiences with the sharing economy through the platform in Cape Town. Future research could also aim to understand resource consumption in a larger population of Airbnb in Cape Town and the city more broadly both within and outside of the tourism sector.

Given time and financial resources, more thorough estimations could be determined for all Airbnb listings in Cape Town within different types of accommodations, in various periods of the year at varied occupancies. This would provide better data to account for the presence and impact of Airbnb in the city and determine future trends as it expands. In addition, better understanding of the practices and perceptions in the present drought could be pursued through ethnographic histories of water saving within households. This would provide additional insight into the adaptive capacity of Airbnb in future drought events. Furthermore, as there is large uncertainty around electricity provision in South Africa, more in-depth analysis could be

pursued in Airbnb listings with the aim to understand the future impact on tourism provision and electricity in Cape Town.

7.5 Synthesis

This study presents the first analysis of resource consumption of Airbnb in Cape Town and the second study into Airbnb practices in Cape Town in general. The potential of Airbnb hosts to aid in the reduction of water consumption and promote sustainability through these personalised spaces is identified. Growth of managerial companies provides insight into the reduced ability to control resources within Airbnb spaces and the commodification of spaces in the sharing economy. Airbnb hosts, as Capetonians committed to the future of the city, and guests were revealed to adapt to the drought despite the lack of online forewarning and change in the perceived severity of the drought by the City of Cape Town through altered 'Day Zero' events. Airbnb hosts in Cape Town have the ability to mitigate and adapt to future drought events as both Cape Town residents and tourism accommodation providers

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LIST OF INTERVIEWS AND MEETINGS

TU, 09 November 2017. Airbnb host. Contacted by researcher over the phone with a written email response to interview questions.

VO, 13 November 2017. Airbnb host. Interviewed by researcher at Convention Tower Cape Town. Audio-recorded (35:50).

CC, 15 November 2017. Airbnb host. Interviewed by researcher at home in Claremont, Cape Town. Audio-recorded (51:21).

MG, 15 November 2017. Airbnb manager. Interviewed by researcher at Lola's Café in City Bowl. Audio-recorded (44:45).

DA, 18 November 2017. Airbnb host. Interviewed by researcher at home in Devils Peak, City Bowl. Audio-recorded (1:22:05).

TF, 19 November 2017. Airbnb host. Interviewed by researcher at home in Tamboerskloof, City Bowl. Audio-recorded (1:44:25).

WC, 20 November 2017. Airbnb manager. Interviewed by researcher at Bootleggers in DeWaterkant, City Bowl. Audio-recorded (25:25).

TS, 21 November 2017. Airbnb host. Interviewed by researcher at home in Tamboerskloof, City Bowl. Audio-recorded (31:10).

RM, 21 November 2017. Airbnb host. Interviewed by researcher at home in Rondebosch, Cape Town. Audio-recorded (1:18:46).

BG, 30 November 2017. Airbnb host. Interviewed by researcher over the phone. Audio-recorded (15:19).

APPENDICES

APPENDIX A: INITIAL NAVIGATION MAP ON AIRBNB WEBSITE AND SAMPLE AIRBNB PROFILE LISTING OUTLINE

[Become a host](#)
[Help](#)
[Sign up](#)
[Log in](#)

Dates

Guests

Popular filters

Home type

Price

Instant Book

Trip type

More filters

Showing you results for "Bo-Kaap, Schotsche Kloof, Cape Town"

Airbnb Plus homes in Cape Town

A selection of homes verified for quality and comfort

PLUS VERIFIED · ENTIRE LOFT
Stylish Industrial Loft with Mezzanine Bedroom
R1,500 ZAR per night
★★★★★ 158

PLUS VERIFIED · ENTIRE LOFT
Take in Table Mountain Views in a Modern Rooftop Hideaway
R647 ZAR per night
★★★★★ 101

PLUS VERIFIED · ENTIRE LOFT
Discover Cape Town from This Charming, Whimsical Studio
R991 ZAR per night
★★★★★ 133

PLUS VERIFIED · ENTIRE APARTMENT
Sunny, Stylish Apartment near Bree Street and CBD
R950 ZAR per night
★★★★★ 178

PLUS VERIFIED · ENTIRE SERVICED APARTMENT
Stylish City Centre Apartment

PLUS VERIFIED · ENTIRE VILLA
Rustic, Industrial Loft-Style Villa with

PLUS VERIFIED · ENTIRE LOFT
Luxurious Modern Apartment with

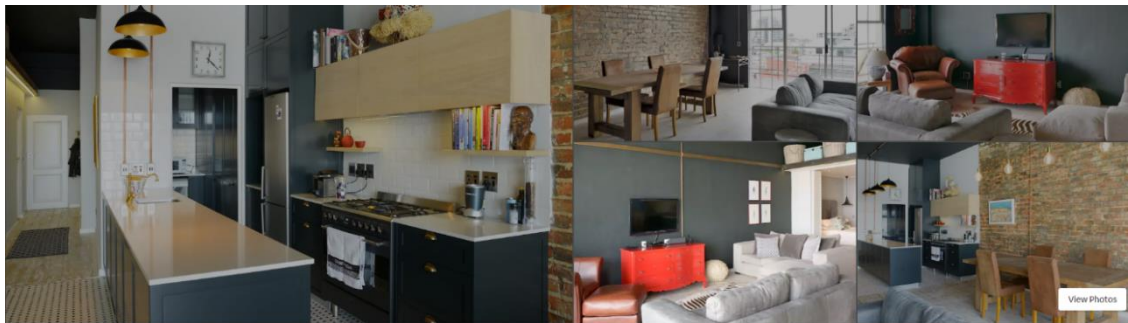
PLUS VERIFIED · ENTIRE APARTMENT
Bright, Contemporary Apartment

+

-

☒ Search as I move the map

[Terms, Privacy, Currency & More](#)



ENTIRE LOFT

Award Winning Komorebi Luxury Apartment

Cape Town

■ **Entire loft**
4 guests · 2 bedrooms · 2 beds · 2 baths

■ **Self check-in**
You can check in with the doorman.

■ **Hot tub**
This is one of few homes in this area that has this feature.

R1,247 per night
★★★★★ 76

Dates

Check in → Check out

Guests

1 guest

Request to Book

You won't be charged yet

Our original 2 x bedroom luxury apartment is located in the heart of Cape Town, moments from trendy Bree Street, De Waterkant, Bo-Kaap and the V&A Waterfront.

Recently renovated to the highest standards. 24 hr porter. Secure underground parking. Swimming pool and sundeck. Balcony overlooking beautiful Bo Kaap. An Urban Escape in the heart of the city.

[Read more about the space](#)

[Contact host](#)

Amenities

- Elevator
- Hot tub
- Free parking on premises
- Kitchen
- Wifi
- Cable TV

[Show all 27 amenities](#)

Sleeping arrangements

Bedroom 1 1 double bed	Bedroom 2 1 double bed	Common spaces 1 couch
--	--	---

Availability

Updated 15 days ago

December 2018							January 2019						
Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa
						1			1	2	3	4	5
2	3	4	5	6	7	8	6	7	8	9	10	11	12
9	10	11	12	13	14	15	13	14	15	16	17	18	19
16	17	18	19	20	21	22	20	21	22	23	24	25	26
23	24	25	26	27	28	29	27	28	29	30	31		
30	31												

76 Reviews ★★★★★

Search reviews

Accuracy	★★★★★	Location	★★★★★
Communication	★★★★★	Check-in	★★★★★
Cleanliness	★★★★★	Value	★★★★★

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APPENDIX B: QUESTIONNAIRE LAYOUT

Resource consumption of Cape Town AirBnBs

Good day, my name is Ariel Prinsloo, a Geography Masters student at the University of the Witwatersrand. I am conducting a research project entitled: "A case study of resource consumption in the sharing economy: AirBnB as tourist accommodation in Cape Town, South Africa".

I am interested in understanding the resource usage of AirBnBs in the context of the drought in Cape Town in order to understand the future sustainability of AirBnBs in cities. Through this research I will aim to contribute to knowledge of resource use in Cape Town and the literature around AirBnB. I am conducting this research in order to complete a Masters research thesis.

I am inviting you to take part in this survey due to your role as a host of a Cape Town AirBnB whereby your experience with this online platform and running an AirBnB will provide invaluable data. You will not receive any personal benefit from this research. However, I hope through this research, to understand the workings of AirBnB and to enlighten users about their resource use in the larger context of the drought as well as everyday usage. Your participation in this research is completely voluntary. You can withdraw from the study at any time. Information will remain confidential. Anonymity cannot be guaranteed, as a publicly listed host; however I will not explicitly state personal identifiers or names. Data from this study will be used in my Master's thesis (which will be available in the University of the Witwatersrand's library and online) and potentially in conference papers and academic articles.

This questionnaire will take approximately 15-20 minutes to complete.

If you have any questions, feel free to contact me at 679845@students.wits.ac.za

(Submitting the completed questionnaire, shows you agree to voluntarily participate in the research)

Thank you for taking the time to complete this survey :)

*Required

Demographic information

The information provided below will be used to identify the user population of AirBnB in Cape Town.

Which gender are you? *Mark only one oval.*

- ☐ Male
☐ Female
☐ Other
☐ Prefer not to say

Which race group do you fall into? *Mark only one oval.*

- ☐ Black
☐ White
☐ Coloured
☐ Asian
☐ Indian
☐ Other
☐ Prefer not to say

How old are you? *Mark only one oval.*

- ☐ 18-24
☐ 25-34
☐ 35-45
☐ 46-55
☐ 56-69
☐ 70+
☐ Prefer not to say

How many AirBnB listings do you operate?

The questions in the following section refer to one AirBnB listing. Should you own multiple listings, please answer according to the order you first advertised these listings.

How many listings do you operate? *Mark only one oval.*

- ☐ 1
☐ 2
☐ 3
☐ 4
☐ 5
☐ More than 5

Description of AirBnB listings

The questions below will ask you to describe the features of your AirBnB/s.

Description of your first AirBnB

The first AirBnB listing advertised on the AirBnB website.

Which suburb in Cape Town is your AirBnB listing situated?

What type of accommodation is this listing?

These types of accommodation are given according to the room type options given by the AirBnB website. If you feel your listing does not fall into this category please fill in the 'other' option. *Mark only one oval.*

- ☐ Shared room
☐ Private room
☐ Entire apartment
☐ Entire house
☐ Other: _____

If you wish, please elaborate further on the type of AirBnB accommodation you provide

Why do you use the AirBnB app for this listing? *Mark only one oval.*

- ☐ Business purposes
☐ To use space/s I do not use
☐ For a bit of income
☐ Other: _____

How often is this listing occupied by guests? *Mark only one oval.*

- ☐ Everyday
☐ More than half a week
☐ Once a week
☐ More than twice a month
☐ Twice a month
☐ Once a month
☐ Less than once a month

☐ Less than once a year

Please indicate the appliances available for guest use in this AirBnB? *Tick all that apply.*

- ☐ Air-conditioner
- ☐ Bar fridge
- ☐ Coffee machine
- ☐ Computer
- ☐ Deep Freeze (Seperate freezer)
- ☐ Dishwasher
- ☐ Electric blanket
- ☐ Fan
- ☐ Hair dryer
- ☐ Heater
- ☐ Ice maker
- ☐ Internet/Wifi
- ☐ Iron
- ☐ Kettle
- ☐ Microwave
- ☐ Oven
- ☐ Refrigerator (Freezer included)
- ☐ Stove (Including 2 plate stove)
- ☐ Television
- ☐ Tumble dryer
- ☐ Washing machine

Please indicate the facilities available for guest use in this AirBnB? *Tick all that apply.*

- ☐ Bath
- ☐ Hot tub/ Jacuzzi
- ☐ Kitchen
- ☐ Laundry room
- ☐ Outdoor shower
- ☐ Pool
- ☐ Shower

Please state additional appliances or facilities available for guest use.

4

If you own a pool, where is it located? *Mark only one oval.*

- ☐ Apartment
- ☐ House garden
- ☐ Within a guest house plot
- ☐ Not applicable
- ☐ Other: _____

If you take care of the pool in your AirBnB, how often do you fill, backwash or clean the pool? *Mark only one oval.*

- ☐ Daily
- ☐ More than once a week
- ☐ Once a week
- ☐ Twice a month
- ☐ Once a month
- ☐ Not applicable

Is the above answer based on restrictions that have been previously communicated to you? *Mark only one oval.*

- ☐ Yes
- ☐ No
- ☐ Not applicable

Have you made your guests aware of the water crisis in Cape Town? * *Mark only one oval.*

- ☐ Yes
- ☐ No

How have you restricted guest access to appliances and facility use? *Tick all that apply.*

- ☐ Verbal instructions
- ☐ Written rules
- ☐ Locked access to particular spaces or appliances
- ☐ Information stickers
- ☐ Timers
- ☐ Removed plug stoppers for baths
- ☐ None of the above

Please specify any other restrictive measures

5

Have you implemented any greening techniques (such as low-flow shower heads or electricity saving light bulbs) in your AirBnB? **Mark only one oval.**

- ☐ Yes
☐ No

Please indicate if you have implemented any of the greening techniques below: **Tick all that apply.**

- ☐ LED Light bulbs or electricity saving lightbulbs
☐ Low-flow shower heads
☐ Solar geyser
☐ Ceiling insulation
☐ Geyser insulation blanket
☐ Geyser timer
☐ Double glazed windows
☐ Recycling of waste
☐ Rain water harvesting
☐ Energy saving rated appliances
☐ Garden roof
☐ Prepaid water or electricity
☐ None of the above

Please list any other greening techniques you have used

Description of your second AirBnB

The second AirBnB listing you advertised on the AirBnB website.

Which suburb in Cape Town is your AirBnB listing situated?

What type of accommodation is this listing?

These types of accommodation are given according to the room type options given by the AirBnB website. If you feel your listing does not fall into this category please fill in the 'other' option. **Mark only one oval.**

- ☐ Shared room

- ☐ Private room
☐ Entire apartment
☐ Entire house
☐ Other: _____

If you wish, please elaborate further on the type of AirBnB accommodation you provide

Why do you use the AirBnB app for this listing? **Mark only one oval.**

- ☐ Business purposes
☐ To use space/s I do not use
☐ For a bit of income
☐ Other: _____

How often is this listing occupied by guests? **Mark only one oval.**

- ☐ Everyday
☐ More than half a week
☐ Once a week
☐ More than twice a month
☐ Twice a month
☐ Once a month
☐ Less than once a month
☐ Less than once a year

Please indicate the appliances available for guest use in this AirBnB? **Tick all that apply.**

- ☐ Air-conditioner
☐ Bar fridge
☐ Coffee machine
☐ Computer
☐ Deep Freeze (Seperate freezer)
☐ Dishwasher
☐ Electric blanket
☐ Fan
☐ Hair dryer

- ☐ Heater
- ☐ Ice maker
- ☐ Internet/Wifi
- ☐ Iron
- ☐ Kettle
- ☐ Microwave
- ☐ Oven
- ☐ Refrigerator (Freezer included)
- ☐ Stove (Including 2 plate stove)
- ☐ Television
- ☐ Tumble dryer
- ☐ Washing machine

Please indicate the facilities available for guest use in this AirBnB? *Tick all that apply.*

- ☐ Bath
- ☐ Hot tub/ Jacuzzi
- ☐ Kitchen
- ☐ Laundry room
- ☐ Outdoor shower
- ☐ Pool
- ☐ Shower

Please state additional appliances or facilities available for guest use.

If you own a pool, where is it located? *Mark only one oval.*

- ☐ Apartment
- ☐ House garden
- ☐ Within a guest house plot
- ☐ Not applicable
- ☐ Other: _____

If you take care of the pool in your AirBnB, how often do you fill, backwash or clean the pool? *Mark only one oval.*

- ☐ Daily
- ☐ More than once a week
- ☐ Once a week
- ☐ Twice a month
- ☐ Once a month
- ☐ Not applicable

Is the above answer based on restrictions that have been previously communicated to you? *Mark only one oval.*

- ☐ Yes
- ☐ No
- ☐ Not applicable

Have you made your guests aware of the water crisis in Cape Town? * *Mark only one oval.*

- ☐ Yes
- ☐ No

How have you restricted guest access to appliances and facility use? *Tick all that apply.*

- ☐ Verbal instructions
- ☐ Written rules
- ☐ Locked access to particular spaces or appliances
- ☐ Information stickers
- ☐ Timers
- ☐ Removed plug stoppers for baths
- ☐ None of the above

Please specify any other restrictive measures

Have you implemented any greening techniques (such as low-flow shower heads or electricity saving light bulbs) in your AirBnB? *Mark only one oval.*

- ☐ Yes
- ☐ No

Please indicate if you have implemented any of the greening techniques below: **Tick all that apply.**

- ☐ LED Light bulbs or electricity saving lightbulbs
- ☐ Low-flow shower heads
- ☐ Solar geyser
- ☐ Ceiling insulation
- ☐ Geyser insulation blanket
- ☐ Geyser timer
- ☐ Double glazed windows
- ☐ Recycling of waste
- ☐ Rain water harvesting
- ☐ Energy saving rated appliances
- ☐ Garden roof
- ☐ Prepaid water or electricity
- ☐ None of the above

Please list any other greening techniques you have used

Description of third AirBnB

The third AirBnB listing you advertised on the AirBnB website.

Which suburb in Cape Town is your AirBnB listing situated?

What type of accommodation is this listing?

These types of accommodation are given according to the room type options given by the AirBnB website. If you feel your listing does not fall into this category please fill in the 'other' option. **Mark only one oval.**

- ☐ Shared room
- ☐ Private room
- ☐ Entire apartment
- ☐ Entire house
- ☐ Other:

If you wish, please elaborate further on the type of AirBnB accommodation you provide

Why do you use the AirBnB app for this listing? **Mark only one oval.**

- ☐ Business purposes
- ☐ To use space/s I do not use
- ☐ For a bit of income
- ☐ Other:

How often is this listing occupied by guests? **Mark only one oval.**

- ☐ Everyday
- ☐ More than half a week
- ☐ Once a week
- ☐ More than twice a month
- ☐ Twice a month
- ☐ Once a month
- ☐ Less than once a month
- ☐ Less than once a year

Please indicate the appliances available for guest use in this AirBnB? **Tick all that apply.**

- ☐ Air-conditioner
- ☐ Bar fridge
- ☐ Coffee machine
- ☐ Computer
- ☐ Deep Freeze (Seperate freezer)
- ☐ Dishwasher
- ☐ Electric blanket
- ☐ Fan
- ☐ Hair dryer
- ☐ Heater
- ☐ Ice maker
- ☐ Internet/Wifi
- ☐ Iron

- ☐ Kettle
- ☐ Microwave
- ☐ Oven
- ☐ Refrigerator (Freezer included)
- ☐ Stove (Including 2 plate stove)
- ☐ Television
- ☐ Tumble dryer
- ☐ Washing machine

Please indicate the facilities available for guest use in this AirBnB? **Tick all that apply.**

- ☐ Bath
- ☐ Hot tub/ Jacuzzi
- ☐ Kitchen
- ☐ Laundry room
- ☐ Outdoor shower
- ☐ Pool
- ☐ Shower

Please state additional appliances or facilities for guest use

If you own a pool, where is it located? **Mark only one oval.**

- ☐ Apartment
- ☐ House garden
- ☐ Within a guest house plot
- ☐ Not applicable
- ☐ Other: _____

If you take care of the pool in your AirBnB, how often do you fill, backwash or clean the pool? **Mark only one oval.**

- ☐ Daily
- ☐ More than once a week
- ☐ Once a week
- ☐ Twice a month
- ☐ Once a month

☐ Not applicable

Is the above answer based on restrictions that have been previously communicated to you? **Mark only one oval.**

- ☐ Yes
- ☐ No
- ☐ Not applicable

Have you made your guests aware of the water crisis in Cape Town? **Mark only one oval.**

- ☐ Yes
- ☐ No

How have you restricted guest access to appliances and facility use? **Tick all that apply.**

- ☐ Verbal instructions
- ☐ Written rules
- ☐ Locked access to particular spaces or appliances
- ☐ Information stickers
- ☐ Timers
- ☐ Removed plug stoppers for baths
- ☐ None of the above

Please specify any other restrictive measures

Have you implemented any greening techniques (such as low-flow shower heads or electricity saving light bulbs) in your AirBnB? **Mark only one oval.**

- ☐ Yes
- ☐ No

Please indicate if you have implemented any of the greening techniques below: **Tick all that apply.**

- ☐ LED Light bulbs or electricity saving lightbulbs
- ☐ Low-flow shower heads
- ☐ Solar geyser
- ☐ Ceiling insulation
- ☐ Geyser insulation blanket

- ☐ Geyser timer
- ☐ Double glazed windows
- ☐ Recycling of waste
- ☐ Rain water harvesting
- ☐ Energy saving rated appliances
- ☐ Garden roof
- ☐ Prepaid water or electricity
- ☐ None of the above

Please list any other greening techniques you have used

Description of your fourth AirBnB

The fourth AirBnB listing advertised on the AirBnB website.

Which suburb in Cape Town is your AirBnB listing situated?

What type of accommodation is this listing?

These types of accommodation are given according to the room type options given by the AirBnB website. If you feel your listing does not fall into this category please fill in the 'other' option. **Mark only one oval.**

- ☐ Shared room
- ☐ Private room
- ☐ Entire apartment
- ☐ Entire house
- ☐ Other: _____

If you wish, please elaborate further on the type of AirBnB accommodation you provide

Why do you use the AirBnB app for this listing? **Mark only one oval.**

- ☐ Business purposes
- ☐ To use space/s I do not use
- ☐ For a bit of income
- ☐ Other: _____

How often is this listing occupied by guests? **Mark only one oval.**

- ☐ Everyday
- ☐ More than half a week
- ☐ Once a week
- ☐ More than twice a month
- ☐ Twice a month
- ☐ Once a month
- ☐ Less than once a month
- ☐ Less than once a year

Please indicate the appliances available for guest use in this AirBnB? **Tick all that apply.**

- ☐ Air-conditioner
- ☐ Bar fridge
- ☐ Coffee machine
- ☐ Computer
- ☐ Deep Freeze (Seperate freezer)
- ☐ Dishwasher
- ☐ Electric blanket
- ☐ Fan
- ☐ Hair dryer
- ☐ Heater
- ☐ Ice maker
- ☐ Internet/Wifi
- ☐ Iron
- ☐ Kettle
- ☐ Microwave
- ☐ Oven
- ☐ Refrigerator (Freezer included)
- ☐ Stove (Including 2 plate stove)

- ☐ Television
- ☐ Tumble dryer
- ☐ Washing machine

Please indicate the facilities available for guest use in this AirBnB? **Tick all that apply.**

- ☐ Bath
- ☐ Hot tub/ Jacuzzi
- ☐ Kitchen
- ☐ Laundry room
- ☐ Outdoor shower
- ☐ Pool
- ☐ Shower

Please state additional appliances or facilities available for guest use.

If you own a pool, where is it located? **Mark only one oval.**

- ☐ Apartment
- ☐ House garden
- ☐ Within a guest house plot
- ☐ Not applicable
- ☐ Other: _____

If you take care of the pool in your AirBnB, how often do you fill, backwash or clean the pool? **Mark only one oval.**

- ☐ Daily
- ☐ More than once a week
- ☐ Once a week
- ☐ Twice a month
- ☐ Once a month
- ☐ Not applicable

Is the above answer based on restrictions that have been previously communicated to you? **Mark only one oval.**

- ☐ Yes

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- ☐ No
- ☐ Not applicable

Have you made your guests aware of the water crisis in Cape Town? ***Mark only one oval.**

- ☐ Yes
- ☐ No

How have you restricted guest access to appliances and facility use? **Tick all that apply.**

- ☐ Verbal instructions
- ☐ Written rules
- ☐ Locked access to particular spaces or appliances
- ☐ Information stickers
- ☐ Timers
- ☐ Removed plug stoppers for baths
- ☐ None of the above

Please specify any other restrictive measures

Have you implemented any greening techniques (such as low-flow shower heads or electricity saving light bulbs) in your AirBnB? **Mark only one oval.**

- ☐ Yes
- ☐ No

Please indicate if you have implemented any of the greening techniques below: **Tick all that apply.**

- ☐ LED Light bulbs or electricity saving lightbulbs
- ☐ Low-flow shower heads
- ☐ Solar geyser
- ☐ Ceiling insulation
- ☐ Geyser insulation blanket
- ☐ Geyser timer
- ☐ Double glazed windows
- ☐ Recycling of waste
- ☐ Rain water harvesting
- ☐ Energy saving rated appliances
- ☐ Garden roof
- ☐ Prepaid water or electricity

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☐ None of the above

Please list any other greening techniques you have used

Description of your fifth AirBnB

The fifth AirBnB listing advertised on the AirBnB website.

Which suburb in Cape Town is your AirBnB listing situated?

What type of accommodation is this listing?

These types of accommodation are given according to the room type options given by the AirBnB website. If you feel your listing does not fall into this category please fill in the 'other' option. **Mark only one oval.**

- ☐ Shared room
- ☐ Private room
- ☐ Entire apartment
- ☐ Entire house
- ☐ Other: _____

If you wish, please elaborate further on the type of AirBnB accommodation you provide

Why do you use the AirBnB app for this listing? **Mark only one oval.**

- ☐ Business purposes
- ☐ To use space/s I do not use
- ☐ For a bit of income
- ☐ Other: _____

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How often is this listing occupied by guests? **Mark only one oval.**

- ☐ Everyday
- ☐ More than half a week
- ☐ Once a week
- ☐ More than twice a month
- ☐ Twice a month
- ☐ Once a month
- ☐ Less than once a month
- ☐ Less than once a year

Please indicate the appliances available for guest use in this AirBnB? **Tick all that apply.**

- ☐ Air-conditioner
- ☐ Bar fridge
- ☐ Coffee machine
- ☐ Computer
- ☐ Deep Freeze (Separate freezer)
- ☐ Dishwasher
- ☐ Electric blanket
- ☐ Fan
- ☐ Hair dryer
- ☐ Heater
- ☐ Ice maker
- ☐ Internet/Wifi
- ☐ Iron
- ☐ Kettle
- ☐ Microwave
- ☐ Oven
- ☐ Refrigerator (Freezer included)
- ☐ Stove (Including 2 plate stove)
- ☐ Television
- ☐ Tumble dryer
- ☐ Washing machine

Please indicate the facilities available for guest use in this AirBnB? **Tick all that apply.**

- ☐ Bath
- ☐ Hot tub/ Jacuzzi

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- ☐ Kitchen
- ☐ Laundry room
- ☐ Outdoor shower
- ☐ Pool
- ☐ Shower

Please state additional appliances or facilities available for guest use.

If you own a pool, where is it located? **Mark only one oval.**

- ☐ Apartment
- ☐ House garden
- ☐ Within a guest house plot
- ☐ Not applicable
- ☐ Other: _____

If you take care of the pool in your AirBnB, how often do you fill, backwash or clean the pool? **Mark only one oval.**

- ☐ Daily
- ☐ More than once a week
- ☐ Once a week
- ☐ Twice a month
- ☐ Once a month
- ☐ Not applicable

Is the above answer based on restrictions that have been previously communicated to you? **Mark only one oval.**

- ☐ Yes
- ☐ No
- ☐ Not applicable

Have you made your guests aware of the water crisis in Cape Town? * **Mark only one oval.**

- ☐ Yes
- ☐ No

How have you restricted guest access to appliances and facility use? **Tick all that apply.**

- ☐ Verbal instructions
- ☐ Written rules
- ☐ Locked access to particular spaces or appliances
- ☐ Information stickers
- ☐ Timers
- ☐ Removed plug stoppers for baths
- ☐ None of the above

Please specify any other restrictive measures

Have you implemented any greening techniques (such as low-flow shower heads or electricity saving light bulbs) in your AirBnB? **Mark only one oval.**

- ☐ Yes
- ☐ No

Please indicate if you have implemented any of the greening techniques below: **Tick all that apply.**

- ☐ LED Light bulbs or electricity saving lightbulbs
- ☐ Low-flow shower heads
- ☐ Solar geyser
- ☐ Ceiling insulation
- ☐ Geyser insulation blanket
- ☐ Geyser timer
- ☐ Double glazed windows
- ☐ Recycling of waste
- ☐ Rain water harvesting
- ☐ Energy saving rated appliances
- ☐ Garden roof
- ☐ Prepaid water or electricity
- ☐ None of the above

Please list any other greening techniques you have used

Description of your sixth AirBnB

The sixth AirBnB listing advertised on the AirBnB website.

Which suburb in Cape Town is your AirBnB listing situated?

What type of accommodation is this listing?

These types of accommodation are given according to the room type options given by the AirBnB website. If you feel your listing does not fall into this category please fill in the 'other' option. **Mark only one oval.**

- ☐ Shared room
- ☐ Private room
- ☐ Entire apartment
- ☐ Entire house
- ☐ Other: _____

If you wish, please elaborate further on the type of AirBnB accommodation you provide

Why do you use the AirBnB app for this listing? **Mark only one oval.**

- ☐ Business purposes
- ☐ To use space/s I do not use
- ☐ For a bit of income
- ☐ Other: _____

How often is this listing occupied by guests? **Mark only one oval.**

- ☐ Everyday
- ☐ More than half a week
- ☐ Once a week
- ☐ More than twice a month
- ☐ Twice a month
- ☐ Once a month
- ☐ Less than once a month
- ☐ Less than once a year

Please indicate the appliances available for guest use in this AirBnB? **Tick all that apply.**

- ☐ Air-conditioner
- ☐ Bar fridge
- ☐ Coffee machine
- ☐ Computer
- ☐ Deep Freeze (Seperate freezer)
- ☐ Dishwasher
- ☐ Electric blanket
- ☐ Fan
- ☐ Hair dryer
- ☐ Heater
- ☐ Ice maker
- ☐ Internet/Wifi
- ☐ Iron
- ☐ Kettle
- ☐ Microwave
- ☐ Oven
- ☐ Refrigerator (Freezer included)
- ☐ Stove (Including 2 plate stove)
- ☐ Television
- ☐ Tumble dryer
- ☐ Washing machine

Please indicate the facilities available for guest use in this AirBnB? **Tick all that apply.**

- ☐ Bath
- ☐ Hot tub/ Jacuzzi
- ☐ Kitchen
- ☐ Laundry room
- ☐ Outdoor shower
- ☐ Pool
- ☐ Shower

Please state additional appliances or facilities available for guest use.

If you own a pool, where is it located? **Mark only one oval.**

- ☐ Apartment
☐ House garden
☐ Within a guest house plot
☐ Not applicable
☐ Other: _____

If you take care of the pool in your AirBnB, how often do you fill, backwash or clean the pool? **Mark only one oval.**

- ☐ Daily
☐ More than once a week
☐ Once a week
☐ Twice a month
☐ Once a month
☐ Not applicable

Is the above answer based on restrictions that have been previously communicated to you? **Mark only one oval.**

- ☐ Yes
☐ No
☐ Not applicable

Have you made your guests aware of the water crisis in Cape Town? * **Mark only one oval.**

- ☐ Yes
☐ No

How have you restricted guest access to appliances and facility use? **Tick all that apply.**

- ☐ Verbal instructions
☐ Written rules
☐ Locked access to particular spaces or appliances
☐ Information stickers
☐ Timers
☐ Removed plug stoppers for baths
☐ None of the above

Please specify any other restrictive measures

Have you implemented any greening techniques (such as low-flow shower heads or electricity saving light bulbs) in your AirBnB? **Mark only one oval.**

- ☐ Yes
☐ No

Please indicate if you have implemented any of the greening techniques below: **Tick all that apply.**

- ☐ LED Light bulbs or electricity saving lightbulbs
☐ Low-flow shower heads
☐ Solar geyser
☐ Ceiling insulation
☐ Geyser insulation blanket
☐ Geyser timer
☐ Double glazed windows
☐ Recycling of waste
☐ Rain water harvesting
☐ Energy saving rated appliances
☐ Garden roof
☐ Prepaid water or electricity
☐ None of the above

Please list any other greening techniques you have used

Opinions of the water crisis as an AirBnB operator

The following section provides 10 statements. Please rate your opinion on whether you agree or disagree, where 1 indicates that you Strongly Disagree, 2 Disagree, 3 Neutral, 4 Agree or 5 Strongly Agree with the provided statement

Cape Town is still experiencing a drought.

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	☐	☐	☐	☐	☐	Strongly Agree

Droughts will occur more often due to climate change.

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	☐	☐	☐	☐	☐	Strongly Agree

I am concerned about the water crisis in Cape Town.

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	☐	☐	☐	☐	☐	Strongly Agree

I think the drought will have an impact on the running of my AirBnB.

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	☐	☐	☐	☐	☐	Strongly Agree

I think climate change will have an impact on the running of my AirBnB.

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	☐	☐	☐	☐	☐	Strongly Agree

I think water restrictions are necessary, even when running an AirBnB.

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	☐	☐	☐	☐	☐	Strongly Agree

I think the government has taken AirBnBs into consideration when implementing water restrictions.

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	☐	☐	☐	☐	☐	Strongly Agree

I think my guests use a lot of water and electricity in my AirBnB/s.

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	☐	☐	☐	☐	☐	Strongly Agree

Making green changes like low-flow shower heads and LED light bulbs, helps reduce consumption of water and electricity.

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	☐	☐	☐	☐	☐	Strongly Agree

I think making green changes to my AirBnB is cost effective.

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	☐	☐	☐	☐	☐	Strongly Agree

APPENDIX C: SEMI-STRUCTURED INTERVIEW SCHEDULE

Interview schedule- Airbnb hosts

Location: Airbnbs located within the City Bowl.

Date: Varied between the months of August and November.

Time: Varied.

Opening Statement

Thank you for agreeing to see me. As I have stated my name is Ariel Prinsloo a Geography Masters student at the University of the Witwatersrand. My project is called, "A case study of resource consumption in the sharing economy: Airbnb as tourist accommodation in Cape Town, South Africa."

I am interested in understanding the perspectives, and practices of your Airbnb with regards to resource use. I would also like to discuss resource use via rates and taxes documents if you are comfortable with it. As stated the interview will be 30-45 minutes and if at any point you are uncomfortable or busy we will cancel the interview with no penalties.

Questions to be discussed during semi-structured interview

1. How long have you been involved in Airbnb?
2. How did you get into it?
3. Have you been concerned recently about the level of electricity and water use in your Airbnb? (Tell me more)
 - a. *Have your concerns changed over time? Can you give me a sense of how it changes through the course of the year?
4. Do you feel you are increasingly paying more for water and electricity, how does this change with seasons and the time you have been operating this Airbnb/s?
 - a. If they rent out through Airbnb for a short time, in terms of their cost of electricity and water, do you think that you are paying more? Have you noticed that you're paying more over time and are there

particular seasons when you seem to be paying more or less? 2 years versus 2 weeks?

- b. For those months, do you notice a sudden spike in your utility bill or in the month when you don't have them, do you find it easier to manage?
5. How is your consumption influenced by the electricity and then water crisis?
6. Can you tell me about any greening changes you have made and why? (Further clarification may be: What do you define as greening your Airbnb? Have you chosen these changes, or have you had to comply with particular changes?)
7. How do you negotiate with your guests around water and electricity use in your Airbnb?
8. To your knowledge are your guests aware of the water crisis in Cape Town?
9. If the drought has been mentioned, do your foreign tourists or local tourists appear to have a greater awareness?
 - a. Have you noticed any difference in behaviour between them?
10. Have you experienced any problems regarding resource use in your Airbnb? (Depending on answer: What are these?)
11. Given what's in the news lately that Cape Town might run out of water in March what will it mean for this income stream for you?
 - b. Prompt with questions around negotiating with your guests around these things, the stories of these negotiations
12. In response to these concerns how have you tried to mitigate the situation

APPENDIX D: WITS ETHICS COMMITTEE FOR HUMAN RESEARCH (NON-MEDICAL)- CLEARANCE CERTIFICATE



Research Office

HUMAN RESEARCH ETHICS COMMITTEE (NON-MEDICAL)
R14/49 Prinsloo

CLEARANCE CERTIFICATE

PROTOCOL NUMBER: H17/08/27

PROJECT TITLE

A case study of resources consumption in the sharing economy:
AirBnB as tourist accommodation in Cape Town, South Africa

INVESTIGATOR(S)

Miss A Prinsloo

SCHOOL/DEPARTMENT

Geography, Archaeology and Environmental Studies/

DATE CONSIDERED

18 August 2017

DECISION OF THE COMMITTEE

Approved

EXPIRY DATE

13 September 2020

DATE

14 September 2017

CHAIRPERSON



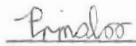
(Professor J Knight)

cc: Supervisor : Dr S Butcher

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and **ONE COPY** returned to the Secretary at Room 10004, 10th Floor, Senate House, University. Unreported changes to the application may invalidate the clearance given by the HREC (Non-Medical)

I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee. I agree to completion of a yearly progress report.


Signature

14 / 09 / 2017
Date

PLEASE QUOTE THE PROTOCOL NUMBER ON ALL ENQUIRIES

APPENDIX E: PARTICIPANT INFORMATION SHEET

School of Geography, Archaeology and Environmental Studies

Private Bag 3, Wits 2050, South Africa

Enquiries:

GEOGRAPHY:

ARCHAEOLOGY:

TEL: +27 11 717-6503

TEL: +27 11 717-6045

<http://www.wits.ac.za/geography/>



Participant information sheet

Dear potential participant,

My name is Ariel Prinsloo, a Geography Masters student at the University of the Witwatersrand. I am conducting a research project entitled: "A case study of resource consumption in the sharing economy: AirBnB as tourist accommodation in Cape Town, South Africa". I am interested in understanding the resource usage of AirBnBs in the context of the drought in Cape Town. This research will aim to contribute to knowledge of resource use in Cape Town and the literature around AirBnB. I am conducting this research in order to complete a Masters research thesis.

I would appreciate your time to interview you for relevant information and further possible contacts. You have been approached to be involved in this research due to your role as a host of an AirBnB whereby your experience with this online platform and running an AirBnB will provide invaluable data. Accepting to take part of this study means accepting to be interviewed by me. The duration of the interview is anticipated to take 30 minutes. I would like to take an audio recording of the interview, if applicable, with your consent.

I do not foresee any risks associated with this study. I will clarify all questions if needed. Should you not feel comfortable with answering questions at any time during the interview, it will be terminated without penalty. Your participation in this research is completely voluntary. You can withdraw from the study at any time. Information acquired in the interviews will be kept confidential. Anonymity cannot be guaranteed, as a publicly listed host; however I will not explicitly state personal identifiers, names or quotes unless consent is obtained. The transcribed digital recordings will be kept on a password protected computer. Data from this study will be used in my thesis (which will be available in the University of the Witwatersrand's library and online) and potentially in conference papers and academic articles.

You will not receive any personal benefits from this research. However, I hope through this research to understand the workings of AirBnB and to enlighten users about their resource use in the larger context of the drought as well as everyday usage. Once my final Masters thesis is complete I can make a summary of my research findings available if requested.

Should you have any questions or concerns regarding this research project at any point, please contact me or my supervisors through the contact details provide below.

Thank you,

Ariel Prinsloo.

Principal Researcher

Ariel Prinsloo

Email: 679845@students.wits.ac.za

Cell: 082 552 1351

Supervisor

Dr. Siân Butcher

Siân.Butcher@wits.ac.za

Phone: 011 717 9999

Co-Supervisor

Dr Jennifer Fitchett

Jennifer.Fitchett@wits.ac.za

011 717 6514

APPENDIX F: PARTICIPANT FORMAL CONSENT FORM

School of Geography, Archaeology and Environmental Studies

Private Bag 3, Wits 2050, South Africa

Enquiries: GEOGRAPHY:

ARCHAEOLOGY:

TEL: +27 11 717 6503*

TEL: +27 11 717 6045*

<http://www.wits.ac.za/geography/>



Formal Consent Form

I, _____ (Mark with an X if you do not want to disclose), consent to participate in an interview. I understand what this project is about, what is required of me and I wish to participate. The researcher has explained the following:

- The researcher has explained that the aim of her project is to understand resource usage of Airbnbs in the context of drought.
- The duration of the interview is anticipated to be 30 minutes and information I give will be stored and secured on a password protected computer and used in her final Masters thesis.
- My participation is voluntary and if I feel uncomfortable, the interview will be terminated without penalty. I can withdraw from the study at any time.
- All information I provide will be kept confidential and my name and/or quotes will only be used if I provide consent.
- The researcher will take an audio recording of the interview if I provide consent.
- The researcher does not foresee any risks or loss of benefits associated with this study.
- The researcher will provide a summary of her research findings available to me on request.
- Should I have any questions or concerns regarding the research, I have been provided with relevant contact details.

	Yes	No
I hereby agree to participate in the research.	☐	☐
I agree that the researcher may disclose my name in the thesis and any publications.	☐	☐
I agree that the researcher may use direct quotes in the thesis and any publications.	☐	☐
I agree to the interview being audio recorded.	☐	☐

Participant

Signature _____

Date _____

Principal Researcher

Signature _____

Date _____